The Impact of Services versus Goods on Consumers' Assessment of Perceived Risk and Variability

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With the development of service marketing concepts comes the need to test theory against consumer behavior. This study examines differences in perceived risk and variability between services and goods. In a controlled experiment whereby product stimuli were objectively placed along a goods-services continuum, data from consumers was collected focusing on six types of perceived risk and product variability. The findings of the study provide evidence that services evoke heightened risk and product variability perceptions.

INTRODUCTION

In view of the dominant role of the service sector in the industrialized economies of the world, services marketing represents a phenomenon of substantial interest. To date, however, much of the attention in services has been concerned with making a theoretical case that services are conceptually different from goods and that these differences point to special marketing management considerations (Eiglier and Langeard 1977; Judd 1964; Rathmell 1966; Lovelock 1983; Zeithaml, Parasuraman, and Berry 1985). Unfortunately, the empirical—in contrast to theoretical—basis for distinguishing key differences in substance or marketing strategy is limited.

Despite the call for a balance between qualitative and quantitative approaches to theory construction and validation (Arndt 1985; Bagozzi 1984; Brinberg and Hirschman 1986; Deshpande 1983), the development of services marketing thought has been heavily dependent on conceptual elaborations. Furthermore, empirical demonstration and verification of service marketing literature has been largely confined to nonexperimental research (for example, Biehal 1983, Swartz and Stephens 1984). Compared to empirical research involving nonservice products, experimentation which examines service marketing phenomena appears to be derived from operationally ad hoc definitions and spontaneous operationalizations of the service construct (for example, Guseman 1981; George, Weinberger, and Kelly 1985; George et al. 1984; Lewis 1976; Weinberger and Brown 1977). Thus, conclusions from experimental data, such as they exist, are divergent and the opportunity for replication is problematic.

Clearly, then, what is needed—as the discipline matures in this area—is a more rigorous research approach regarding services, one which can provide a process for replication and verification (Uhl and Upah 1983). To this end, the present research contributes to our understanding of goods/services, in three ways. First, an issue of considerable importance to marketers, perceived risk is addressed. While a rich literature exists which examines this concept in the context of traditional product marketing, far less effort has been devoted to the examination of perceived risk as it relates to services. No research has attempted to bridge the gap between goods and services marketing by examining the relationship of consumers' perceived risk for service relative to goods.

Second, this research extends extant services marketing thought by introducing a technique for operationalizing the service construct, for validating the construct and for using the construct in an experimentally controlled design to examine the phenomenon of perceived risk in a goods/services

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context. This approach responds specifically to the discipline's call for empirical examination of services marketing.

Finally, the independent variable in this study, goods/services products, is empirically determined based upon a market definition of product. Research results offer support for the notion that (1) products exist along a goods/services continuum (Johnson 1969; Levitt 1980; Shostack 1977), and (2) that services are perceived by consumers as possessing inherently more risk and variability.

REVIEW OF THE LITERATURE

An elaborate marketing literature exists in which perceived risk is recognized as a fundamental concept in consumer behavior (Bauer 1960; Bettman 1973; Cox 1967; Jacoby and Kaplan 1972; Kaplan, Szybillo, and Jacoby 1974; Lutz and Reilly 1973; Perry and Hamm 1969; Roselius 1971; Ross 1972; Shiffman 1972). Although there has been evidence that consumers may evaluate and purchase services in a different manner, compared to goods (Davis, Guiltinan, and Jones 1979; Johnson 1969; Lewis 1976; Weinberger and Brown 1977), there has been relatively limited research published which examines the relative risk perceptions of services. The results of only two studies (Guseman 1981; George et al. 1984; George, Weinberger, and Kelly 1985) have been disseminated in marketing publications which address this important topic and indicate that some consumer-related differences may occur. However, these research findings point to conflicting conclusions and neither empirical approach is without qualifications in terms of the research design employed.

The early Guseman (1981) study points to a difference in risk perception between services and goods, with services found to be riskier. In this particular study, the risk perceptions of ten goods (hosiery, butter/margarine, cough drops, felt-tip markers, tape recorders, bed mattresses, small personal leather goods, paint brush roller, wood stands, and typewriters) were contrasted to ten services (appliance repair, motel lodging, medical treatment, commercial bank services, clothes cleaning, motion pictures, spectator sports, dance instruction, auto rental, and apartment rental). Using a mail questionnaire directed to "the lady of the home" and a total sample of 192 women, Guseman (1981) found significant differences between types of products in an aggregate measure of risk.

While Guseman's (1981) findings are consistent with theoretical predictions of marketing scholars (for example, Zeithaml 1981) there are significant problems with the experimental design of the study. First, the stimulus products, although selected at random from the Standard Industrial Classification Code Book, lack homogeneity in terms of several key, consumer-relevant considerations. Intuitive analysis of both within- and between-product group comparisons strongly suggests large differences in terms of importance, cost, involvement, and familiarity to the consumer. It is not unreasonable to expect that such differences, as they may occur, would have a significant impact on the evaluative and risk perceptions of subjects (for example, Claxton, Fry, and Portis 1974; Jacoby and Kaplan 1972). Specifically, it is possible to attribute significant perceived risk differences between product groupings in this study to any or all of these other rival influences on the product evaluation by subjects. Furthermore, Guseman's (1981) study exerts little experimental control over subject behavior with respect to questionnaire completion. Generalizations, such as may be possible, are only applicable to female perceptions of risk. Also, although the study is laudable in its focus on a significant topic, more specific measures of perceived risk are available and relevant.

