

*A Research Note on:*

*CONSUMER CHARACTERISTICS AND THE FREQUENCY OF DO-IT-YOURSELF HOME REPAIR*

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*ABSTRACT*

*Do-it-yourself home repair and maintenance is an alternative to purchasing repair services. This paper examines the relationships between consumer socio-demographic and attitudinal characteristics and the frequency of do-it-yourself housing repair. The results are intended for professionals who analyze housing behavior and provide consumer information. The factors that relate to more frequent do-it-yourself activities differ between men and women. Although economic necessity is often suggested as a motivator for such home repair, it is not apparent in this study.*

*INTRODUCTION*

Household production makes an important contribution to family and individual well-being. The production by household members of certain household needs, particularly the maintenance and repair of housing, is often called do-it-yourself activity. Consumers are doing more of their own household maintenance and repair (Browning and Zabriskie, 1985). Grubisich (1984) reports an increase in the number and sales by home improvement retail centers. The results of this survey support his report.

There are several explanations for the increase in do-it-yourself activity. According to trend analysts, the "fix-it-yourself" trend is a manifestation of a pervasive self-help movement for individual and family concerns (Toffler, 1980; Naisbitt, 1982). Naisbitt describes the trend as a growing disillusionment with institutional help and an accompanying shift to self-sufficiency and self-help. Guseman and Gillett (1981) suggest that products that aid consumers in household production will do well during inflation; as the prices of replacements and repair services increase, consumers will substitute their own labor for purchase. Retailers contend that consumers, who were priced out of the housing market by high interest rates and were faced with high repair-service costs in the '70s and early '80s, turned to household production for housing repair and improvements (Grubisich, 1984). Stanback, Bearnse, Noyelle, and Karasek (1981) argue that consumers who are dissatisfied with the quality of services available in the market produce their own services whenever possible. The value of creative leisure may motivate do-it-yourself household activities.

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The research reported here was developed to analyze do-it-yourself housing repair and maintenance. The research focuses on some of the variables affecting the frequency of do-it-yourself home repair. The results are useful to professionals analyzing housing economic behavior and providing consumer information.

#### METHODS

*Data.* The data used in the study were collected from a national telephone survey concerning 1002 consumers' attitudes about the quality of consumer goods and services. The survey was designed and sponsored by a major appliance manufacturer and was conducted in December, 1982 and January, 1983 by a research firm. The households were selected by a random-digit dialing system. The respondent was randomly selected from the household by the Trodahl-Carter-Bryant method (Bryant, 1975). Four callbacks were made to 1593 eligible phone numbers until a 1000-respondent quota was reached. The pre-holiday and post-holiday groups were compared and no differences were found. The research firm did not discover if the nonrespondents differed from the respondents.

*Hypotheses.* The exploratory hypotheses were based on a review of household production and related consumer behavior research in addition to several studies specifically concerning do-it-yourself behavior. To maintain the smooth operation of a household, a consumer has a choice between purchasing housing repair services or personally doing the repair. From a household managerial viewpoint, the inputs into a decision to undertake a repair task include material resources (money, tools, repair shops) and human resources (skills, information/knowledge, propensity, human energy, time) (Deacon and Firebaugh, 1981). According to economic theory, a consumer decision is the result of utility maximization subject to a budget constraint derived from prices and income. In an attempt to blend economic and psychological views of consumer behavior, Redman argues (1979, p. 48) that "the budget line reflects 'reality' or the limitations the person faces in the situation as perceived by the person." The use of time as a cost in household production theory is one example of this approach (Becker, 1965). In addition to material resources, nonmonetary resource limitations include lack of skills/experience, lack of information or misinformation, lack of propensity, lack of physical energy, and time constraints.

The selection of independent variables and hypotheses was based on the assumption that the frequency of do-it-yourself activity is a function of direct or indirect measures of the individual's stock of resources. Along with examining how consumer resources are related to the household production decision as nonmonetary costs, this approach was used to reinforce the use of socio-demographic data by consumer educators in planning strategies based on measurable and available information about their clientele. The measures analyzed were age, education, membership in a dual-income household, attitudes toward the marketplace and repair, income, and residence location. Descriptive statistics, operational definitions, and questionnaire coding for the independent variables are shown in Table 1. The frequency of do-it-yourself home repair was expected to be higher for:

1. Younger consumers because propensity and human energy outweigh the effect of increased experience (Garner, 1983).
2. Consumers with more education because increases in human capital increase the efficiency of household production so household production could be accomplished at a lower relative cost

(Michael, 1975).

3. Consumers who are not members of dual-income households because they have lower time demands from market work and other household work and more time for repair.
4. Consumers who have a preference for repairing rather than replacing malfunctioning products because that indicates an interest in acquiring repair skills.
5. Consumers who believe that manufacturers are unwilling to replace defective products because that represents dissatisfaction with the market.
6. Consumers who are dissatisfied with the quality of products in their area because that indicates dissatisfaction with the market.
7. Consumers who think the quality of repair services has deteriorated in recent years and believe they can do a better job themselves.
8. Consumers from lower-income households because of economic necessity
9. Consumers who live in rural areas with a lower supply of housing repair services available.
10. Home owners because they have a higher stake in their housing.

