PROFILE OF TYPICAL NONBUSINESS BANKRUPTCY PETITIONS FILED IN TEXAS FROM 1966 THROUGH 1984

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PURPOSE

The purpose of the study was to investigate nonbusiness bankruptcy petitions closed in Texas during the years 1966 through 1984 to determine the characteristics of individuals in Texas who filed for bankruptcy during these years. Specific information gained included: occupation, employment status, income, record keeping, prior bankruptcy, amount owed to creditors, secured debts, unsecured debts, volume of assets, mobility, age, sex, education, and marital status.

METHODS AND PROCEDURES

Sample Selection

The sample was drawn from the cities in each of the four federal judicial districts in Texas in which bankruptcy judges reside. This included the cities of Fort Worth, Dallas, Lubbock, Tyler, Houston, and San Antonio. A random number table was utilized to draw the sample.

Instrument

A Response Analysis Form was designed to record information from the bankruptcy petitions utilizing the format of the bankruptcy petitions. Bankruptcy petitions have three general categories: 1) Statement of Affairs; 2) Schedule A--Statement of All Debts of the Bankrupt; and 3) Schedule B--Statement of All Property of the Bankrupt. The Statement of Affairs included information as to name, residence, occupation, income, bank and savings accounts, identification of property transferred to others or held for others, legal action against the petitioners, and payments to attorneys.

On Schedule A, liabilities were classified according to three types: 1) debts having priority, 2) secured debts, and 3) unsecured debts without priority. Personal Property from Schedule B was divided into three broad categories. After the value of household goods was deducted, the remainder was divided into liquid and non-liquid assets.

The Reponse Analysis Forms consisted of three basic parts. The first part included 1) general information found in the Statement of Affairs, 2) payments to attorneys, 3) number of creditors owed and 4) the total amount of debts to creditors having priority. Part two categorized the debts of the bankrupt into seventeen different categories. The final section summarized all debts and assets of the bankrupt.

Since the study covers an inflationary period, all money figures in the findings were transposed to 1984 values. All figures were rounded off to the nearest dollar.

RESULTS

1. Nonbusiness bankruptcy petitions were most often filed by either married couples (46.8%) or males (35.5%).
2. The bankruptcy petitioners usually did not keep financial records.
3. The mobility rate of the sample was quite high (84% had moved in the last 6 years).
4. The majority of the bankrupts held white-collar jobs (46.7%). Ninety percent of the debtors were employed at the time the bankruptcy petition was filed.
5. The median income of the bankrupt was $18,509 and was derived primarily from occupation.
6. In 90% of the cases, the petition examined was the first bankruptcy filing for the petitioners.
7. A petition was most likely to be filed in the months of February, May or September.
8. The average amount of unsecured debts totaled $52,620 and secured debts equaled $34,931. However, there were an average of 22 unsecured debts as compared to an average of 4 secured debts.
9. The average number of debts per debtor was 29.
10. The average bankrupt owed four times his average salary. The largest debts owed by the petitioners were to banks ($15,422) and individuals ($14,418).

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THE ECONOMIC DETERMINANTS OF DIVORCE: ANALYSIS OF CROSS SECTIONAL DATA

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ABSTRACT

The rising incidence of marital dissolution has been a long standing social concern. This study investigated the economic factors affecting men's and women's decision-making on divorce using logit analysis. The findings of this study showed that the wage rate, child support, public assistance, and other income have positive effects on the probability of divorce for women, whereas different effects are found for men.

The incidence of divorce in the U.S. remains among the highest in the world. This study examines the economic aspect of divorce. As the rate of female labor force participation rises, more women become financially secure. How will this trend affect the probability of divorce? The impacts of changes in women's labor market potential and other income including child support and alimony on the probability of divorce are the focus of this research.

THEORETICAL FRAMEWORK

The framework of this study is developed on the basis of Becker's economic theory of marriage and household production theory. In addition, emotional goods and activities along with home produced physical goods are considered as the goods from which an individual derives utility. In this study, emotional goods are defined as marriage and marriage-related activities. It is assumed that emotional goods are produced with purchased goods and leisure time shared with other family members, conditioned on the given marriage specific capital such as the number of children and duration of marriage, and other demographic characteristics.

Assuming that each individual maximizes his/her utility from physical goods G, emotional goods E, subject to the production functions of G and E, the time constraint and budget constraint, one can derive indirect utility functions for divorce, Vd(Px, W, V;MC, D), and for remaining married, Vm(Px, W, V;MC, D), where Px is the price of purchased goods, W is the reservation wage rate, V is unearned income, MC is the marriage specific capital, and D is a vector of demographic characteristics. Then, an index function can be defined as follows:
$I = Vd(Px, W, V; MC,D) - Vm(Px, W, V; MC,D)$.
However, this index function is not observable. What one observes is,

Divorce = 1 if $I \geq 0$; and
Divorce = 0 if $I < 0$.

In other words, people will choose to divorce only if the indirect utility from divorce is greater than that of remaining married. Thus, $Prob(div) = Prob(I \geq 0) = f(Px, W, V; MC,D)$. This is the estimated equation for this study.

DATA AND METHODS

The sample is drawn from the Current Population Survey conducted in March/April 1982 by Bureau of the Census. The subsample consists of 815 individuals 18 years old or over. 427 of them are married individuals, and 388 are divorced or separated.

Instrumental variables are used to correct the simultaneity problem which arises because the amount of child support and alimony are simultaneously determined with the decision to divorce. The same technique is used to correct the selectivity bias which would be caused by using the wage rate as the opportunity cost of time. Binomial logit analysis, a maximum likelihood technique, is used to estimate two equations for men and women at the final stage of the data analysis.

RESULTS

The findings of this study showed that the reservation wage rate, expected child support, public assistance, and other income have positive effects on the probability of divorce for women, whereas the marriage specific capital such as the duration of marriage and number of children have negative effects. Age is found to be negatively related to the probability of marital dissolution for both men and women. The total impact of education is ambiguous due to high correlation with wage rate. Finally, men who have higher wage rates are found to be less likely to divorce than those who have lower wage rate. Most findings are consistent with the theoretic framework of this study.

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THE USE OF EXTERNAL DATA TO PROXY ECONOMIC CHANGE: AN APPLICATION TO MORTGAGE DEFAULT

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ABSTRACT

A review of econometric work on default behavior revealed that previous research exclusively used independent variables measured at the time of purchase to explain default behavior. Undoubtedly, from the viewpoint of the lender, such research is necessary to determine the factors affecting default before the loan is granted. However, the value of these independent factors may change over time. The risk of changes in incomes, housing prices, family composition, and, in an adjustable rate mortgage market, mortgage payments, is borne by the consumer. Scant attention has been given to those factors affecting the consumer's decision at the time of default. The inter-temporal aspects of housing need to be accounted for when modeling mortgage default. Thus, the first objective of this research was:

1) To determine the contribution of external data used to depict the factors affecting consumer choice at the time of the default decision.

Secondly, most research has modeled default as a function of loan-to-house value ratio and payment-to-income ratio rather than examining the effects of the component variables individually. If there are differences in default which vary by levels of income or wealth (housing equity) these differences may be concealed in the ratio results. Thus, the second objective was:

2) To compare the ratio and linear-additive specification in modeling mortgage default.

THE DATA

One hundred and sixty-four mortgage loans which became severely delinquent between January 1979 and December 1982 comprised the sample. All loans ended as a lender repossession (n=135) or as a total borrower repayment of principal (n=29). The population sampled were those loans adjudicated by the Hamilton and Toronto, Ontario, Canada offices of a large Canadian lender.

Data were collected from the initial loan application and loan approval form and from any subsequent applications or documents recorded at a later date. The information obtained from lender records of individual mortgage repayment histories allowed the recording of financial variables at several points in time. All dollar values were adjusted by the Canadian CPI with the shelter component removed to express the values in June 1981 Canadian dollars.

Data Justification

Canadian borrowers must use a Canadian roll-over mortgage, a variant of the adjustable rate mortgage, if they desire to mortgage finance the purchase of their principal residence. This will eliminate some selectivity bias in the results. Also, the Canadian economy, not unlike the American economy, was extremely volatile during this period with mortgage interest rates ranging from 11.05% to 21.46%. Also, house prices fluctuated with prices rising sharply in early 1978 and late 1980 through early 1981 but declined sharply during late 1978, early 1979, and through 1982. In addition, Hamilton and Toronto were very different economies during the period of interest with Hamilton's industrial, steel-based economy experiencing a recession and Toronto's economy experiencing a boom. These differences add variability to the sample.

Conclusion to Objective 1

The test of the null hypothesis that time of delinquency data is statistically insignificant when modeling default behavior was rejected in tests with both the ratio and linearly-additive specifications at the .005 level. Therefore, the available secondary data used to "update" variables to the time of the consumer action was important to the predictive power of the logit equation.

Conclusion to Objective 2

Ratio specifications indicated that higher payment-to-income ratios increased default probabilities. However, linearly-additive specifications indicated that default was negatively affected by higher incomes while holding mortgage payments constant. Additionally, mortgage payments were found to be non-significant in these linearly-additive specifications. The implication is that the significance of the payment-to-income variables is due to the income component and not the payment component. It was concluded that researchers should not rely on the ratio specification due to historical precedent; rather, they should choose a specification based on the purpose of their study.

With repsect to the consumer, these results indicate the importance of economic events following loan initiation on the ability of the mortgagor to meet contractual commitments. For this sample, the greatest risks of default were associated with lesser income and equity at the time of purchase as well as with changes in these same variables through time. These risks need to be understood by borrowers and the results suggest that those in occupations with variable incomes or in inflation sensitive industries face the risk of mortgagor non-performance. This is in addition to housing equity factors known at purchase.

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DETERMINANTS OF THE CONSUMER'S SEARCH FOR INFORMATION

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ABSTRACT

The purpose of this study is to examine the factors affecting the consumer's search for information and the relationship between the amount of search and the final price paid. The model indicates the demand function for search is affected by the market price of each durable good purchased, the time available for search, family income, direct cost of search, the initial stock of information, effectiveness of search, and shopping attitudes. The final price savings are a function of search, price dispersion in the market, the initial stock of information, and effectiveness of search.