In a later study, George, Weinberger, and Kelly (1985) and George et al. (1984) attempt to examine risk perceptions between goods and services using a mall intercept format whereby 94 subjects rated eight products (four goods and four services) on seven risk dimensions. Attempting to control for "homogeneity" of products on a "tangible/intangible continuum," four product "sets" were designated by the researchers (eye glasses/eye exam; color TV/TV repair; carpeting/carpet cleaning; quartz watch/watch repair) whereby each paired "good" and "service" was presumably equivalent and equidistant (relative to an assumed continuum of products) with regards to tangibility/intangibility considerations. These research findings suggest that earlier generalizations about services being higher on all risk categories may not be entirely justified, that risk differences between goods and services may not exist.

The empirical approach of this study (George, Weinberger, and Kelly 1985; George et al. 1984), while addressing some of the previous experimental shortcomings of Guseman (1981), merits careful examination. Specifically, the study, by fiat, declares that certain product stimuli are "services" and others are "goods." While there is some face validity associated with each respective designation, the stimuli are clearly vulnerable to debate. An intuitive selection of product stimuli belies an absence of explicit criteria associated with operationalizing the construct for either goods or services. Lacking an objective means of construct determination, it is arguable that several operationalizations are such that the declared "service" retains a "goods" component, and vice versa. Furthermore, the derivation of a product "continuum" lacks explication and also appears to be strictly intuitive in nature, thus making replication—a hallmark of the scientific process—difficult.

While pairwise comparisons suggest a degree of "relatedness" among the selected products, several problems encountered by Guseman (1981) persist. An absence of experimental and/or statistical controls is evident and may have significantly influenced the data. Several aspects merit brief mention: expected cost differences between pairwise products were not explicitly identified nor controlled for, despite evidence that financial cost considerations have been shown to influence risk perceptions (Jacoby and Kaplan 1972); no specific control for subject familiarity of product experience is reported; sample composition considerations appear to have been minimized, despite the call for more uniform, homogeneous samples in cases involving theory validation/falsification (Calder, Phillips, and Tybout 1981); and, the lack of sufficient context for the rating task required of the subjects.

In short, the need for additional research which addresses the process and criteria for the inclusion of product stimuli in a test of perceived differences between goods and services is apparent. Consequently, this article will address this aspect of services marketing research and will proceed to describe the findings of an experiment which focuses on the perceived risk and perceived variability of goods and services.

Conceptualization of Goods and Services in Marketing Research

While a good can be conceptualized, at least in part, as a physical entity composed of tangible attributes which buyers purchase to satisfy specific wants and needs, the problems associated with the definition of a service have persisted to plague services research. Nonetheless, services marketing theorists have established a fairly broad consensus as to what characterizes service products (for example, Zeithaml, Parasuraman, and Berry 1985). Generalizations characterizing services include intangibility, simultaneity of production and consumption, inseparability, and nonstandardization. As an outgrowth of these conceptualizations, marketing thought has implicitly pointed to (1) the existence of an intrinsic dichotomy between market offerings of goods and services; and (2) the notion that marketing knowledge is inherently biased toward the marketing of goods and, therefore, not necessarily applicable in the service sector of marketing (for example, Bateson 1977; Lovelock 1979; Shostack 1977).

Despite the persuasive character of services marketing literature, some argue that there are few substantive differences between services and a generic concept of product marketing (Brown and Fern 1981; Wyckham, Fitzroy, and Mandry 1975). Scholars have proposed that consumers make expenditures not for goods and/or services but, instead, for value satisfactions they believe are bestowed by what they are buying (Enis and Roering 1981; Hollander 1979; Levitt 1980, 1969) and that products have varying degrees of tangibility-intangibility and "service" associated with them (Levitt 1981). Proponents of this view argue that goods-type and service-type products are not necessarily mutually exclusive.

One approach to resolving the conflict between traditional marketing thought and services marketing literature is to suggest a model that proposes the arrangement of all products along a continuum based on dimensions by which classical goods-services distinctions theoretically are made. Since *all* products can be observed to possess common properties, or dimensions (for example, Johnson 1969), the difference between products conventionally referred to as "goods" or "services" lie in the relative proportions that a particular product may have of each specific dimension (for example, intangibility, nonstandarization, etc.) as well as the perceived dominance of each dimension relative to all other dimensions involved in defining products. Indeed, marketing scholars support the concept of a spectrum to meaningfully arrange products, based on their perceived attributes (Aspinwall 1961; Rathmell 1966; Shostack 1977).

In short, a simple characterization of services qua services (and, implicitly, goods qua goods) is, at best, a crude generalization of the true nature of products and it is imperative that empirical research efforts in the services area explicitly recognize and incorporate measures which address this issue. Thus, this paper proposes that (1) there is a continuous range of products, rather than a simple, categorical dichotomy, and (2) premised on consumer perceptions, products can be meaningfully arrayed to reflect important marketing/purchase differences (Shostack 1977).

THEORY AND HYPOTHESES: SERVICE RISK AND VARIABILITY

Perceived risk is a multi-dimensional construct (for example, Jacoby and Kaplan 1972; Kaplan, Szybillo and Jacoby 1974; Roselius 1971) which implies that consumers experience pre-purchase uncertainty as to type and degree of expected loss resulting from the purchase and use of a product (Bauer 1960; Cox 1967). Types of risk include financial, performance, physical, psychological, social and convenience loss (for example, Jacoby and Kaplan 1972; Kaplan, Szybillo, and Jacoby 1974; Roselius 1971). In risk theory literature, degree of risk is determined using a variety of approaches (Ross 1972) and essentially involves the expected relative risk associated with a product purchase.