*Analysis.* Multiple regression was used to analyze the relationships between consumers' resources and their do-it-yourself activity. The dependent variable was defined as the frequency of do-it-yourself home repair as shown in Table 1. Although the frequency of activity was an imprecise measurement, it was felt that the large sample size and exploratory nature of the study justified its use. Mayer (1983) shows that men's and women's responses to household-equipment breakdown differ. Because of his study and a preliminary analysis showing males to be significantly more likely than females to engage in do-it-yourself activity, the sample was divided into male and female subsamples.

In preliminary analysis, several variables, including number in household, marital and employment status, were tested and eliminated due to nonsignificance. The independent variables were checked for multicollinearity and no problematic correlations were found. The quadratic form of income was included to analyze the nonlinear effect of income. The nonlinear effect of age was also examined in preliminary analysis, but was not found to be significant. Home ownership was included as a control. Ownership, income, and education were each separately omitted from the equation to examine whether their absence changed the magnitude, direction, or significance of the remaining variables. This was not found to be the case.

#### RESULTS

The regression coefficients for the male and female subsamples for do-it-yourself home repair are shown in Table 2. The F-tests are significant for both equations. The  $R^2$  is 0.120 for the female subsample and 0.097 for the male subsample.

Table 1. Means, standard deviations, and frequencies for variables for male and female subsamples

Variables	Males	Females
	Percent	Percent
<b>DEPENDENT VARIABLE</b>		
Do-it-yourself home maintenance and repair <sup>b</sup>		
Never (1)	10.2	37.2
Once a year or less (2)	13.0	16.5
A few times a year (3)	33.3	27.3
About once a month (4)	24.2	11.1
More than once a month (5)	19.3	7.9
	100%	100%
N	(501)	(497)
SD	1.21	1.29
<b>INDEPENDENT VARIABLES</b>		
Age	15.45 (SD) 38.53 (mean)	16.86 (SD) 43.77 (mean)
Education		
Grade school (1)	3.0	5.2
Some high school (2)	8.6	9.1
High school graduate (3)	31.8	43.9
Some college (4)	20.4	23.1
College graduate (5)	22.1	13.9
Postgraduate (6)	14.1	5.0
	100%	100%
N	503	497
SD	1.31	1.15
Dual-Income Household		
Percent Yes (1)	30.6	26.6
No (0)	69.4	73.4
	100%	100%
N	(504)	(497)
SD	0.46	0.44
Prefer to Repair		
Never (1)	2.2	4.5
Sometimes (2)	23.5	22.1
Usually (3)	28.7	32.5
Always (4)	45.6	40.9
	100%	100%
N	(502)	(492)
SD	0.87	0.90

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(Table 1 conti.)

Manufacturer Willing to Repair		
Strongly disagree (1)	4.3	2.3
Disagree (2)	26.6	22.6
Agree (3)	58.9	65.4
Strongly agree (4)	10.2	9.7
	100%	100%
N	(492)	(483)
SD	0.69	0.62
Satisfaction With Goods		
Very dissatisfied (1)	2.2	0.6
Dissatisfied (2)	2.6	3.0
Just barely satisfied (3)	8.3	9.5
Satisfied (4)	54.9	53.4
Very satisfied (5)	32.0	33.5
	100%	100%
N	(497)	(493)
SD	0.83	0.76
Quality of Home Service		
Improved (1)	20.5	18.9
Stayed the same (2)	61.5	61.8
Deteriorated (3)	18.0	19.3
	100%	100%
N	(455)	(419)
SD	0.62	0.62
Residence Location		
Percent Urban (1)	78.2	75.1
Rural (0)	21.8	24.9
	100%	100%
N	(500)	(494)
SD	0.41	0.43
Income		
<\$10,000 (1)	10.1	25.0
\$10,001-\$20,000 (2)	28.1	31.1
\$20,001-\$30,000 (3)	29.9	25.3
\$30,001-\$40,000 (4)	12.8	7.8
\$40,001-\$50,000 (5)	6.8	5.4
>\$50,000 (6)	12.3	5.4
	100%	100%
N	(455)	(424)
SD	1.48	1.37
Ownership of Home		
Percent Yes (1)	68.4	70.0
No (0)	31.7	30.0
	100%	100%
N	503	496
SD	0.47	0.46

<sup>b</sup>codes

Table 2. Regression coefficients for home do-it-yourself activity

Variable	Males		Females	
	Coeff.	t	Coeff.	t
Age	-0.01*	(-2.70)	-0.02*	(-3.30)
Education	+0.06	(+1.25)	+0.16**	(+2.47)
Dual-Income Household	-0.43*	(-3.25)	+0.08	(+0.50)
Prefer to Repair	+0.15**	(+2.27)	+0.07	(+0.91)
Manufacturer Will Repair	-0.16	(-1.86)	-0.22	(-1.88)
Satisfaction With Goods	+0.06	(+0.78)	-0.24*	(-2.69)
Quality of Service				
deteriorated	+0.07	(+0.72)	+0.05	(+0.42)
Income	+0.55	(+2.75)	-0.40	(-1.89)
Income <sup>2</sup>	-0.08*	(-2.81)	+0.06	(+1.78)
Residence Location	-0.03	(-0.22)	-0.26	(-1.59)
Ownership	+0.31**	(+2.16)	+0.58*	(+3.43)
Intercept	+2.35*	(+4.29)	+4.23*	(+5.86)
n	398		335	
F	3.76*		4.00*	
R <sup>2</sup>	.097*		.120	