INTRODUCTION

Statement of Purpose

As environments have become more complicated, consumers have achieved both the opportunity to choose and the concomitant burden of decision making. New information becomes the basic and essential ingredient of decision making. At the same time, the variety of available prices and the quality of products dramatically increases the time and effort necessary to gather information. Thus, the search for information becomes a more important part of the decision process for many consumers who are considering a purchase. The great majority of Americans feel that they are better informed shoppers than they used to be, and support increased government requirements that manufacturers provide consumers with more information.[2]

Comprehensive theories of consumer decision processes recognize the importance of searching for information and incorporating it as a construct in models of decision processes. Various mixtures of economic and psychological factors have shown up in many studies of consumer search behavior.

There are two general classes of literature about the consumer's search for information. Economists typically emphasize probabilistic model building and the impact of alternative specifications on what might be observed in different markets, often with relatively little testing of these predictions. On the other hand, the marketing literature on search tends to look for empirical relationships with relatively little theoretical work. Even within the marketing literature, two general types of research designs are found. Some researchers have gathered data from field studies while others have conducted laboratory studies.

Yet little is known about why we observe different amounts of search among consumers and how these varying amounts influence or are influenced by other salient decision constructs.

The objectives of this study are:
1. to develop an economic model of the relevant factors affecting the consumer's search for information and estimate the size and direction of the effects of those factors,
2. to estimate the relationship between the amount of search and the price paid for purchased goods, and
3. to formulate implications for consumer policy that will augment the benefit to consumers engaging in search.

Review of Literature

This research reviews the related literature of consumer behavior concerning the consumer's search for information. From the literature review, the following results are found. First, the definitions and measures of information search differ slightly according to the purpose of the research (Stigler 1961; Nelson 1970; Maynes 1976; and Engel and Blackwell 1982). Some researchers have developed their own measures (Katona and Muller 1954; Bucklin 1966; Udell 1966; Dommermuth and Cundiff 1967; Bennett and Mandell 1969; Newman and Staelin 1971, 1972; Claxton, Fry, and Portis 1974; Newman and Lockeman 1975; Alcaly 1976; Goldman and Johansson 1978; and Punj and Staelin 1983). Second, broadly speaking, three kinds of main information sources have been identified; advertising, interpersonal communication, and shopping (Bucklin 1965; Udell 1966; Britt 1967; Newman and Lockeman 1972; Ferber 1973; Maynes 1976; and Engel and Blackwell 1982). Each of them is used differently with respect to the kinds of product to be purchased, personal characteristics, and information content. Third, income, price dispersion, expenditure, and the level of education are found to have a significant positive relationship with the amount of information search (Katona and Muller 1954; Bennett and Mandell 1969; Bucklin 1969; Alcaly 1976; Marvel 1976; Maynes and Assum 1982; Carlson and Gieseke 1983; Hall 1983; and Zimmermann and Geistfeld 1984).

THEORETICAL MODEL

According to Neoclassical consumer demand theory, a consumer is confronted with the task of maximizing his utility in consuming goods and leisure subject to budget and time constraints.

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[2]The 1983 Whirlpool Report shows that more than 70% of respondents feel this way (America's Search for Quality 1983).

That is, utility maximization is a constrained optimization problem for consumers.

Now, suppose there is price dispersion in the market for durable goods. In order to discover what prices are being charged for a particular good, a consumer needs to search. Since it is costly to discover the lowest price, we might expect to see different prices paid by consumers. Suppose the available prices of durable goods depend on the amount of search undertaken, and consumers use a predetermined search procedure.[3] Information search takes money and time; the consumer sacrifices leisure time for search time, with work time held constant. Labor income, as well as non-labor income, is fixed in the short run. Differences in effectiveness of search and in initial stock of information can give different results on the savings from search and thus on both the optimal amount of information search and the final price paid.

Incorporating these assumptions in the above model yields the following maximization problem.

$$\text{Maximize } U = U(q_o, q_d, L) \quad (1)$$

subject to

$$P_o q_o + [P_d - R(S)]q_d + DC_d S = I \quad (2)$$

$$I = wM + V \quad (3)$$

$$T = L + M + S \quad (4)$$

$$R = R(S; \text{DISPER}, \text{INISTOCK}, \text{EFFSRCH}) \quad (5)$$

where

- U = the amount of satisfaction gained from (q_o, q_d, L)
- q_o = the quantity of all other goods
- q_d = the quantity of durable goods
- p_o = the per unit price of all other goods
- p_d = the per unit price of durable goods
- I = the family income
- w = the wage rate per hour
- T = total available hours
- M = the total hours of market work
- L = the hours of leisure
- V = non-wage income
- S = the time spent for search
- DC_d = the direct cost per unit of search for information on durable goods prices
- P_d = the average market price
- R = the price saving from search
- DISPER = the price dispersion of a durable good in the market
- INISTOCK = initial stock of information
- EFFSRCH = effectiveness of search

The final income constraint is:

$$P_0 q_0 + [P_d - R(S)]\, q_d + DC_d S = wM + V \quad (6)$$

Information search can influence the consumer's budget[4] in two ways. First, the consumer has to use some of his income for the direct cost of information search. This direct cost will produce the same kind of result as the reduction of income. Suppose income is reduced and durable goods are normal goods. If the good is normal, the income effect is positive. Thus, if the search activity decreases income, the quantity of durable goods demanded will decrease.

Second, search will reduce the unit expenditure on durable goods since the consumer can find a lower price through information search. The effect on goods purchased of finding a lower price is classified into two categories: the income and the substitution effect. A lower price alone would always induce the consumer to increase his purchase of durable goods (the Slutsky theorem). Also, a lower price affects the purchases of both commodities in another way, by increasing the purchasing power of the consumer's income.

The Lagrangian function for this maximization problem is:

$$G = U(q_0, q_d, L) + \lambda[I - p_0 q_0 - p_d q_d + R(S)q - DC_d S] \quad (7)$$

where $L = T - M - S$

λ = Lagrangian multiplier

The first-order conditions for utility maximization are obtained by taking the first partial derivatives of Lagrangian function with respect to the choice variables, S, Q_0, q_d, and λ. The solution differs from the usual results. The marginal benefits from search are equated to the marginal cost, which are in terms of the cost of time used to search, $\partial U/\partial L$ divided by the marginal utility of money and direct cost per unit of search.

$$(\partial U/\partial L)/i + DC_d = q_d \partial R(S)/\partial S \quad (8)$$

Before consumers start to search, they don't know the final price they will pay or the exact savings. The factor that affects their search is not the final price they will find but the expected benefit, which they can anticipate before search.

The cost of search consists of the opportunity cost of time involved and direct cost of information gathering such as transportation cost. Usually, the opportunity cost of time is represented by the wage rate. In this study, it is assumed that time worked in the labor market is fixed regardless of search activity, and that consumers have to use leisure time for search. Thus, the opportunity cost of search time can be

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[3] Refer to Stiger (1961) for a discussion of the 'predetermined search' and 'sequential search' models. In predetermined search, the consumer decides the level of optimal search comparing the expected benefits and costs of search, prior to actually implementing his search. On the other hand, in sequential search, the search decision depends on prices previously obtained.

[4] Lancaster (1966) developed a new theory of demand to analyze the effect of information on consumer behavior. He suggested that new information would change the preference of consumers. But, in this study, the new information is confined to affect only on consumer's budget constraint.

represented by the utility reduction through search weighted by the marginal utility of money, $(-\partial U/\partial L)/\lambda = (\partial U/\partial S)/\lambda$. Thus, the opportunity cost per unit of search on durable goods is perceived differently according to the level of total family income. This cost may lower the marginal costs of search for richer consumers relative to those for poorer consumers (Alcaly 1976).

Suppose the quantity of durable goods to be purchased has already been decided.[5] With $q_d = q_d$, the consumer now makes consumption decisions about other goods, search, and leisure, and q_d becomes a preference shifting variable. Thus, the demand for other goods, conditioned on the demanded quantity of the durable good, depends on discretionary income, not total family income, on the price of other goods but not the price of durable goods. The demand for search is conditioned on the quantity of the durable good to be purchased.

With this assumption, the effect of finding a lower price is quite different. Since the quantity of durable goods purchased is fixed, the consumer does not alter the amount of the durable good as the price of the durable good changes. Thus, there is no substitution effect between two goods when the consumer finds a lower price. Indeed, finding a lower price affects the consumer's decision about the demand for other goods by altering the family's discretionary income, $I - p_d q_d$.

In conclusion, the theoretical model can properly express the relationship between the endogenous variables, the amount of information search and the final saving, and exogenous determinants:

$$S = s (p_d, \text{T-M}, I, DC_d, \text{INISTOCK}, \text{EFFSRCH}, \text{SHOP} ; q_d) \quad (9)$$

$$R = f (S ; \text{DISP}, \text{INISTOCK}, \text{EFFSRCH}) \quad (10)$$

where
- S = amount of information search
- q_d = the quantity of durable goods
- p_d = the average market price
- T-M = the available time for search
- I = the family income
- DC_d = the direct cost per unit of search for information on durable goods prices
- INISTOCK = initial stock of information
- EFFSRCH = effectiveness of search
- SHOP = shopping behavior
- R = the price savings from search

The first equation, the demand for information search, will provide the measure of the effect of each variable on the amount of information gathered. In the second equation, the marginal productivity of search will be derived.

[5]This section applies the theory of conditional demand function by W. K. Bryant (1983) and R. A. Pollack (1971).

DATA AND EMPIRICAL MODEL

Data and Study Sample

Data from the Panel Study on Consumer Decisions and Asset Management conducted by the Survey Research Laboratory at the University of Illinois were used for the empirical testing. The analysis for this research used data collected from 1973 to 1975 and from 1977 to 1979 from both the Chicago and Peoria/Decatur samples. The One hundred and thirty-five married couples who had purchased a new household appliance during 1974 or 1977 were selected as the final sample.

Dependent Variables

The amount of information search as the dependent variable is represented by two different measures, the level of discussion with others and the number of stores visited. The data base utilized in this study specifically asked the consumers a series of questions about their sources of information in relation to their recent purchases:
"With whom did you discuss when to buy?"
"With whom did you discuss how much to spend?"
"With whom did you discuss where to buy?"
"With whom did you discuss what brand to buy?"
"How many dealers did you see before buying the items?"

The first four questions were answered in the following categories: 1) each other(spouse); 2) wife's relatives; 3) husband's relatives; 4) friends or neighbors; 5) sales people; 6) friends at work; and, 7) other. The last question was answered by the number of dealers consulted by the consumer. Responses to the first four questions are added linearly to indicate the amount of interpersonal information search by each consumer. And the number of stores visited is used to represent the degree of shopping.