A number of predictions can be made which directly flow from the service marketing and consumer behavior literature with respect to risk and product variability. As noted previously, services have been typically associated with greater degrees of intangibility, simultaneity of production and consumption, and direct provider-consumer contact and, indirectly, nonstandardization (for example, Johnson 1969; Rathmell 1966; Zeithaml 1981; Zeithaml, Parasuraman, and Berry 1985). In view of these elements, the amount and/or quality of information available for services is diminished, and the amount of perceived risk is expected to be elevated (for example, Cox and Rich 1964; Spence, Engel, and Blackwell 1970). While there is necessarily some degree of risk which accompanies all purchases, it is predicted that more risk is associated with services than with goods (Guseman 1981; Lewis 1976; Zeithaml 1981). The following hypothesis, therefore, is offered:

H_1: Consumers will perceive greater overall pre-choice risk for services than for goods

In contrast to goods, many services typically involve costs which cannot be fully determined by the consumer in advance of the purchase decision, contributing to the uncertainty of outcome and, at the very least, a heightened degree of financial loss to the consumer. For virtually all nonservice market offerings, price is established prior to the purchase event and consumption; for services, however, this is not always possible, since many services are associated with variable completion times and/or component elements that are not completely identifiable in advance of the completion of the product, both of which might affect product cost.

For services where the price is standardized in advance of the purchase event, the actual benefits of the transaction are nonetheless variable. While the cost may be known prior to the decision to buy, actual product benefits are difficult to

fully ascertain prior to purchase. Thus, even for services when costs are fixed, the nonstandardization of services leads to uncertainty with respect to the real costs and performance of the product. Consequently, the following predictions are possible:

H_2: Consumers will perceive greater pre-choice financial risk for services than for goods.

H_3: Consumers will perceive greater pre-choice performance risk for services than for goods.

Although not true for all services, most entail some degree of human involvement as an integral part of the product. Furthermore, in addition to possible direct contact between the service provider and consumer, the service environment typically can include other individuals as well. Contact with others increases the opportunity for interactions of a sensitive or potentially embarrassing nature (for example, consumer uneasiness at expressing dissatisfaction or indecision, consumer fear of asking naive or foolish questions). For many purchases associated with nonservice products, the potential for this type of conflict is reduced, if for no other reason than the fact that the consumption of the product is not frequently at the purchase or provision site. Thus, it can be predicted that the relatively high degree of provider/customer involvement associated with simultaneity of production and consumption for services leads to the increased opportunity for social risk, the potential loss of esteem, respect, and/or friendship offered to the consumer by other individuals. Therefore,

H_4: Consumers will perceive greater social risk for services than for goods.

Several remaining types of risk have not been specifically addressed in current services marketing literature. These forms of risk include convenience, physical, and psychological loss. Convenience risk addresses loss of time and effort associated with achieving satisfaction with a purchase; physical risk addresses product safety and possible danger or harm related to product purchase or use; and, psychological risk relates to possible loss of self-image or self-concept as a result of product purchase or use. Without clear evidence in the literature for these remaining dimensions of perceived risk, the following predictions can be tested against acceptance of the null hypothesis:

H_5: Consumers will perceive no difference in pre-choice convenience risk between services and goods.

H_6: Consumers will perceive no difference in pre-choice physical risk between services and goods.

H_7: Consumers will perceive no difference in pre-choice psychological risk between services and goods.

Closely related to the concept of perceived risk is the notion of product benefit variability. Benefit variability can be associated with the inability to standardize many services (Booms and Bitner 1981). From a managerial perspective, factors influencing product variability include channel length and distribution configuration, the demand level, involvement of new or different service personnel and/or other customers in the service system, consumer cooperation, and other similar factors (Bateson 1979; Eiglier and Langeard 1977; Lovelock 1981; Sasser 1976). Mills and Margulies (1980) attribute this nonstandardization of services to the inability of service providers to isolate the "technical" core of the "manufacturing process" of services.

Thus, despite the opportunity for customized, individual-specific product benefits, other factors influence the ability of the provider to render benefits in a consistent, uniform nature. Consequently, there is expected to be particular uncertainty on the part of the consumer relative to the degree of positive and/or negative utility associated with a service (Berry 1984; Rathmell 1974). Therefore, it is predicted that

H_8: Consumers will perceive services to have greater variability than goods.

These hypotheses are intended to test the prediction that goods and services are associated with important consumer differences with respect to specific risk and product variation perceptions. Collectively they represent a synthesis of current marketing literature with respect to services marketing concepts.

METHODOLOGY

Previous experimental service marketing studies have assumed a priori products are "services" and that others are "goods" (for example, Guseman 1981; Weinberger and Brown 1977; George, Weinberger, and Kelly 1985). However, research efforts predicated on this approach to product definition present theoretical difficulties (Peter 1981), since conclusions premised on assumed operationalizations are necessarily suspect. Consequently, procedures are required whereby a respondent sample evaluates products in advance of the experimental manipulation, in order to determine whether the products are typically perceived as goods or services. To that end, a survey was undertaken to establish a range of products against which to subsequently test hypotheses relating to consumer risk perceptions of goods and services.

Phase 1: Pre-Experimental Study

Selection of Products for the Main Study. A large population of products was identified to be subsequently rated in terms of their respective goods/services components. Sources for the initial list of products included *The Simmons Study of Media and Markets*, the consumer *Yellow Pages* of a large U.S. urban metropolitan area, and the *U.S. Census Standard Industrial Classification*. Products were selected on the basis of their inclusion in consumer product categories for both goods and services as defined by each of the sources. A judgment sample of 235 product categories was collected.