\* p &lt;0.01

\*\* p &lt;0.05

The younger a consumer, the more likely he/she is to have engaged in do-it-yourself repair as hypothesized. In conjunction with more physical energy, younger consumers are likely to have unfulfilled housing goals that increase the time they are willing to allocate to meeting housing demands. The greater housing mobility of the young may also increase repair and maintenance requirements and their perceptions of deficits to such an extent that they cannot hire all the services they need and will, therefore, spend time to do it themselves.

Men's education level is not significantly related, but women with more education are more likely to have engaged in home repair than women with less education. Perhaps education, in addition to increasing human capital generally, increases women's recognition of their housing repair capabilities.

A male member of a dual-income household is less likely to engage in do-it-yourself projects than are those in single-income households; this hypothesis is not supported for females. For women, there is evidence that labor force participation does not decrease women's household production activities. Confirmation would require time measurement of all types of household productive activity. Men who express a preference for repair are more likely do-it-yourselfers than are those who do not have such a preference. The difference is not significant for women.

In this study, there is little evidence that dissatisfaction and lack of faith in the market affect do-it-yourself activity. The belief that the quality of home-repair services has deteriorated in recent years is not associated with do-it-yourself activity nor was belief that manufacturers are willing to repair or replace defective goods. Women, however, who are dissatisfied with the goods available in their area are more likely do-it-yourselfers than those who are satisfied. Residence location is unrelated to do-it-yourself home repair.

Grubisich (1984) suggests that the increase in do-it-yourself home repair is related to the inability to afford repair services, especially for women. In this study, women's household income is not related to the frequency of their do-it-yourself activity. For men, the nonlinear relationship between household income and the frequency of do-it-yourself home repair shows that middle-income men are more likely to do their own repairs more often than either lower- or upper-income men. Several interpretations may account for these results. Inclination and skills, which are not directly measured, may be more influential than the cost of repairs or insufficient income. For men, the subjective cost of time may be offsetting household maintenance and improvement interest. In addition, the type of repair task and, thus, its cost, complexity, and other factors are not identified in this study, so the finding should be viewed with some caution.

#### *EDUCATION AND MARKET IMPLICATIONS*

Several survey results should be of value to housing specialists and consumer educators. The effect of sex and education should guide information providers to design instructional programs, do-it-yourself manuals, brochures, and displays with the sex and educational level of their clientele in mind. Also, educators and do-it-yourself product sales personnel need to recognize the educational background of their female clientele and need not assume economic necessity. Promoters of home improvement programs directed toward older home owners (e.g., energy-conservation projects) need to be aware of the less frequent do-it-yourself activity of older consumers and provide help and purchase alternatives. Home improvement retailers should be encouraged to provide convenient hours, evening and weekend delivery, and time-saving methods.

Economic necessity does not appear to greatly affect do-it-yourself activities. This implies that high costs of repair services may not be the primary motivation for do-it-yourself activities and that price is not likely to be the principal consideration in the purchase of do-it-yourself products. This viewpoint is in agreement with Browning and Zabriskie's (1985) study of do-it-yourselfers. Their study also supports the notion that do-it-yourself activity is related more to pursuit of satisfying leisure than economic need.

Since older consumers and women with less education are less likely to engage in do-it-yourself home repair, consumer educators and repair-service providers need to consider these customers' requirements for services and information since consumers often acquire information about services by word-of-mouth (Davis, Guiltinan, and Jones, 1979; Orsini, 1982).

#### *RESEARCH IMPLICATIONS*

The low explained variance in do-it-yourself home repair, a limitation of the study, shows that many factors influence do-it-yourself behavior in addition to those examined. Further research in this area would benefit from data on specific repair skills and knowledge and attitudes toward do-it-yourself activity (such as interest in maintenance and repair and satisfaction from do-it-yourself activity). Additional research is also needed concerning the age of housing and possession of appropriate tools and equipment. More data on the amount and scope of do-it-yourself activity and household repair standards and requirements would also aid the explanation of influences. Perceived housing deficits, housing satisfaction, length of tenure, and mobility expectations would provide additional insights to the extent that they affect the choice between household production and purchase of housing repairs (Morris and Winter, 1978).

It is clear that sex is an important, but overlooked, variable for research in this area. In addition, the respondent, selected by a random method, reported only his or her behavior. Since differences are found between men and women, if household do-it-yourself behavior is of primary interest, studies need to be designed so data from all household members are collected. As Mayer (1983) states, surveys that randomly select the adult household members to be interviewed may not be accurate reflections of other members' (or the household's) behaviors. However, collecting and analyzing multiple-response data from households is costly and complex.

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