Composite Indices for Shopping Attitudes

To construct the index for shopping attitudes, factor analysis was applied to twenty-two questions about shopping behavior.[6] Table I shows the name and content of each variable. Five kinds of shopping attitudes were distinguished by this analysis: desire to search, degree of experimenting, degree of comparison shopping, the perception of price-quality relationship, and brand loyalty. To create a separate index of each factor revealed by factor analysis, the relevant items which load highly on each factor are linearly added.

Other Variables

The information about the average market price of each product was taken from The Buying Guide Issue of Consumer Reports (1974 and 1977). The

[6]Since the objective is to define the dimensions of common vector space, Principal Factor Analysis is used for factor extraction, and the method of rotation used is Varimax.

Table 1. VARIABLES FOR CONSTRUCTING FACTORS

Factors	Variables	Factor loading
DESIRE TO SEARCH	New products don't interest me very much.	0.63727
	I seldom try anything new.	0.73246
	I always look for the best value for my money.	0.70417
	I hate to buy something and then find out that it is cheaper elsewhere.	0.77566
	It pays to read the weights on cans and package.	0.79745
EXPERIMENTING	I would rather wait for somebody else to try something than to try it myself.	0.58282
	I am a bit nervous about using anything try I haven't used before.	0.61262
	You're never quite confident when you use something new.	0.53683
	I prefer the old established brand.	0.53295
	I only buy new things if I have heard about them first.	0.47467
	I go for the things I know and have tried rather than things I don't know.	0.57246
COMPARISON SHOPPING	I compare all prices before I decide where to shop.	0.69557
	I am not one of those people who goes around comparing prices.	0.21304
	I try to watch every penny.	0.56791
	I always look around for bargains.	0.61691
PRICE-QUALITY	More expensive brand also taste better.	0.55439
	Cheaper goods are usually poorer quality.	0.55144
	The best brands are rarely reduced.	0.48911
	You always have to pay a bit more for the best.	0.50240
BRAND LOYALTY	I am always on the lookout for anything new in the stores.	0.46104
	I suppose I do a fair amount of experimenting with new products.	0.64750
	I enjoy trying new products.	0.66142

Buying Guide Issue, which is published annually, provides up-to-date prices on many hundreds of brands and models as well as brand and model ratings and general buying guidance. The final saving is defined as the difference between the average market price and actual price the consumer pays. It is calculated by the price information from the Buying Guide and the actual price reported by each consumer.

Time available for search is measured by some variables about the status of employment. Five different categories of ordinal scaling measure employment status: (1) no work, (2) part time only, (3) part time and second job, (4) full time only, and (5) full time and second job. The level of family income is measured by a variable with nine categories from under $7,999 to $52,000 or more. This represents total family income from all sources before taxes or any other deductions. The number of children in a household, which did not appear in the theoretical model, is included in this empirical specification. The justification for including this variable is that it can influence the effectiveness of search or the available time for search.

Level of education is usually assumed to represent ability and interest in searching and evaluating information. Buying experience, which suggests knowledge of retailers, products, and the purchase process, can have a substantial influence on search. This variable can be expressed by the total number of durable goods owned. The above two variables are usually used as the proxy for 'effectiveness of search' or 'initial stock of information.' These variables could affect search and their effects can be explained as the possible indicator of effectiveness of search or initial stock of information.

Finally, two variables from the theoretical model remain, the measure of direct cost of search per unit and price dispersion. There are no specific measures of these variables. However, their exclusion from the empirical model can be justified. First, since all the respondents lived in one area, it can be said that the direct cost of search per unit is the same for every family; that is, it is assumed that the distance between the shopping area and the home is the same for every family. Second, in the search model, since price dispersion and average market price are highly correlated, the effect of price dispersion could be captured by the inclusion of average market price. In the saving model, even though price dispersion is the relevant variable which has to be included, the omission of this variable will not make the estimated coefficients of included variables biased, because the correlations between price dispersion and the other variables are not high.

Model Specification

Using the theoretical model and the measurement of observed variables from the previous section, the empirical specification is as follows:

IS1 = s (AVGPRICE, HUSTIME, WIFTIME, FAMINC, TOTDURA, HUSEDU, WIFEDU, CHILD, H1, H2, H3, H4, H5, W1, W2, W3, W4, W5)

IS2 = s (AVGPRICE, HUSTIME, WIFTIME, FAMINC, TOTDURA, HUSTEDU, WIFEDU, CHILD, H1, H2, H3, H4, H5, W1, W2, W3, W4, W5)

SAVE = f (IS1, IS2, HUSEDU, WIFEDU, TOTDURA)

where

IS1 = total number of discussions about purchase
IS2 = total number of visits to shop
SAVING = the expenditure saving by search
AVGPRICE = the average price of each product in the market
HUSTIME = the available time of husband for search
WIFTIME = the available time of wife for search
FAMINC = the level of family income
HUSEDU = the level of education of husband
WIFEDU = the level of education of wife
TOTDURA = total number of durable goods owned in home
CHILD = the number of children in family
H1 = husband's desire to search
H2 = husband's degree of experimenting
H3 = husband's degree of comparison shopping
H4 = husband's perception of price-quality relation
H5 = husband's brand loyalty
W1 = wife's desire to search
W2 = wife's degree of experimenting
W3 = wife's degree of comparison shopping
W4 = wife's perception of price-quality relation
W5 = wife's brand loyalty

ESTIMATION AND RESULTS

Statistical model and Estimation

There are three issues of concern for the statistical estimation. First, the distribution of the number of discussions (=IS1) is highly skewed, so the original set of categories had to be recoded. The actual score of this variable is categorized into seven ordinal scales to make the variable normally distributed.

Secondly, the potential problem of multicollinearity was considered. From the correlation coefficient matrix, it is found that the level of husband's education is highly correlated with wife's education level (ρ=0.480).
To solve this problem, EDUC is created by adding the level of education of spouses together. Since the information search in this study is conducted by both wife and husband together, the use of EDUC can be justified to represent the level of education of the searchers.

Third, the available time the wife has for search may depend on the number of children in the family as well as on market work. That is, the variable which will affect search is not time

TABLE II. REGRESSION ANALYSIS OF INFORMATION SEARCH

INDEPENDENT VARIABLE	MODEL I (DEP=IS1) PARAMETER ESTIMATES	T-VALUE	MODEL II (DEP=IS2) PARAMETER ESTIMATES	T-VALUE
INTERCEPT	2.2754	1.044	-1.3406	-0.555
AVGPRICE	-0.0008	-0.867	0.0037	3.411*
HUSTIME	0.1733	0.856	0.2023	0.900
CWIFTIM**	-0.0106	-0.081	0.1392	0.958
FAMINC	0.1519	1.178	0.4936	3.449*
TOTDURA	0.0332	0.397	-0.1047	-1.125
EDUC	0.0145	0.242	-0.0217	-0.327
CHILD	0.0953	0.534	0.0560	0.283
H1	-0.0942	-1.474	0.0069	0.098
H2	-0.1038	-2.091*	-0.0418	-0.759
H3	0.1128	1.918*	0.0199	0.304
H4	-0.1649	-1.781*	-0.0348	-0.338
H5	0.0193	0.357	0.0383	0.638
W1	0.1385	2.253*	0.0544	0.798
W2	0.0288	0.693	0.0614	1.333
W3	-0.0714	-1.133	-0.0704	-1.007
W4	0.1248	1.432	0.1448	1.497
W5	-0.0115	-0.176	-0.0726	-0.999

* significant at = 0.1
** CWIFTIM = WIFTIME - (3.235 + 0.609*CHILD)
MODEL I : F-value = 1.722 Prob>F = 0.0478
R^2 = 0.2002 Adjusted R^2 = 0.0839
MODEL II: F-value = 2.613 Prob>F = 0.0013
R^2 = 0.2752 Adjusted R^2 = 0.1699

TABLE III. REGRESSION ANALYSIS OF SAVING

Dependent Variable: SAVING (=AVGPRICE - COST)

INDEPENDENT VARIABLE	PARAMETER ESTIMATES	STANDARD ERROR	T FOR H_0: a = 0	PROB>ITI
MODEL I: R^2 = 0.1139 (Prob>F = 0.0032)				
INTERCEPT	60.2323	48.9171	1.231	0.2204
IS11HAT	-38.7462	13.2278	-2.929	0.0040
IS2HAT	33.7558	9.8684	3.421	0.0008
EDUC	-2.6117	2.9582	-0.883	0.3789
TOTDURA	-2.9418	4.4799	-0.657	0.5126
MODEL II: R^2 = 0.0315 (Prob>F = 0.2387)				
INTERCEPT	14.8067	55.7402	0.261	0.7945
IS12HAT	6.8281	6.2640	1.090	0.2777
EDUC	-2.1301	3.0765	-0.692	0.4899
TOTDURA	-7.6380	4.4554	-1.714	0.0888

where IS11HAT = the estimated value of categorized level of discussions
IS2HAT = the estimated value of actual number of visit
IS12HAT = the estimated value of combined measure of information search

left-over from market work, but the amount left-over adjusted for the number of children. Thus, the variable CWIFTIM is defined.

Since the functional form of the empirical model was not known a priori, the linear additive specification is estimated by Ordinary Least Squares. The coefficients for each dependent variable are the partial derivatives of the linear additive equation.

Results and Interpretation

From the estimation by Ordinary Least Squares method, the following results are found (Table II and Table III). First, discussion with others as a method of information search mainly depends upon the respondent's shopping attitude. The level of discussions are positively influenced by each of the following - the wife's desire to search, the degree of the husband's comparison shopping, and the wife's perception of the price-quality relationship. But, the less the husband's perception of price-quality relationship, the higher the level of discussions.

Second, the number of visits to stores in search of information depends on the average market price of the product purchased and the level of family income. The higher the average market price and the higher the level of family income, the more stores visited.

Third, the final savings depend upon the level of information search. The more stores visited, the higher the final savings. However, the less the purchase is discussed with others, the higher the final savings.

CONCLUSIONS AND IMPLICATIONS

Several consumer policy issues result from this analysis. This research shows that the level of income is positively related to the number of stores visited. Since the direct cost of search is perceived more keenly by low income consumers, its effect is to make them search less than others. Consumer policy is needed to encourage the low income consumer to reach the relevant information easily and cheaply. For example, the development of an information institution that could disseminate relevant and neutral product information to low income families would be desirable.

Most important is the finding that information search does not always create saving. The result that discussions with others decrease the level of final savings suggests that the consumer could not evaluate or could not use the information from interpersonal search well enough to benefit. Thus, consumer educators need to focus on how information is processed.