A sample of 145 consumers, drawn from the population of the main study was asked to rate products, irrespective of any designation as "goods" or "services," in terms of their

relative goods or services qualities on a seven-point fixed interval scale from "Has extreme 'goods' properties" to "Has extreme 'service' properties." An arithmetic mean was computed for each rated product which permitted the arrangement of the entire sample of products to be rank-ordered in terms of their relative placement along a goods-services continuum. Product ratings took place after subjects had been given a brief description of six criteria (relative to tangibility, simultaneity of production and consumption, standardization, buyer participation, importance of the producer and perishability [See Murray 1986]) by which marketing literature typically distinguishes goods from services. To diminish respondent fatigue and bias, survey subjects were asked to rate sequentially a random subsample of no more than 50 products of the 235 initially identified.

To increase the precision of the product construct factors,

TABLE 1
Partial Pre-Test Product Rating Data

Low Perceived Service Identity Level of Independent Variable

Product	Good-Service Continuum Value (1-7)	Expected Product Cost ($)
• Windbreaker jacket	1.3	25.00
• Tennis racket	1.4	41.40
• Barbecue grill	1.4	47.70
• Small electric vacuum cleaner	1.5	39.60
• Pocket camera	1.6	21.30
Mean product value:	1.4	35.00

Moderate Perceived Service Identity Level of Independent Variable

Product	Good-Service Continuum Value (1-7)	Expected Product Cost ($)
• Auto re-upholstery (including installation)	3.5	43.40
• Smoke detector/alarm	3.5	25.30
• Furniture rental, sofa	3.6	31.50
• Auto muffler (including installation)	3.8	49.10
• Restaurant meal	4.3	21.50
Mean product value:	3.7	34.16

High Perceived Service Identity Level of Independent Variable

Product	Good-Service Continuum Value (1-7)	Expected Product Cost ($)
• Teeth cleaning by a dentist or hygienist	6.0	35.40
• Income tax advice and preparation	6.1	39.50
• Auto wheel alignment	6.1	24.60
• Professional interior decoration advice	6.3	37.30
• Eye exam	6.6	36.50
Mean product value:	6.2	34.66

pre-experimental subjects were asked to rate the perceived monetary value, or expected financial cost, associated with each product in terms of a seven point interval scale. In the determination of the factors of the subsequent experiment, the specific selection of products was limited to those falling in the expected cost range of $20 to $50. Since there is a direct correlation between cost and overall risk (for example, Jacoby and Kaplan 1972), this was expected to increase control of an important extraneous risk factor. To further increase experimental precision, the degree of a subject's familiarity with each product was measured by his or her rating on a seven-point interval scale. Only those products for which respondents expressed at least moderate familiarity were included in the final sample of products.

Products falling within the specified monetary value and familiarity range were arrayed along a goods-services continuum based on the mean score for each product. For purposes of this study, services were considered to be those products receiving a rating greater than 6.0 on a seven-point scale; goods were considered to be those products receiving a score of less than 2.0. Products characterized by roughly equal degrees of goods and service attributes were those falling in a mid-range of 3.5 to 4.5. Five goods, five services, and five "mixed" products were then selected as the independent variables for the study. The use of a sample of products was intended to increase the stability of the dependent measures (Minium 1978).

Table 1 shows a partial array of the survey data for these critical regions and, specifically, the products selected as factors of the independent variable.

Phase 2: Controlled Experiment

The purpose of this phase of the research was to experimentally assess the differing impact of goods and services on consumer perception of risk and expected product variability.

Experimental Design

The specific formulation proposed in this study is that of a completely balanced block (repeated measures) design with nested factors in a hierarchical arrangement. From an experimental perspective, this design minimizes error variance and obtains a relatively precise estimate of treatment effects,

TABLE 2
Experimental Design: Balanced Complete Block with Repeated Measures

Level of Service Characteristics of Product Administered as the Independent Variable*

	High 5 Products					Moderate 5 Products					Low 5 Products					
Number of Respondents	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	n
1 - 47	•					•					•					47
48 - 96		•					•					•				49
97 - 151			•					•					•			55
152 - 209				•					•					•		58
210-256					•					•					•	47
																N=256
Replications:	47	49	55	58	47	47	49	55	58	47	47	49	55	58	47	= 768

**Products represent empirically determined stimuli used as the independent variable in the study. Five product stimuli were selected from three disparate portions of a goods-services continuum. Subjects corresponding to numbers in left-most column were exposed to one product stimulus from each sample of five for each level. The product stimuli correspond to those identified in Table 1.*

thereby obtaining a more powerful test of a false null hypothesis (Green 1973; Kirk 1982). Pretests of the data collection instrument showed that confounding effects attributable to reactivity or order effects were not present with the design employed.

Sample

A total of 273 experimental sets were distributed to university students at a large, urban university in the southwestern U.S. However, 17 questionnaire forms were not completed properly, resulting in 256 acceptable response sets for tabulation and analysis. Of the sample, 120 subjects were males (46.9 percent) and 136 females (53.1 percent). The mean age of the sample subject was 23.8 years, with a standard deviation of 3.4.

Sample size for the proposed study was derived using an estimation approach based on expected mean differences of dependent measure scores with an adjusted confidence level of 95 percent and a .05 bound on the error of estimation. Table 2 shows the layout of the design and the accompanying sample utilized.

Procedures

To test the proposed hypotheses, the sample of young adult consumers was administered written purchase scenarios involving consumer products systematically varied and randomly selected from the 15 product stimuli isolated in the pre-test survey. Three levels of the independent variable (that is, product groups varying in goods/services characteristics) were administered to each subject in a role-playing context.

The hypothetical purchase scenario employed was adapted from Lutz and Reilly (1973) and Locander and Hermann (1979) and conforms to Bettman's (1972) concept of inherent risk for products varying in service attributes. The decision context of the purchase scenario was of a non-emergency nature, since purchase decisions reflecting emergency circumstances may involve abbreviated information search processes (Wright 1974). While scenario stimuli are employed in current marketing research (for example, Jackson, Keith, and Burdick 1984; Mowen et al. 1985; Puto, Patton, and King 1985), a number of considerations specifically favored the use of a role-playing methodology. This approach offered the opportunity to (1) incorporate existing and accepted risk operationalizations and scales (for example, Bettman 1972, 1973; Jacoby and Kaplan 1972; Locander and Hermann 1979; Lutz and Reilly 1973; Perry and Hamm 1969; Peter and Ryan 1976; Zikmund and Scott 1973); (2) use advanced statistical analysis of the data, including the assessment of the reliability and validity of dependent measures (for example, Churchill 1979b; Leigh 1983; Smith 1982) and their interactions (for example, Punj and Stewart 1983); and (3) to implement a repeated measures MANOVA design, thus maximizing the degree of experimental control over a wide range of important consumer purchase determinants.

The experimental treatments consisted of three levels of the independent variable from five potential product stimuli for each level, resulting in hypothetical situations. The sets of 15 feasible treatments were identical except for the product to be "purchased." Respondents were randomly assigned to treatment order of the independent variable and were presented with one factor from each level of the independent variable. Thus, respondents engaged in a projective purchase task for three products systematically varied in terms of relative "serviceness."

Statistical Analysis

The data of this research were analyzed by multivariate analysis of variance (MANOVA) procedure. As an extension of the classical MANOVA model to cases in which more than a single criterion variable is involved, MANOVA permits tests of differences involving correlated, multiple response variables, precluding the need to meet the assumption of compound symmetry required by the conventional analysis of a repeated measures design (LaTour and Miniard 1983). The merits of this statistical technique for this type of research have been explained in detail and cogently defined by Green (1973), Wind and Denny (1974), and Green and Tull (1978) and implemented by Locander and Hermann (1979). SPSSX statistical software was used to carry out these procedures.

Measures of the Dependent Variables

Immediately following exposure to each of the three projective purchase scenarios, subjects completed a self-administered questionnaire designed to measure product risk and variability for each respective product stimulus. Each construct was assessed using multiple measures to enhance conceptual validity (for example, Cook and Campbell 1975; Campbell and Fiske 1959). Specifically, questionnaire items measured subject response on 14 dependent variables: seven measures of perceived product risk (financial, performance, social, psychological, convenience, physical, and overall loss) and perceived product return (financial, performance social psycological, convenience, physical, and overall gain). Covariate measures of respondent age, sex and experience with the product class were also collected. In addition, the data collection instrument included appropriate manipulation checks to verify the intended effect of the independent variable.

Perceived Risk. Although the literature reflects a wide variety of measures of perceived risk, the measures employed in this research were intended to collect data on inherent risk (Bettman 1973). Consistent with other risk research (for example, Jacoby and Kaplan 1972; Perry and Hamm 1969; Reselius 1971; Schiffman 1972; Zikmund and Scott 1973), this study involved a number of specific factors associated with perceived risk in the purchase decision-making process. Perceived risk measures were derived from previous risk research literature (for example, Jacoby and Kaplan 1972; Peter and Tarpey 1975; Roselius 1971), although it was necessary to slightly modify item statements to accommodate products of a service nature. Six fixed interval scales were constructed and scored 1 to 7 (low to high loss). Overall perceived risk scores were obtained by summing across each

of the six loss dimensions for each respondent relative to each product type rated.

Product Variability. A measure of product variability is derived from the net perceived return model of Peter and Tarpey (1975) which proposes that consumer decision-making strategies are motivated by not only minimization of risk, but also the maximization of positive

TABLE 3
Validation Analysis of Dependent and Covariate Measures

A. Internal Consistency Estimates of Perceived Risk

Service Level	Model Components	Cronbach's Alpha
High	Mean risk	.861
Moderate	Mean risk	.797
Low	Mean risk	.802
Across all levels	Financial loss	.522
	Performance loss	.577
	Physical loss	.412
	Psychological loss	.607
	Social loss	.525
	Convenience loss	.764
	Overall mean	.877

B. Internal Consistency Estimates of Perceived Benefit

Service Level	Model Components	Cronbach's Alpha
High	Mean return	.804
Moderate	Mean return	.839
Low	Mean return	.814
Across all levels	Financial gain	.600
	Performance gain	.576
	Physical gain	.639
	Psychological gain	.475
	Social gain	.644
	Convenience gain	.723
	Overall mean	.878

C. Internal Consistency Estimates of Subjects' Product Experience

Service Level	Cronbach's Alpha
High	.924
Moderate	.895
Low	.905
Mean coefficient alpha value	.817

utility. A perceived return model is formulated identically to the perceived risk model, except for a focus on positive instead of negative utilities; conceptually, however, the two models are independent. While the net perceived gain model of Peter and Tarpey (1975) suggests that consumer decisions are based on net valences between positive and negative factors associated with a product or brand, this study, by contrast, adapts the net return model to reflect the absolute perceived valences associated with a product. In effect, this model is a combination of the risk and return models, the purpose of which is to quantify the perceived variability of the product utility. Products with comparatively greater degrees of both positive and/or negative valence imply greater respondent "uncertainty" with regard to product perception and, implicitly, the expectation of variability. Products with minimal perceived risk and/or gain are expected to be associated with small values of product variability. Bettman (1973) provides support for this inference.