In the highly complex markets, product information is insufficient - or at least not easily available at the right place and time. Sellers have little incentive to provide appropriate information for consumer decisions; the consumer with no search may face the potential risk of deception due to misleading information. Thus, the implications for policy-making from this research include a stronger regulation of the marketing of products and services in order to minimize the consumer's need for information and to decrease the importance of information gathering as a determining factor in good purchase decisions. Regulatory measures should be applied particularly to those items that involve heavy expenditure and are so infrequently purchased by the individual consumer or family that the scope for learning by experience is severely limited.

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MARKET LIFE CYCLES, PRODUCT DIFFUSION AND PRODUCT DIFFERENTIATION

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ABSTRACT

This paper develops an econometric model of product diffusion and differentiation and estimates the model using data on color television, black and white television and VCR sales in the United States from 1964-1985. The main hypothesis that product differentiation and new product introduction are more likely to occur as the demand for existing consumer durables slows at critical saturation levels is supported by the econometric results and by examination of historic occurances.

The introduction and diffusion of new products have been studied from the perspective of a variety of disciplines including both marketing and economics. However, some of the insight brought to bear by these studies is often lost during the translation from theory to empirics. In particular, there is often an interdependence between the demand and supply of related products that has generally been ignored in industry studies. For example, the timing of the introduction of new products may often depend critically upon demand conditions for a firm's existing product line. Similarly, demand for established products may be critically affected by the introduction of a new product. It is these types of interrelations, and how they develop over time, that this paper addresses.

The manner in which this paper goes about this is to empirically estimate a simultaneous equation system that yields demand and supply parameter estimates for a series of related goods within one relevant market. By looking at the statistical relationships between the demand and supply of related products over the sample period, inferences about how other similar markets may also develop over time.

The TV and VCR Market

A logical place to begin is by understanding the historic evolution of the market being studied, that of color televisions, monochrome (black and white) televisions and VCRs in the United States from 1964 through 1985. By the beginning of the sample period in 1964, 75.9% of U.S. households owned at least one black and white television set, while only 2.3% owned color televisions. The technology for the broadcast and reception of color picture had been available since the 1950's, but it wasn't until the 1960's that a majority of metropolitan stations began color broadcasts. Sales of monochrome televisions had leveled off in the early 1960s and serious marketing of color televisions did not begin until 1964 or 1965. By mid-1977, more households owned color televisions than black and white sets. It was during 1977 that many industry analysts were predicting that color television saturation and sales would not grow substantially beyond this point (Television Digest with Consumer Electronics, 1977, various issues). In mid-1977, SONY introduced its Betamax video cassette recorder in the U.S. By January of 1987, almost 40% of U.S. households own at least once VCR, while color television saturation had grown to 92% of U.S. households.

SECTION I.
THE THEORETICAL FOUNDATIONS FOR THE MODEL.

The major hypothesis of market development set forth in this paper can be stated rather succinctly: manufacturers are more likely to introduce new and/or differentiated products after the sales growth of its existing product line slows due to product saturation. In essence, if a manufacturer's existing product line is selling well, introducing a new product may detract from existing sales. As a result, manufacturers may be more likely to introduce a new product when existing product sales are low.

This hypothesis, coupled with some of the intuition provided by marketing models of new product growth and diffusion, can supply insight into how consumer durable markets may evolve over time.[2] Specifically, sales of successful new products often grow rapidly shortly after their introduction, as a combination of scale economies, increased competition, advertising and consumer "word-of-mouth" or "bandwagon" effects take hold. Over time, any product's saturation level (% of households owing one or more units of the good) will grow accordingly. Marketing studies of new product diffusion [1,2,4] have often observed that product sales will increase and then eventually attain a maximum level as the number of owners accumulate over time. This notion of the effect of saturation on demand, and ultimately on sales, suggests that it may be appropriate to include some measure of existing product saturation in any traditional demand specification.

With this in mind, this paper contains two specific predictions for the empirical results. The first prediction is that saturation of an existing product exerts a negative influence on product demand over some relevant range. Specifically, we would expect that increasing product

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[2] The theory of market development set forth in this section is most applicable to consumer durable products sold on a fairly competitive retail level such that the ability of any one firm to "lock in" consumers early on in the product's life-cycle is minimized.

saturation has a positive effect on sales at low saturation levels as "word-of-mouth" or "bandwagon" effects set in. Conversely, increasing product saturation should eventually exert a negative influence on demand above some "critical" saturation, which can vary from product to product. Once this critical saturation (call it SL*) is attained, additional sales growth should become increasingly difficult as increasing saturation decreases product demand (which should lower the product's price and quantity sold). As a result of the fall in the quantity sold and price of the existing product, producers will look to the introduction of inew products to sustain profit and sales growth in general. This leads to the second prediction: there is an inverse relationship between the price of established products and the supply of newly developed products.[3]

SECTION II.
THE DATA.

Monthly sales (quantity), price and saturation data were collected for monochrome (black and white) televisions and color televisions from January, 1964 through October, 1985. This represents 262 time-series observations. Monthly sales and price data were also collected on VCRs from January, 1978 through October, 1985. For each of the three products, monthly retail sales and saturation figures were obtained from Television Digest with Consumer Electronics, an industry trade publication. The Producer Price Index (PPI), published by the Bureau of Statistics (BLS), was used for the price data wherever possible. Since the PPI was not available for all products for all years, a retail price index was constructed for years in which the PPI was not available. This index was constructed in three steps. First, advertised retail prices for products matching the description employed by the BLS in constructing the PPI were collected from New York area newspapers. Second, a mean advertised prices were then adjusted so that both series had equal mean and variance for the overlapping years.

In addition, data on factors influencing demand and supply decisions were collected from a variety of sources: data on disposable income was obtained from the U.S. Department of the Commerce; data on the average civilian unemployment rate and on the average hourly earnings for U.S. manufacturing workers were obtained from BLS; data on the average price of manufacturing labor in Japan and on the dollar-to-yen exchange rate were obtained from the OEDC; data on a Japanese stock market index was obtained from Business Conditions Digest; and finally, the University of Michigan's Survey Research Center's Consumer Sentiment Index and Standard and Poor's Composite Stock Index were also used. All data was adjusted for seasonal factors and inflation.

[3] The specific theoretical model developed in the study is detailed in Putsis (6). Hanemann (5) provides an excellent discussion of the economic foundation of the discrete choice model employed in Putsis (6).

SECTION III.
THE EMPIRICAL MODEL.

Given the theoretical intuition behind the model, one difficult issue to resolve is that of appropriate functional form for, and method of, empirical estimation. Simple estimation of the demand or supply specifications by ordinary least squares is not appropriate since demand and supply are clearly interrelated. Changing supply of existing products, the introduction of new products and market conditions for competing and complementary products affect the demand for any good; demand conditions simultaneously affect supply. With this in mind, a simultaneous system of demand and supply that specifically accounts for cross-product relationships was estimated using three stage least squares:

$$Q^d_i = f^d_i \text{ (PRICE, PRICE REL, INCOME, SL, SLSQ, AGESTOCK, UEMP, CC, CS)} \quad (3.1a)$$

$$Q^s_i = f^s_i \text{ (PRICE, PRICE-REL, PLABORUS, PKAPUS, PLJP, PKJP, EXRJAN)} \quad (3.1.b)$$

Subscript i denotes the three products studied: monochrome televisions, color televisions and video cassette recorders, respectively. Q^d_t signifies quantity demanded in period t. PRICE and SL represent the durable's price and saturation level, respectively. SLSQ is equal to the product's saturation rate squared. INCOME denotes per-household income and AGESTOCK is a variable adjusting for the average age of the outstanding stock. PRICE-REL represents the price of related (complementary and substitute) goods. UEMP, CC and CS denote the aggregate civilian unemployment rate, the University of Michigan's index of consumer sentiment and outstanding consumer installment credit, respectively. On the supply side, PLABORUS and PKAPUS are variables representing the price of labor and the price of capital in Japan. Finally, EXRAN is the dollar-to-yen exchange rate. The later variables were added to the supply-side specification because each of the products are produced, either in part or in whole, overseas.

The saturation rate variable is specified with a corresponding square term for a variety of reasons. First, it provides us with an estimate of a saturation rate that maximizes demand. Second, specifying it in this fashion produces an equation, (3.1), which is very similar to many of the marketing models of new product growth [1,4]. This allows for a direct comparison of the models and results. Third, it is the simplest of all non-linear specifications.[4]

[4] If we specify the demand function as in (3.1), the critical saturation level of any product, SL*, is the saturation level at which the partial derivative of product demand with respect to product saturation equals zero.

With respect to supply, neo-classical production theory suggests that output supply equations should generally be specified as a function of the output price of the product being produced, as well as the price of inputs in the production process. In this specification (3.1), the output goals of this study is evaluating the between-product interaction from a supply, as well as demand, perspective, the appropriate supply-side model to be used is that of a firm producting more than one output. The literature on such firms suggests that supply equations, in the case of "multi-product" firms, should include the output price of all related products as well as the "own" output price.[5] Accordingly, the supply specification of (3.1) includes cross-output prices as well as the price of the output corresponding to the dependent variable.

Thus, an equation system of the form of (3.1) was estimated for monochrome and color televisions over the period 1964-1977 and for all three products from 1978-1985. Dividing the sample into two sub-samples was necessary because of the fact that VCRs were not available until mid-1977. Thus, an equation system including color and monochrome televisions only was the relevant system prior to the introduction of the VCR and the relevant system included all three products after 1977.

SECTION IV.
RESULTS.

Recalling the discussion in Section I, two predictions were made about the empirical results obtained by estimating the system (3.1). The first prediction stated that increasing saturation should exert a positive influence on demand at low saturation rates and a negative influence on demand at saturation levels greater than some critical level. In addition, via the specification of the saturation level variable in the system of equations (3.1), an estimate of the critical saturation (SL^*) at which demand begins to slow can be derived.[6] The decline in price of an established product (due in part to increasing saturation) is expected to promote the introduction and supply of new products. Thus, the second prediction is that there is an inverse relationship between the price of established products and the supply of new products.

[5] See Beattie and Taylor (1985).

[6] Provided, of course, that: 1) the estimated coefficients on the saturation level (positive) and saturation level squared (negative) variables were of the correct sign and statistically different from zero and 2) the estimated critical saturation was between zero and one. Conditions (1) and (2) were met for all three products accross both sample periods.

[7] During the first period, the established product grouping was monochrome televisions, while the newly introduced product was color televisions. In the second period, VCRs were the newly introduced product, while both monochrome and color televisions were established.

Figure 1 graphically portrays the estimated relationship between product saturation and demand.

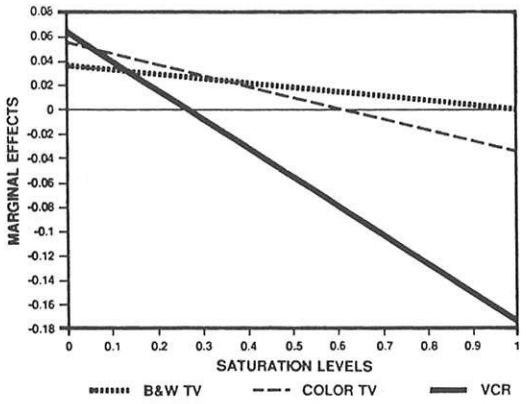

Figure 1. The estimated relationship between product saturation and demand.

The estimated critical saturation level for monochrome televisions is 62.1%, a level that was attained in the late-1950's. The estimated critical saturation level for color televisions is 95.3% and 27.1% for VCRs, respectively. Each of the estimated saturation coefficients were statistically different from zero at all practical levels of significance. Note that the estimated critical saturation for all three products (Figure 1) followed the predicated pattern suggested by the discussion in Section I.

The second prediction of a negative relationship between the price of established products and the supply of new ones also held up well under the scrutiny of the empirical results: the estimated coefficient on the price of monochrome televisions in the color television supply equation over the first period (1964-1977) was negative and statistically significant; the estimated coefficients on the price of both color and monochrome televisions in the VCR supply equation over the second period (1978-1985) were negative and highly significant as well.

The empirical results are consistent with the theory outlined in Section I and they can be used to help understand the development of the general market for video products over the past three decades. In particular, a repeating pattern of differentiation and new product introduction seems to have occured in the market for video products over the life of the sample. Color televisions began to be mass-marketed and widely advertised shortly after the saturation level of monochrome sets attained its estimated critical saturation level of 62% and shortly after monochrome sales began to slow. Supply-side results suggest that this slowing demand contributed positively to the supply of color televisions. Similarly, VCRs were introduced at a time when color television sales appeared ready to plateau and when industry experts were predicting a continued slowing of

sales growth. Again, supply-side results suggest that depressed conditions in the market for televisions contributed positively toward the supply of VCRs during the late-1970s. Now that VCRs have exceeded its critical saturation level of 27%, we are beginning to observe product differentiation at a low level (stereo, dolby and dubbing capabilities for example). If history repeats and the empirical results are correct, we should begin to see a series of new video products introduced on a wide scale in the U.S. over the next year or two in addition to video camcorders.

SECTION V.
CONCLUSION.

The theory of product differentiation and market development over time appears to be supported by the results and by market occurances over time: the theory has met the minimum requirement of consistency with the empirical results. Note that the results are consistent with the theory outlined in Section I, but they do not conclusively test the theory. Nonetheless, we are able to set forth a fairly convincing story of the development of the market for video products over the life of the sample based upon the empirical results. The theory as outlined in Section II holds promise for explaining new product introduction and subsequent sales growth in other consumer durable markets. Future research must test the robustness of the theory to see whether or not other markets develop similarly over time.

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ARE CONSUMERS' LEARNING AND DECISION-MAKING RELATED PHENOMENA?

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ABSTRACT

This research explored the interrelations between individuals' learning styles and their related consumer decision-making styles. A Secondary Learning Styles Inventory was developed to measure six characteristics of learning, and a Consumer Styles Inventory was developed to measure eight major characteristics of consumer decision-making. Correlation and contingency table analyses indicated significant relations between 28 of the 48 learning and consumer-decision-making pairs of characteristics. These unique findings reveal important linkages between human learning and consumer decision-making, with implications for the practice of consumer education and the dissemination of consumer information.

The decisions a consumer makes to purchase products and services are based on a process of learning. This is an almost axiomatic statement to consumer educators and those involved with consumer-interest studies in general. But even though we assume that consumers' learning and decision-making are related phenomena, this relationship has not been systematically explored in consumer research.

The research reported in this paper explores these relationships between individuals' learning styles and their consumer-decision making styles. Specifically, we introduce two recently developed methods for measuring learning styles and consumer-decision making styles, and examine the intercorrelations of learning and decision-making styles based on these measures. As we shall see, there are important relations between an individual's general style of learning and their specific styles of consumer decision-making. These relations have especially important implications for the development of effective consumer education and informational programs, particularly in understanding how differences in individual approaches to learning lead to widely different consumer decision-making styles.

BACKGROUND AND THEORETICAL FRAMEWORK

We begin by summarizing the conceptual frameworks for measurement of learning styles and consumer decision-making styles. Since the measurement of learning styles is relatively new, and may be less familiar to some consumer educators, we will introduce this in some depth followed by a brief introduction to consumer decision-making styles.

A learning style is defined as "the way each person absorbs and retains information and/or skills" (Dunn, 1984 p. 12). Each learner has an individual learning style, which is thought to be an enduring, patterned and preferred mode of learning. An individual's learning style may be characterized across many dimensions, much as individual personality is characterized by psychologists into "personality characteristics."

The investigation of learning styles is relatively new to education, having started principally in the 1970's. Springing from early work on cognitive style (e.g., Kirby 1979), several major approaches to measuring and characterizing learning styles have evolved. Exemplifying the range of approaches are those in comprehensive and seminal books by Dunn and Dunn (1978) and Kolb (1984). For reviews of other established and emerging approaches, see publications by the National Association of Secondary School Principals (1979, 1982), Gregorc (1982), Knaak (1983) and Dunn (1984).

Various investigators characterize learning styles across many dimensions. Some focus on cognitive aspects, such as abstractness and concreteness in learning style, and some consider emotional-psychological dimensions, such as motivation and responsibility. Others consider teaching rather than learning style characteristics, such as students' preferences for teaching methods (i.e., lectures, discussions, labs, etc.). Because a central goal in understanding learning styles is the characterization of how the mind operates when learning, most well-known methods include the cognitive and affective (i.e., emotional, motivational) characteristics of learning styles.

One of the most well-developed approaches to learning styles, from both the theoretical and empirical perspectives, is based on the experiential learning theory of Kolb (1984). Because of its extensive theoretical development and empirical validation, Kolb's work is the basis for the learning styles measure used in the present research. This approach is basically cognitive and has been derived from diverse foundations, including the psychological type theories of Carl Jung, the cognitive development theories of Jean Piaget, the social psychology of Kurt Lewin, and the experienced-based learning advocated by John Dewey.

Though the complete theory is intellectually complex, the underlying structure of the theory is straightforward. Basically, learning is conceived as a cycle of four stages: (1) learning starts with certain concrete experiences, (2) from which individuals make certain observations, (3) from which they then develop more abstract generalizations, (4) which they then test and revise in new situations.

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This conceptualization also suggests an important hypothesis that learners use the following four different modes of learning abilities to succeed:

1. Concrete experience abilities, or an openness to being involved with new experiences and new situations openly and without bias (with emphasis on an intuitive rather than analytical learning).
2. Reflective observation abilities, or an ability to understand the meaning of ideas, experiences or situations by careful observation (here, open-mindedness and thoughtful judgment are important).
3. Abstract conceptualization abilities, or the ability to integrate concepts into theories (this emphasizes analyzing and thinking).
4. Active experimentation abilities, or the ability to actually apply theories or ideas to practical applications or to solving problems.

The modes of concrete experience and abstract conceptualization are theorized to be the opposite skills of one another, as are reflective observation and active experimentation. Thus, Kolb proposes two underlying dimensions to the learning process: (a) the concrete to abstract dimension, and (b) the active to reflective dimension. Theoretically, each individual falls toward one extreme or the other on each of these two dimensions. For example, one learner may learn more in concrete terms and less in abstract terms (or vice versa); similarly, a reflective learner may be less likely to be an active learner. In short, it is hypothesized that individuals tend to place more emphasis on some modes of learning and less on others.

Overall, Kolb's work provides a very advantageous base for characterizing the structure of learning styles. It has a well-developed theoretical foundation, probably the most complete published. Furthermore, the theory is current, and is highly visible as a result of previous publication (i.e., Kolb's seminal 1984 book). Kolb provides a fairly complete yet parsimonious theory to use. His primarily focus, how the mind operates as the learner encounters learning experiences, is a particularly appropriate concept of learning style. And finally, Kolb's Learning Styles Inventory (1976, 1984) has been established as a reliable and valid empirical operationalization of experiential learning theory.

The only significant limitation of Kolb's instruments is that they are abstract in content and can be used only with adult, college-educated individuals. To adapt Kolb's theory and methods to a younger and broader population, Kendall and Sproles (1986) developed a Secondary Learning Styles Inventory to measure the characteristics of learning at the secondary school age level. Based on administration of this instrument to 482 high school students, the experiential learning theory was partially confirmed but additional characteristics of learning were found as well. The research identified six characteristics of learning: (1) Serious, Analytical Learner, or one who enjoys thinking through difficult material in a serious and often abstract manner; (2) Active, Practical Learner, or a person who enjoys learning by doing, with a highly practical and experience-oriented preference for learning; (3) Observation-Centered Learner, or one who enjoys first seeing and then doing in their learning experiences; (4) Passive, Accepting Learner, or one who is a quiet, basically uninvolved learner who tries to absorb what they hear and reflect on it as a learning preference; (5) Concrete, Detailed, Fact-Oriented Learner, or a person who enjoys "nitty-gritty," meticulous details of the learning experience; and (6) Non-Adaptive, Struggling Learner, or one who feels uncertain in their learning and perceives learning as a difficult experience. This model of six learning style characteristics has been further confirmed by Kendall, Cox and Sproles (1986), on a sample of over 2,000 high students throughout Arizona. Thus the Secondary Learning Styles Inventory appears to have validity and generalizability to large populations of younger learners, and is appropriate to measure learning styles for the present research.