Based on Peter and Tarpey (1975), items measuring specific types of perceived return were composed of six fixed interval scales and scored 1 to 7 and measure perceived financial, social, psychological, convenience, physical, and performance gain. Overall product return was obtained by summing across each of the six gain dimensions with respect to each hypothetical product purchase.

In addition to dependent measures associated with risk and variability, covariate measures tapping respondent gender, age and product experience were employed.

RESULTS

Analysis of the Experimental Manipulations

To test the efficacy of the product factors identified in pre-test procedures in terms of relative service attributes, a manipulation check of the independent variable showed that the factor levels of products had been significantly varied in the context of the experimental setting. Using a seven point scale, the ratings of each group of products were 6.32, 3.77, and 1.75 for service products, service-good product combinations, and goods products, respectively. Across all factors of the independent variable, the MANOVA F value for difference among the three levels of the independent variable was significant ($F = 1290.00$, $p < .000$) as were all planned comparisons using a Bonferroni multiple comparison t test approach for contrasts among the three means.

A seven point fixed response scale was used to measure respondent familiarity with the factors of the independent variable included in the research. The product familiarity mean score across all subjects and factors was 4.58 with a standard deviation of 1.653. Familiarity scores were 4.44, 4.44, and 4.85, respectively, for high, moderate, and low levels of the independent variable. These data suggest that the sample of products used in the experimental setting were familiar to the respondents.

Although the economic risk with respect to the perceived cost of each experimental operationalization (that is, each product stimulus) was not specifically examined in the experimental setting due to questionnaire length and subject fatigue considerations, the pre-test data indicated that the average perceived product cost for high, moderate, and low-service-attribute products was $35.66, $34.16, and $35.00, respectively. These data suggest that for the population sampled the economic risk across factors associated with the levels of the independent variable was controlled for with respect to approximate perceived cost equivalence.

Measurement Validation

Since multiple items were used to measure risk and variability constructs, the reliability of each measurement scale was assessed consistent with the assumptions of domain sampling theory (Churchill 1979a). Coefficient alpha data for perceived risk, perceived return, and respondent product experience were computed. All values revealed acceptable correlations with true scores and were consistent with Nunnally's (1967) alpha values for these operationalizations. These data are summarized in Table 3.

FINDINGS

The study hypotheses were concerned with the effects of goods and services on respondents' perception of general and specific measures of risk as well as perception of product variability.

Overall Perceived Risk

Hypothesis 1 predicted that overall perceived risk would be greater for services than for goods. MANOVA procedures indicated that services were associated with greater perceived risk ($F = 15.44$, $p < .000$). Bonferroni t tests to compare dependent measures among all levels of the independent variable were performed, with the overall alpha level set at .05 for each set of comparisons. The results of this test indicated that no significant differences were detected between the low and moderate levels of the independent variable, although there was directional support for the hypothesis. There were significant differences between the moderate and high levels of the independent variable ($t = 4.18$, $p < .000$) and between the low and high levels ($t = 5.40$, $p < .000$).

Thus support for Hypothesis 1 was encountered, leading to the rejection of the null hypothesis that there are no risk differences between goods and services.

Expected Financial Risk

Hypothesis 2 predicted that services would be associated with greater perceived financial risk than would goods. This variable was assessed with a measure derived from previous research examining risk phenomena (Brooker 1984; Jacoby and Kaplan 1972; Kaplan, Szybillo, and Jacoby 1974). While there was directional support for this prediction, the analysis failed to provide statistical ($F = 2.106$, $p < .124$) support at the $a < .05$ level.

Expected Performance Risk

Hypothesis 3 predicted that expected performance risk would be greater for services than for goods. This variable was assessed with a measure derived from previous research examining risk phenomena (Brooker 1984; Jacoby and Kaplan 1972; Kaplan, Szybillo, and Jacoby 1974). The MANOVA statistical analysis failed to support the stated hypothesis ($F = 1.075$, $p < 0.343$). Although the data points of the dependent variable suggest a nonlinear relationship, there is some directional support for the outcome predicted.

Expected Social Risk

Hypothesis 4 proposed that services are associated with greater social risk than goods. This variable was assessed with

TABLE 4
Review of Hypotheses Focus and Experimental Results

A. Summary of the Empirical Findings of the Service Variables

Hypothesis	Focus of Prediction	Empirical Evidence That Service Products Effect Significant Differences
1	Overall risk	Yes
2	Financial risk	No, despite directional support
3	Performance risk	No, despite directional support
4	Social risk	Yes
5	Convenience risk	Yes
6	Physical risk	Yes
7	Psychological risk	Yes
8	Product variability	Yes

B. Summary of the Statistical Results

Variable	Level of Independent Variable: Low	Med	High	MANOVA F Value	Significance Level	Bonferroni *t* test ($p < .05$) L-M	M-H	L-H
Type of Risk								
Overall	3.456	3.544	3.931	15.449	.000	No	Yes	Yes
Financial	4.185	4.225	4.454	2.106	.124	--	--	--
Performance	4.480	4.394	4.583	1.075	.343	--	--	--
Social	2.520	2.409	2.830	4.713	.010	No	Yes	Yes
Convenience	4.074	4.152	4.762	16.575	.000	No	Yes	Yes
Physical	2.669	3.157	3.630	27.452	.000	Yes	Yes	Yes
Psychological	2.777	2.965	3.293	7.966	.000	No	Yes	Yes
Perceived Product Variability	3.675	3.722	3.938	9.410	.000	No	Yes	Yes

a measure derived from previous research examining risk phenomena (Brooker 1984; Jacoby and Kaplan 1972; Kaplan, Szybillo, and Jacoby 1974). Results of the MANOVA analysis indicate that services are associated with greater expected social risk ($F = 4.713$, $p < .010$). Bonferroni t tests between the low and moderate level of the independent variable were not significant. However, the comparisons between moderate and high ($t = 2.990$, $p < .001$) and low and high ($t = 2.430$, $p < .008$) were statistically significant.