Now we turn briefly to the measurement of consumer decision-making styles. A consumer decision-making style is defined as "a mental orientation characterizing a consumer's approach to making consumer choices" (Sproles and Kendall, 1986). Relevant literature suggests consumer styles may be characterized by the lifestyle approach, the consumer typology approach, and the consumer characteristic approach (e.g., Bettman 1979, Jacoby and Chestnut 1978, Maynes 1976, Miller 1981, Sproles 1984, Wells 1974, and Westbrook and Black 1985). Based on this literature, Sproles and Kendall (1986) developed a Consumer Styles Inventory that measured eight basic characteristics of consumer decision-making styles: (1) Perfectionistic, High Quality Conscious Consumer, a characteristic measuring the degree to which a consumer searches carefully and systematically for the best quality in products; (2) Brand Conscious, Price Equals Quality Consumer, or one measuring a consumer's orientation toward buying the more expensive, well-known national brands; (3) Novelty and Fashion Conscious Consumer, a characteristic identifying consumers who appear to like new and innovative products and gain excitement from seeking out new things; (4) Recreational and Shopping Conscious Consumer, a characteristic measuring the extent to which a consumer finds shopping a pleasant activity and shops just for the fun of it; (5) Price Conscious, "Value for Money" Consumer, a characteristic identifying those with particularly high consciousness of sale prices and lower prices in general; (6) Impulsive, Careless Consumer, one identifying those who tend to buy at the spur of the moment and appear unconcerned how much they spend or getting "best buys;" (7) Confused by Overchoice Consumer, or those consumers perceiving too many brands and stores from which to choose, and experiencing information overload in the market; and (8) Habitual, Brand Loyal Consumer, a characteristic indicating consumers who may have

favorite brands and stores, who have formed habits in choosing these repetitively.

METHODOLOGY

The Secondary Learning Styles Inventory and the Consumer Styles Inventory were administered to all 501 students in 29 secondary home economics classes in five high schools in the Tucson area. The high schools included urban, suburban and rural locations and represented the socio-economic and cultural groups in the area. All questionnaires were edited and those with incomplete or unlikely responses were deleted, resulting in 482 useable questionnaires. Demographic data indicated subjects were broadly representative of high school home economics students in the Tucson area.

Using data from the sample of 482 subjects, the learning styles characteristics were confirmed by factor analysis. Similarly, consumer decision-making styles characteristics were identified by a separate factor analysis. In both factor analyses the principal components method with varimax rotation of factors and communality estimates of 1.0 were employed. Further details of this methodology and validation of measures are reported in journal articles elsewhere (Kendall and Sproles 1986, Sproles and Kendall 1986).

Factor scores were calculated for each individual for each factor identified in the two factor analyses. Using these factor scores as a data base, two approaches were used to explore the interrelationships between individuals' learning styles and their consumer decision-making styles: (1) Pearson Correlation to assess the basic association between each learning style and consumer style characteristic, and (2) contingency table analysis of high (top third) versus moderate to low scores (middle to bottom third of scores) on each pair of learning style-consumer style characteristics. These analyses provide two perspectives on the data, an individual-level analysis of associations, and a group-level analysis. Thus, this gives a comprehensive univariate exploration of the data.

RESULTS AND DISCUSSION

Table 1 presents the correlations of each individual consumer style and learning style characteristic, and Table 2 summarizes the contingency table analysis. Table 2 reports only the proportion of consumers scoring high on each consumer-learning style characteristic pair. Overall a total of 28 of the 48 learning style and consumer style characteristic pairs had statistically significant relations in at least one of the two statistical analyses. This suggests that there are substantial interrelationships between consumers learning and decision-making. The most important relations will now be examined individually.

First we look at the perfectionistic consumer style characteristic. Here we find four of six learning style characteristics significantly related to perfectionistic consumer behavior, both in the individual and group-level analyses (Tables 1 and 2). It appears that a serious, analytical learning style is correlated strongly with perfectionistic and quality conscious consumer behavior, although other characteristics are noticeably correlated as well. It also appears active learning and observation-centered learning are positively associated with the perfectionistic consumer characteristic. However, passive and accepting learning is negatively correlated, reinforcing the findings on the other characteristics. These relations suggest that consumers who are perfectionistic and high-quality conscious in their behavior have a balanced learning style of a number of characteristics which would impact favorably towards their goal-oriented behavior as a consumer. These have important implications that will be discussed in the conclusions section.

The brand conscious consumer characteristic has minimal relationship to learning style characteristics. Only the non-adaptive struggling learner characteristic was found associated with brand conscious consumer behavior, and this has only a modest correlation although it does indicate some broad relationship. This suggests, although tentatively, that the brand conscious individual is so partly because they are non-adaptive learners in general and find pursuing brands an easy strategy for making consumer choices with minimal learning input.

The novelty and fashion conscious consumer characteristic also has important and noticeable associations with specific learning style characteristics. Modest but statistically significant correlations were found with serious learning, observation-centered learning, and passive, accepting learning. In addition, active and practical learning also appears associated with novelty and fashion consciousness (Table 2). Thus the novelty and fashion conscious consumer is similar in style to the perfectionistic one, but with the important exception that they may have a passive and accepting learner characteristic as well. This implies that the novelty conscious consumer may not always be concerned with the implications of buying new and novel products, which could include negative results either in the performance of products or their social acceptability.

Next we look at the recreational shopping conscious consumer. Their learning style is modestly associated with active learning and negatively associated with passive and non-adaptive, struggling learning. Therefore the recreational shopper appears to have a learning style that favors their involvement and enjoyment of shopping. Furthermore, the recreational shopper is apparently not a non-adaptive or struggling learner, and likely learns from his/her shopping experiences. Whether those learning experiences lead to positive or negative consequences is undetermined, however.

TABLE 1. Correlation of Consumer Style and Learning Style Characteristics[1]

CONSUMER STYLE CHARACTERISTICS	LEARNING STYLE CHARACTERISTICS					
	SERIOUS, ANALYTICAL LEARNER	ACTIVE, PRACTICAL LEARNER	OBSERVATION-CENTERED LEARNER	PASSIVE, ACCEPTING LEARNER	CONCRETE, DETAIL, FACT LEARNER	NON-ADAPTIVE, STRUGGLING LEARNER
PERFECTIONISTIC	.25***	.15***	.15***	-.14***	--	--
BRAND CONSCIOUS	--	--	--	--	--	.10**
NOVELTY-FASHION CONSCIOUS	.16***	--	.16***	.14***	--	--
RECREATIONAL SHOPPING CONSCIOUS	--	--	--	-.09*	--	-.12**
PRICE-VALUE CONSCIOUS	.14***	.21***	.10**	.14***	.17***	--
IMPULSIVE	-.13***	.11**	--	--	--	.29***
CONFUSED BY OVERCHOICE	.08*	--	--	.15***	.14***	.14***
HABITUAL, BRAND LOYAL	.11**	.09*	--	--	.08*	--

[1]Table includes only statistically significant correlations.
Level of Significance: *p < .10
**p < .05
***p < .01
-- Not Significant

TABLE 2. Percentage of Subjects Scoring High on Both Learning and Consumer Decision-Making Characteristics

CONSUMER STYLE CHARACTERISTICS	LEARNING STYLE CHARACTERISTICS					
	SERIOUS, ANALYTICAL LEARNER	ACTIVE, PRACTICAL LEARNER	OBSERVATION-CENTERED LEARNER	PASSIVE, ACCEPTING LEARNER	CONCRETE, DETAIL, FACT LEARNER	NON-ADAPTIVE, STRUGGLING LEARNER
PERFECTIONISTIC	43***[1]	41***	41***	27*[2]	--	--
BRAND CONSCIOUS	--	--	--	--	--	--
NOVELTY-FASHION CONSCIOUS	41***	43***	40***	--	--	--
RECREATIONAL SHOPPING CONSCIOUS	--	44**	--	--	--	--
PRICE-VALUE CONSCIOUS	--	42***	--	--	37*	--
IMPULSIVE	--	--	--	--	--	45***
CONFUSED BY OVERCHOICE	--	--	--	--	39*	47***
HABITUAL, BRAND LOYAL	--	39*	--	26**[2]	--	--

[1]Read 43% of these scoring high as serious, analytical learners also scored high as perfectionistic consumers. This was statistically significant ($p < .01$); see page 9 for method employed.
[2]For these items, a lower percentage than expected by chance scored high on both characteristics.

Level of significance: *p < .10
**p < .05
***p < .01
-- Not significant

The price and value conscious consumer characteristic appears associated positively with five of the six learning style characteristics. Particularly notable are the positive associations between active learning and concrete, fact-oriented learning. It would seem that those who are price and value conscious enjoy taking an active learning process, perhaps by shopping a number of stores, and they also like looking at details of learning, which could include prices of various products. Thus, the price and value conscious individual appears to have a learning style perfectly adapted to shopping the market and doing careful comparisions.

The impulsive consumer characteristic has three significant relations with learning styles, one of which appears to be especially important. Here we find impulsiveness is strongly associated with non-adaptive, struggling learning. This points out that those who are impulsive in consumer behavior might have this characteristic because they have difficulty in learning or do not want to be bothered with the learning process. This possible perspective is further reinforced by the negative correlation between impulsive consumer behavior and the serious analytical learner characteristic. It appears that the impulsive consumer may actually be "turned off" by a serious approach to learning.

The seventh consumer characteristic is confused by overchoice, and here we find associations with four of the six learning characteristics (Tables 1 and 2). The confused consumer seems to be especially characterized by two characteristics, the concrete, fact-oriented learning characteristic and the non-adaptive struggling learner characteristic. These are interesting findings, for they suggest that the confused or "information overloaded" consumers may achieve that state because they are detailed and fact-oriented in their learning style. They may become mentally overloaded when they try to learn about different choices. Further, the confused consumer appears non-adaptive and struggling as a learner in general, which suggest that confusion could happen rather easily for individuals typified by this learning style.

Finally, this consumer seems to be somewhat passive in their learning style as well.

Last we look at the habitual, brand loyal consumer characteristic. Here we find four of the six learning style characteristics associated with the consumer style characteristic in at least one of the two analyses. Findings for this consumer characteristic are equivocal however, and must be treated tentatively. It appears that habitual behavior may be associated with serious learning and particularly active and practical learning, and less associated with passive, accepting learning. This suggests the habitual consumer may have engaged in serious and active learning experiences that perhaps lead to forming habits of consumer behavior based on past positive experiences.

CONCLUSIONS

This exploratory study examined the interrelations between individual learning styles and specific consumer decision-making styles. We have found statistically significant relationships between 28 of the 48 learning style-consumer style characteristic pairs, a substantial number. Previous research has not explored the extent of these interrelationships, but the present study indicates that certain characteristics of consumer decision-making may have important foundations in individual learning styles. In this conclusion section we will focus attention towards those most important parts and their relationship to the fields of consumer education and information.

Perhaps the most important finding with educational implications are the relationships found between perfectionistic, high quality conscious consumer decision-making and the active and serious approaches to learning. These findings appear to imply that consumers who are seeking the best results in their purchases have a particular learning style that favors systematic and serious market search and learning. Thus those consumers most likely to achieve defined goals in consumer decisions are those with a balance of learning style characteristics to apply. Consumer educators often emphasize the care that consumers need to take in searching the market in order to obtain defined goals, and these findings reinforce the validity of such an educational approach. In addition the findings suggest that other learning style characteristics that will lead consumers to better decisions could and should be emphasized as well.

The novelty and fashion conscious consumer characteristic also had a particular learning style attached to it that has educational implications as well. Note that the learning style of those that are high in novelty and fashion consciousness is very similar to those who are perfectionistic, with the exception of the one characteristic of passive, accepting learner. The novelty conscious consumer may sometimes be passive; thus they may not consider the implications of their actions. Since sometimes novelty and fashion products are viewed by consumer educators as less satisfactory or possibly "wasteful" consumer behaviors, it may be pointed out to consumers the potential negative consequences that their "passive and accepting" approach to buying may have. Passive and accepting learning has the potential of leading to negative consequences, if the individual does not think out the consequences, and this may leave a negative aspect to being novelty and fashion conscious in consumer behavior.

Those consumers who have high recreational shopping consciousness appear to have a far different learning style with important educational implications as well. Here we find an associated active and practical learning style, but little relation to the more "thought-oriented" characteristics of learning (e.g., serious and concrete learning characteristics).

The recreational shopper is seeking fun and a kick, to be sure, but they should also be assisted in becoming aware that their strategy seems to de-emphasize more careful and rational learning. However, we must also note that those individuals who emphasize recreational shopping consciousness are not passive or struggling learners. Thus they may apply some learning to their decision-making, but it still appears they likely apply less than consumer educators might predict would lead to the desired consequences or goals of the consumer.

With respect to the price and value conscious consumer, we find the broadest balance of learning style characteristics. The price and value conscious consumer appears to have many positive learning behaviors which should not be surprising given that price and value consciousness involves serious comparision shopping and learning of alternatives. And these consumers clearly may bring a variety of learning styles to their decision-making process.

Perhaps the biggest learning problems found in this research are related to those who are impulsive and confused by overchoice. For those two characteristics we found strong associations with non-adaptive, struggling learning and other learning characteristics as well. Thus consumers who are impulsive and are confused by overchoice in the market are special targets for consumer education. For these consumers more serious and analytical learning approaches as well as observation-centered learning approaches may be desirable. And educators should especially note that the concrete and the fact-oriented learning characteristic may actually cause some consumers to be confused; thus concrete and fact-oriented learning can be dysfunctional to some consumers. In particular, consumer educators in the classroom (e.g., high school classes in consumer education) should identify students scoring high in impulsiveness and confusion and help them develop their learning styles to reflect positive outcomes.

Finally we look at the educational implications related to the brand consciousness and habitual, brand loyal consumer characteristics. Though some findings were significant, these are the most equivocal of this research. It does appear that brand consciousness may be related to non-adaptive learning, and being conscious of brands is simply a mechanism to avoid having to learn. If so, that suggests a problem for consumer educators. However, the habitual and brand loyal consumer characteristic has modest but significant relations to several relatively desirable learning style characteristics: serious, analytical learning; active, practical learning; concrete and fact-oriented learning. Though these findings are tentative, they do imply that consumers who are habitual and brand loyal may be using positive learning strategies and may have formed their habits based on positive experiences and outcomes. Thus we should not consider the habitual and brand loyal behaviors as necessarily negative or non-functional behaviors, for there will be situations where these consumer behaviors are based on careful prior thinking and learning. Habitual consumer behavior, in short, may not be as negatively-based a consumer phenomenon as sometimes implied.

Throughout this research, we have implied that particular learning style characteristics lead to consumer decision-making styles. In fact there may be such a direct causal relations between general learning styles and the specific consumer decision-making styles we have researched. However, it is important to point out that we have not proven a cause-effect relationship in this research. What our exploratory research has accomplished is the identification of possible relations between learning and consumer decision-making. It is important for consumer researchers to continue these types of investigations, for although we assume a relationship, rarely has consumer education research been done to link learning to decision-making. Thus this study is one first step in the direction of carefully delineating the associations of human learning and consumer decision-making, but it is one of many steps which must yet be taken before we fully understand those relations and particularly their causal nature.

We have indicated that our findings may have major implications for the development of general consumer education. Also note that the development and validation of the Secondary Learning Styles Inventory and the Consumer Styles Inventory are important end results of this research in themselves. Consumer educators should apply such measurement methodologies in their classes, and seek out relations between the learning styles and consumer styles of their students (see the references cited for details on the measurement methodologies and classroom applications). Those methodologies allow us to profile the individual learning and consumer decision-making characteristics of students, and to educate students on their particular strengths as well as areas needing modification. If students are helped to understand their own learning and decision-making styles through these measures, they will likely be more receptive to efforts to improve their learning and consumer decision-making than if they're simply told what to do. Furthermore, if teachers know students' learning and consumer decision-making styles, they can develop complementary classroom teaching strategies appropriate to the goals of consumer education. Ultimately such measures may help us develop consumer educational strategies that are less normative or prescriptive, and based more on positive understanding of the human learning process and the particular characteristics that consumer decision-makers bring to their decisions. Consumer decision-making is a function of the learning processes people pursue, and the only way we can help consumers become better and more effective decision-makers is to help them understand and improve their learning style characteristics leading towards more effective decision-making.

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THE RELATIVE IMPORTANCE OF ECONOMIC FACTORS IN PARENTS' CHOICE OF AFTER-SCHOOL CHILD CARE

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ABSTRACT

Given that the need for after-school child care is expected to increase in the future, and that much concern is being expressed about the long-term effects of self-care arrangements on children, it is essential that researchers come to grips with the choice process of parents. This study attempts to develop and apply an instrument to do so. Findings indicate that, for one small sample of parents at least, self-care may not be a "default" facility chosen because of its low cost relative to other forms of care, but the outcome of a decision process whereby parents trade off economic with child care factors, to find an arrangement which is satisfactory to parents and appealing to the child. Economic factors are important in this process, but secondary to noneconomic factors. Of concern is the brevity of the information search effort accompanying the choice.

INTRODUCTION

Research in the area of after-school child care has tended to concentrate on self-care (latchkey) arrangements and their impact on the child [2, 7, 9, 11, 14, 20, 24, 26, 27]. Self-care arrangements are only one of a number of alternatives facing parents, however, and those concerned with policy on after-school care have tried to develop or promote what they feel are the viable alternatives [5, 8, 29, 31, 32]. The need for policy initiative has been made imperative by a general concensus that alternatives are required, and will be required to an increasing degree in the future [3, 4, 13, 15, 21, 30, 34]. The question as to whether parents would use these alternatives remains. Only limited attention has been given to the factors which contribute to parents' decisions about after-school care [but see 17, 19, 25, 28].

Like any other item of the family budget, after-school child care can be demanded in the amount and quality the family unit can afford from among the available offerings. If, as with economic goods in general, the cost of child care to the family increases with quality and quantity, then a trade-off between noneconomic and economic factors is inevitable [6, 10, 12, 16, 33]. Put another way, economic factors will be an integral part of parents' choice calculus. This would be the case whether child care were seen as a consumer good or as an investment in human capital [1]. In either case, the parent would seek to maximize the expected benefits of the purchase given the resources of the family.

The economic aspects of parental choice are of particular interest where after-school child care is concerned. In the first place, obtaining the information required in order to make the optimal decision on after-school care can be an arduous and costly process, which raises the possibility that the information search may be cut off before the best affordable program is identified [22, 23]. Secondly, the self-care possibility always exists as a low-cost alternative to purchased formal programs. Parents may choose not to purchase on the market at all, but set up a self-care arrangement for their children.

It is the aim of this paper to explore the relative influence of economic aspects of after-school child care on parents' choice of child care facilities. In particular, this study will attempt to show whether and how economic factors entered into the child care decision of a sample of working parents. It is hoped that such a study, which compares the choice process over a range of available alternatives, will both supplement the existing literature on parents' choice of care facilities and provide a framework for further study of the phenomenon.

The choice of child care facility is represented as depending directly on two information processing exercises, namely the assessment of economic and noneconomic variables respectively; and indirectly on the information search process.

Parents' economic calculus involves comparison of the costs associated with each of the child care alternatives which the parent considers. Costs comprise the direct monetary cost of the program, which is usually fees or hourly babysitter wages; incidental costs, such as preparation of meals or fees for outings, and costs associated with transportation of children to and from the program. These are assessed in the light of the family's economic resources, represented by family real income.

Noneconomic variables in the choice process are grouped into four main categories. First are program factors, which are characteristics of the programs being considered, such as educational content or recreational facilities. Second are child care factors, or factors relating to the physical quality of facilities offered, such as safety or cleanliness of the surroundings. Third are neighborhood factors, such as incidence of crime, which are factors external to the program but which comprise its environment. Finally, child factors represent the fitness of the child for the program, and would include the child's maturity or the child's own preferences. Parents need not, of course, consider all categories nor all items of any one category when making their particular decision, but for the purpose of a general model, all are regarded as potentially important to the decision-making process of parents.

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The efficiency of the choice made by parents depends a great deal on the information search process which accompanies it. The search process provides information on economic and noneconomic variables which are then evaluated in the child care decision-making process. The extent of the information search is itself influenced by economic and noneconomic factors. Economic factors are the monetary and time cost of search, and the transportation resources available in that parents may wish to do a site visit. These are augmented by the prior knowledge parents possess of available child care facilities, and the help they can invoke from friends, relatives, neighbors or workmates in obtaining information.

METHOD

Data for this study were obtained from personal interviews in a nonprobability sample drawn from industrial work settings and center-based after-school programs in a Midwest community of about 100,000 residents. Personal interviews were preferred to a mail or telephone survey because of the depth of information on the child care choice that could be obtained through a one-on-one interaction with parents. The technique is, however, costly in terms of research resources; richness of detail is necessarily counterbalanced by smallness of numbers when the research budget is not extensive. The present study, which should be regarded as exploratory in nature, consists of 41 cases.

Interviews were solicited by a printed announcement about the study, which the personnel offices of three large firms distributed to their employees. Individuals were considered eligible for the study if they had one or more elementary school children not in the care of a parent or adult relative after school. Interviews were conducted at the convenience of respondents, and took 30 to 90 minutes to complete. The interview schedule consisted of 83 questions.