Expected Convenience Risk

Hypothesis 5 tests the null hypothesis that there are no differences in perceived convenience risk between goods and services. This variable was assessed with a measure derived from previous research relative to convenience risk phenomena (Roselius 1971). The null hypothesis was rejected in view of a significant MANOVA F statistic ($F = 16.574$, $p < .000$). Bonferroni t test statistics were not significant at the $a = .05$ level between low and moderate levels of the independent variable ($t = .630$, $p < .250$). However, contrasts between the moderate and high levels ($t = 4.919$, $p < .000$) and low and high levels ($t = 5.173$, $p < .000$) of the independent variable were significant.

Expected Physical Risk

Hypothesis 6 predicts that subjects would not perceive a difference in expected physical risk between goods and services. This variable was assessed with a measure derived from previous research examining perceived physical risk (Brooker 1984; Jacoby and Kaplan 1972; Kaplan, Szybillo, and Jacoby 1974). The MANOVA F test ($F = 27.452$, $p < .000$) was significant as were the Bonferroni t tests of planned comparisons among all means. These findings preclude acceptance of the null hypothesis and provide support for the notion that respondents perceive services as having greater perceived physical risk.

Expected Psychological Risk

Hypothesis 7 tests the null hypothesis with respect to differences in perceived psychological risk between goods and services. This variable was assessed with a measure derived from previous research examining perceived psychological risk (Brooker 1984; Jacoby and Kaplan 1972; Kaplan, Szybillo, and Jacoby 1974). Statistical analysis of the data indicates a significant MANOVA F value ($F = 7.966$, $p < .000$). Bonferroni t tests among means show a significant difference at the a .05 level among all means. Consequently, the null hypothesis was rejected, suggesting that services are associated with greater perceived psychological risk.

Perceived Product Variability

Hypothesis 8 makes the prediction that subjects perceive services to have greater variability than goods. The measure of the dependent variable in this test is the sum of the absolute ratings of respondents for perceived loss and perceived gain across all six measures of risk and return.

The MANOVA F test ($F = 9.410$, $p < .000$) was significant, indicating that goods and services are associated with differences in perceived product variability. Thus, the prediction of the hypothesis was supported by the data, that services are associated with greater perceived variability. Bonferroni t tests among the means reveal no significant differences between the low and moderate lives of the independent variable. However, significant t tests were found between the moderate and high ($t = 3.323$, $p < .000$) and low and high ($t = 4.377$, $p < .000$) levels of the independent variable.

A summary of the stated hypotheses and mean response scores for Hypotheses 1 through 8 is shown in Table 4.

DISCUSSION

This research suggests that product attributes can influence risk perceptions. That respondents would find services to have greater risk than goods, Hypothesis 1, was supported by the data. Consistent with the predictions of Zeithaml (1981), these data indicate that consumers make significant risk distinctions based on product attributes vis-a-vis a goods-services continuum. Although these findings have been previously suggested by services marketing literature, this research offers empirical support with experimental evidence.

Hypotheses 2 and 3 predicted, respectively, that greater financial risk and performance risk would be associated with services. Though these hypotheses did not achieve statistical significance, there was directional support for the predictions. Post hoc analysis using a model which included the covariate of respondent product experience did reject the hypothesis for respondents with low product experience in the case of both predictions. Specifically, it was found that for respondents who reported low-product experience, perceived performance and financial risk was significantly elevated for services compared to goods. Alternatively, high product experience respondents perceived no significant differences for these types of risk across all levels of the independent variable. These findings are consistent with the theoretical implications of the model proposed by Zeithaml (1981), which, for naive consumers, points to the absence of search qualities for services.

Hypothesis 4 predicts that services are associated with increased social risk. The data confirmed this expectation and are consistent with service marketing literature which points to direct provider-consumer contact which, in turn, suggests the potential for conflict (Bateson 1979; Eiglier and Langeard 1977).

Hypotheses 5, 6, and 7 test the null hypothesis and predict no difference in perceived risk with respect to convenience, physical safety, and psychological risk, respectively. For each dimension of risk, the null hypothesis was rejected and the data point to significantly increased perceived convenience, safety, and psychological risk associated with the purchase of services.

Hypothesis 8 predicts that the perceived loss/gain variability is greater for services than for goods. This hypothesis was confirmed in support of the theoretical expectation that services are associated with increased nonstandarization

in comparison to goods (Bateson 1979; Booms and Bitner 1981; Eiglier and Langeard 1977).

CONCLUSIONS AND RECOMMENDATIONS

The findings of this research indicate that consumers perceive services to be more risky than goods across several types of risk and more variable in nature. A number of managerial and theoretical implications flow from these conclusions.