The initial announcement yielded 31 cases. A perusal of responses showed that there was an inadequately small number (4) of center-based after-school program users in the sample. To increase the sample of center-based programs, administrators of four such programs were asked to circulate the printed announcement of the study to parents using the facility. This yielded an additional 10 volunteer respondents.

Socio-demographic characteristics of respondents are contained in Table 1. Data were separated into three subgroups by type of child care arrangement chosen by parents, namely latchkey ("self-care"), sitter at the parents' home ("sitter"), and center-based programs ("center"). The sample of 41 parents consisted of 38 mothers and 3 fathers; the mean age of parent was 34.6 years, all were white and 22 were single parents. Sixteen of the parents had two or more children.

While the nature of the sampling process militates against generalization, some comments can be offered about the choice of child care in

TABLE 1
Sample Demographics

Demographics	Self-Care N=11	Sitter N=16	Center N=14
Age of child (mean years)	8.8	7.7	7.7
Sex of Child			
Male	31%	50%	62%
Female	69%	50%	38%
Education of Parents (yrs)	13.8	10.3	13.8
Parents' Occupational Status			
Un- or semi-skilled	46%	57%	29%
Skilled	23%	21%	14%
Managerial/Professional	31%	21%	57%
Residence			
Rural	54%	39%	15%
Urban	46%	61%	85%
Marital Status: Married	100%	61%	64%
Family Income (N=38)			
Less than $10,000	--	14%	15%
$10,000 to 15,000	9%	--	23%
$15,001 to 20,000	--	7%	15%
$20,001 to 25,000	9%	14%	--
$25,001 to 30,000	36%	21%	7%
$30,001 to 50,000	27%	28%	15%
More than $50,000	18%	14%	23%

the sample based on the data in Table 1. It is noteworthy that parents of male children seemed to have a preference for formal programs, but that parents of female children seemed more likely to prefer a self care arrangement. The education level of parents who preferred sitter arrangements was somewhat lower than that of parents who preferred self-care or formal programs, and lower than the sample average of 13.2 years. City dwellers and professional people were more likely than others to place their children in a formal program, with rural and semi-skilled at the opposite pole. Parents choosing self-care arrangements were more likely to be married and (possibly as a consequence of being two-earner families) have higher incomes than others.

RESULTS

Economic factors and child care

Before considering the question of the relative importance of economic factors in child care, it would be of interest to assess the incidence of cost to families of the alternative they actually chose. Table 2 contains a summary of data compiled in response to a sequence of questions on the economics of after-school child care.

Direct monetary cost of formal arrangements averaged $16.07 per week (SD = $14.71). As shown in Table 2, sitter arrangements were on average a little more expensive than center programs with a mean of $17.30 as compared to $15.50. Sitter costs also tended to be more dispersed around the mean. Incidental costs were faced by only 8 respondents, and constituted mainly preparation of meals (sitter group) and fees for special events (center-based programs). Table 2 shows the

TABLE 2
Economic Factors and Choice of After-School Child Care: Responses to Selected Questions.

	Self-Care	Sitter	Center
Mean amount paid each week for current child care arrangement	--	$17.30	$15.50
Number of families who face incidental costs	0	4	4
Number of families involved in driving children to the facility	1	9	11
Number of families that regarded economic factors as the main influence on their child care decision	4	8	3

8 respondents to be split equally between sitter and center-based programs. Finally, 21 parents faced transportation costs. As Table 2 shows, parents using a self-care arrangement tended not to get involved in transportation. Of the 21 parents who incurred transportation costs, 14 did the driving themselves, 3 had a relative do the driving, 1 carpooled, and 3 had their children use transportation provided by a center program. As a proxy for cost of transport, respondents were asked the distance required for a one-way journey. Of 24 usable responses, only 13 had to travel more than a mile, and 11 of these 13 traveled less than 5 miles. The longer distance travel was distributed equally between the sitter and center groups.

The key question relating to the relative importance of economic factors was an open-ended one asking parents what influenced them to choose their present child care arrangement. The items identified as prime factor by parents fell into four general categories, of which two (cost, time and distance involved) were coded economic, and two (quality of program, child factors) were coded as noneconomic. On this classification, economic factors were of prime importance in the child care decision of 15, or 37 percent of the parents sampled; the remaining 63 percent felt that noneconomic factors were of prime importance. The distribution of the 15 parents by type of program is shown in Table 2. Economic factors were more likely to be mentioned by the sitter group than by others.

Parents' sensitivity to economic factors in the choice of after-school child care was pursued further by two sets of questions. The first asked parents to record on a 1 to 5 scale (5 = very important) whether certain items were important in the child care decision. Of 9 items mentioned, monetary cost had the lowest mean score at 3.1. Convenience of location, which captures some of the transportation and incidental costs, was third lowest at 3.7. Noneconomic items, such as educational content and safety, were ranked higher than economic factors in relative importance in the decision.

A second set of questions probed parents' reactions to hypothetical increases in the direct monetary cost of formal child care arrangements. Table 3 summarizes responses to these questions. Questions regarding a hypothetical increase of weekly rates of $5 (approximately a one-third increase over the mean currently being paid) and $10 (two-thirds increase in cost) showed some immediate attrition of sitter parents, but that the vast majority (73%) would maintain their current arrangement. A similar fee increase would have a greater impact on parents in center-based programs; 46 percent of these parents would change their current arrangement. Parents were also asked what was the maximum they would pay for their present arrangement. As shown in Table 3, the mean difference between what parents were prepared to pay and what they actually paid (the affordability gap) was $12.20 for the sitter parents and $10.26 for center-based group. The implication is that many of these parents were within their margin of affordability.

TABLE 3
Sensitivity to cost increases of parents with formal child care arrangements.

	Sitter	Center
Percent of parents who would pay $5 more for the present arrangement	77	86
Percent of parents who would pay $10 more for the present arrangement	73	54
Mean maximum amount parents would pay for the present arrangement	$29.50	$25.76
Affordability gap	$12.20	$10.26

Income considerations

As stated above, family resources are a potential constraint on parents' child care choice. In this study, resources are represented by family income. Respondents were asked to identify their income on an ascending, seven-point scale. The expectation was that economic factors would be more influential in the child care decision the lower was family income.

Table 4 summarizes results of a series of correlations of income with economic factors. The notion that economic cost was relatively more important to families with lower incomes is supported by a negative relationship between income and parents rating of the importance of costs on a five-point scale (5 = very important). The relationship was slightly stronger for latchkey parents that others. For parents using formal care programs (sitter and center-based), there was a direct relationship between the maximum they would pay and income, indicating that lower income families would not be prepared to pay as much as higher income families. As shown in Table 4(b), this relationship was much

stronger for the sitter group than for center-based group - the relationship for the center group was not significantly different to zero at normally-accepted levels.

TABLE 4
Pearson Correlation Coefficients for the Relationship between Family Income and Selected Economic Cost Variables.

(a) Importance of cost to the child care decision, on a 1-5 scale (5 = very important).		
Self-Care	r = -.325;	p = .053
Formal care groups	r = -.493;	p = .107
(b) Maximum the family would pay for the current arrangement.		
Sitter	r = .560;	p = .019
Center	r = .216;	p = .255
(c) Size of affordability gap.		
Sitter	r = .378;	p = .091
Center	r = -.394;	p = .091
(d) Cost per week of current child care arrangement.		
Sitter	r = .095;	p = .385
Center	r = .542;	p = .028

A significant positive relationship between income and the difference between the maximum parents would pay and the amount they actually paid (the affordability gap) would suggest that parents on lower incomes had a smaller affordability gap and thus would be more sensitive to flat fee increases than parents on higher incomes. As Table 4(c) shows, this turned out to be the case for the sitter group, but not the center-based program group.

The lack of a significant relationships between income and costs for the center-based group may have been due to the presence of support programs for lower income families. According to Table 4(d), costs of existing arrangements for the center-based groups increased sharply with income. This would be consistent with lower income families receiving support. The cost of sitter arrangements was directly related to income, but the relationship was not significantly different to zero at an acceptable level. This implies that sitter arrangements were regressive in the same sense that sales taxes are regarded as regressive: people were paying about the same for the arrangement regardless of their income level.

Search costs

As in the case of choice of child care facility, economic factors emerge as a consideration in, but not necessarily overridingly important to, parents' decision as to how much information to search when making their child care choice. When asked if they were limited in any way in their ability to look for child care facilities, 22 parents answered in the affirmative, and 13 of these (31 percent of the whole sample) mentioned economic factors (cost, time, transportation) as prime cause. In a follow-up question, respondents were asked to identify specific cost items other than time that might limit their search. Only 5 parents gave an answer and all mentioned gasoline.

For most parents, the time involved in the search process was fairly short. Seventy-four percent reported spending less than an hour, while 25 percent spent less than a day. Nearly a half (46%) of the sample indicated that they received no assistance from other people or institutions in their search for child care: this figure rises to 69 percent for the self-care group.

A quick search on the initial child care decision can be supplemented by continued search after the child has commenced with a specific program of child care. Only 3 parents claimed to have searched for an alternative to their existing child care facility. For this sample of parents, further search after the initial decision was rare.

Noneconomic Factors

As stated above, some 63 percent of respondents claimed that noneconomic factors were of prime importance to their child care decision. In terms of the categories of noneconomic factors identified, child factors were predominant in this, accounting for 35 of the 63 percent. Most of the remainder mentioned program factors: neighborhood factors were not mentioned at all. The child factors focused on children's preferences and characteristics. In a rating of nine program attributes in a subsequent series of questions, safety was regarded as most important to these parents (4.9 on a 5-point scale), followed by the quality of the staff (4.3) and the kinds of activities available (4.2).

Parents varied by current type of arrangement as regards preferences for different noneconomic aspects of after-school care. Center parents rated the importance of planned activities, educational content, and the training and qualifications of staff higher than did other parents. Parents using sitter arrangements rated the importance of their child's friends being involved in an after-school arrangement than did parents using the other two arrangement types. There were no differences across the three groups with regard to neighborhood factors and child care factors.

DISCUSSION

The main aim of this paper was to explore the relative influence of economic aspects of after-school child care in parents' choice of child care facilities. To this end, a structure was proposed for the child care choice decision, and applied to a sample of working parents. The structure was broad enough to handle multiple dimensions both of decision variables and child care facilities. Results were of limited generalization due to the nature and size of the sample, but of sufficient interest as an exploratory study to warrant some attention.