Managerial Implications. In view of significant differences in consumers' perceived risk, the data suggest a prolonged consumer adoption and diffusion process for services and implicitly point to a need for marketing activities specifically intended to reduce risk. Several examples of marketing considerations are offered. Since services are frequently associated with greater levels of human interaction, the management of customer-contact personnel seems to be a particularly appropriate focus of marketers to decrease the opportunity for social and/or psychological loss to the consumer. The data suggest the need for service marketers to develop personnel screening and supervision techniques which specifically focus on identifying and cultivating skilled service providers who will minimize social risk for consumers.

In view of the role of experience in diminishing some types of perceived risk, service marketers may need to adopt strategies which specifically encourage consumer trial of the service product. Such strategies imply the need to offer services of an introductory nature, ideally at a reduced cost. Exposure to the service product of even a limited nature would permit the service consumer to acquire some "experience" in evaluating personnel, product benefit, and the purchase context generally, thus reducing uncertainty and perceived risk. This strategy by the service provider would specifically address financial and performance risk considerations. This approach is consistent with Zeithaml (1981) and Young (1981) who argue that consumers find post-purchase evaluation more essential with services than with goods, since services possess experience qualities which cannot be adequately assessed in advance of purchase.

Because of consumer perception of higher variability associated with services, a marketing mix strategy for services demands special attention to increased product uniformity. While the nature of many services is dependent upon the environment and other individuals in the service system, benefit uniformity can be advanced by ensuring the standardization of key factors in the service delivery process. These factors would include provider emphasis on promoting uniformity of the service context in terms of the physical setting and environmental conditions, generally. Insofar as possible, the service firm should seek to facilitate the continuity of interpersonal relationships between provider and consumer, thus diminishing the opportunity for the service customer to attribute variation in the service product to involvement with new or unfamiliar personnel. Also, since tangible cues appear to be relevant to the consumer prior to service purchase, tangible cues provided to the consumer after the service sale may be surrogate indicators of product uniformity. Examples of "tangibilized," post-purchase cues include a documented "personalized" financial plan (in the case of financial services), printed suggestions to be carried out by the consumer which serve to enhance the service benefit (following consultation with a physician, landscape architect, or tax advisor), a trinket or memento symbolizing a pleasant visit (to a restaurant, pediatrician, sports event, etc.), or a before-sleep snack in the form of a chocolate mint placed on a turned-down pillow (by a hotel or cruise firm).

Efforts to smooth product variation—and the perception of variation—should be complemented by measures which ensure minimal satisfaction levels to consumers by means of guarantees, money back offers, and similar augmented product strategies. Such measures would diminish financial risk in the face of heightened levels of uncertainty concerning product variability and, ultimately, utility for the prospective service consumer. Beyond these measures, service providers need to subtly yet consciously seek to manage expectations in such a way that consumer expectancies will be consistent with the delivered service utility.

Theoretical Implications. While services marketing literature suggests that services are more risky, this study represents an advance in a test of risk differences between services and goods and provides experimental evidence that services are perceived to more risky across several specific dimensions. These specific measures go beyond previous research and extend the discipline's understanding of consumer risk perceptions across goods and services. When respondent product experience is accounted for, the data show that all risk factors are significantly elevated for services. Thus, the study offers specific empirical evidence of differential consumer risk for all dimensions across a wide range of goods and services. In addition, confirmation of the prediction that services are perceived to be associated with greater variability represents a further substantiation of extant marketing theory.

The contributions of the present study are significant in view of the attempt of this research to quantitatively and empirically define service and goods products and the subsequent effort to experimentally assess the influence of such types of products on consumer perception and behavior. While there have been few attempts at empirical research in this area, the literature in this regard has been largely conceptual in nature and has not empirically identified products and services. However, this study is significant in its application of an experimental methodology to a research area in which conceptual or survey approaches have predominated, or in which the operationalization and control of the service variable from the perspective of the consumer lacks definitional and operational rigor. Specifically, this research demonstrates that it is possible to operationalize the concept of "services" and "goods" with sufficient articulation so that (1) as a variable it can be manipulated and (2) its variation as an independent variable can be reliably verified by naive subjects.

Second, in contrast to dependence on a single product or product class, the present research was able to incorporate a wide range, or "sample," of products in the experimental

paradigm. Since the experimental factors were not drawn from a defined universe, theoretical "generalizations" of the findings, in a strict sense, are not possible. However, the use of many different products to operationalize the independent variable suggests a wider application of the findings than would otherwise be possible with other, more narrowly focused research paradigms.

Third, the degree of experimental and statistical control associated with this paradigm is noteworthy. Control of the product factors in terms of perceived cost and respondent familiarity represents an important step in not only service marketing research, but also research associated with consumer risk perception. The analytic procedures represent a significant contribution to specifically controlling important individual differences which otherwise exert a confounding influence on dependent measures.

Future Research Directions. More experimental research in consumer behavior with respect to services is needed. A key issue relates to the development of adequate measures of consumer behavior involving services. Further study in the area should also seek to extend the scope of this study to include other product factors and sample populations from other consumer groups. While the findings here seem to show some consistency within the samples of factors of the independent variable and with the sample of subjects, the tentative conclusions with respect to perceived risk and variability need to be tested for their applicability to other factors and use groups.

It is also important that these findings be tested in a real world setting (that is, in terms of actual purchases of real products) to determine their true implications. A research context for evaluating actual consumer responses would conceivably entail the collection of data from a large sample of consumers with respect to their perceptions and behavior toward products varying in service attributes. With proper data collection and statistical controls, as suggested by this study, it would be possible to make a more deliberate determination of the importance of these data, based on actual purchase behavior of consumers.

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