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## CONSUMER SATISFACTION WITH STRUCTURAL QUALITY IN CONDOMINIUMS

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This study sought to identify consumer problems related to construction quality in new condominiums and to establish levels of satisfaction. Single family homes were included in the sample for comparison. A random mail survey of recent homeowners in San Diego County, California, resulted in a final sample of 241 condominium owners and 113 conventional owners. Owners were dissatisfied with several aspects of construction including poor quality materials and workmanship. Fewer problems were reported overall for condominiums than for conventional homes. Soundproofing, roofing, heating systems, and windows were rated significantly lower in condominiums. Despite a large number of problem areas, general satisfaction with construction quality was high for both groups.

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### INTRODUCTION

Although the growth of condominiums in urban areas has been rapid (San Diego Comprehensive Planning Organization, 1979, p. 49; San Diego County, 1982, p. 6; San Diego Planning Commission, 1981, pp. 15, 20; 1985, p. 80; U.S. Department of Housing and Urban Development, 1975, p. 1), the study of consumer problems in condominiums has been very limited. In San Diego County the number of condominiums increased dramatically from 42,000 units in 1978 to 87,000 units in 1987 (Smith, 1987, p. F-14). No comparative analysis between condominiums and conventional homes has previously been completed. The complexity of housing as a consumer product as well as the extremely high cost are impelling factors for consumer awareness and information in the purchasing decision.

The purpose of this study was to determine the extent of satisfaction with structural quality by owner-occupants of new condominiums and conventional houses, and to compare levels of satisfaction between the two groups. A questionnaire mailed to recent homeowners in San Diego County located in Southern California, was used to examine types and frequency of problems with structural quality, and quality ratings of materials and workmanship. Implications were determined for consumers, educators, industry professionals, policy makers, and future research.

### RELATED RESEARCH

Through previous studies, construction has been identified as a significant problem associated with condominium development and in other types

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of housing as well. Quality of construction was one of the issues raised in an early study sponsored by the Urban Land Institute which focused on condominium buyer satisfaction (Norcross, 1973). Sloppy workmanship, cheap materials, inadequate noise insulation, and leaky plumbing drew complaints. In response to a congressional mandate, the U.S. Department of Housing and Urban Development (HUD) initiated a detailed national study of condominiums (1975). Considerable evidence of poor construction quality in new condominiums was found throughout the country. Twenty-two percent of unit owners surveyed indicated they were dissatisfied or very dissatisfied with the construction quality of their units. Poor workmanship and inferior building materials were among problem areas cited. Inadequate soundproofing was the deficiency cited most often.

Davidson (1981) conducted a more recent study of condominium problems. In a review of consumer complaints received by the Florida Division of Land Sales and Condominium Development, Davidson found complaints related to the developer and construction were the third most frequently cited. Warranties were identified most often in that category. Due to a growing volume of complaints from homebuyers who reported defects in newly constructed housing and failure to obtain satisfactory resolution from builders, the U.S. Federal Trade Commission (FTC) along with HUD, sponsored a national survey of housing defects (HUD, 1980). Almost 80% reported at least one serious defect (over \$100). The survey indicated that the average homeowner can expect about \$900 of repair expenses within the first 30 months of ownership.

Satisfaction is a subjective evaluation, but is an accepted measure to discover if consumer housing needs are being met, or utility received for housing dollars. There is also evidence that physical quality of housing is significantly and positively related to housing satisfaction (Campbell, Converse, and Rodgers, 1976; Hanna and Lindamood, 1981; Harris, 1976; Kain and Quigley, 1970; Lane and Kinsey, 1980). It has also been shown that it is possible to be satisfied with the whole, yet be dissatisfied with specific features of housing (Brink and Johnston, 1979). This research was designed to be a detailed analysis to identify specific problem areas and to assess the relative quality of specific features between condominiums and conventional houses.

### PROCEDURE

A questionnaire including questions on satisfaction with structural quality, quality ratings of materials and workmanship, pre-purchase actions, consumer recourse, and demographic information was developed based on previously mentioned studies. The questionnaire was mailed to a random

sample of recent homeowners in San Diego County in April, 1986. The population consists of owner-occupants of new condominium and conventional houses in subdivisions of 50 or more units sold between July 1, 1983, and March 1, 1985. These were the most recent data available at the County Assessor's Office. All condominiums were attached low-rise, high-rise, or townhouse units.

Using these criteria, 18 condominium developments and 15 single family housing tracts were identified which were acceptable for sample. A probability sample of 1094 owner-occupants was obtained. A total of 354 eligible responses were received achieving a response rate of 32% including 241 condominium owners and 113 conventional owners. Satisfaction was measured by a four point modified Likert scale, from very satisfied to very dissatisfied. Frequencies, percentages, crosstabulation, and Chi Square were used to analyze the data. Ten hypotheses were developed and tested against a minimum significance level of .05.

### RESULTS

The typical composite of subjects who participated in this study was a white, young (40 or under), college-educated, white collar, middle-income, married, two-person household, with no children. The most common price range for conventional homes was \$120,000-\$149,999, while the most common price range for condominium homes was \$80,000-\$99,999. Although condominiums were usually less expensive, there was some overlapping of prices with a large number of condominiums and conventional houses in equal price categories. Condominiums tended to be smaller than conventional houses and had fewer bedrooms. Two bedrooms were most common in condominiums, and three bedrooms in conventional homes.

As expected a large majority of owner-occupants were satisfied with the overall structural quality of their housing unit (82.2%) and housing development (87.7%). However, 17.8% were dissatisfied with their housing units, which is a sizeable number of dissatisfied owners. It was hypothesized that more owners of single family homes would be satisfied with structural quality than would owners of condominiums. However, this hypothesis was not accepted as there was no significant difference between condominium owners and conventional owners.

A checklist of 29 structural elements was used to evaluate frequency of reported problems (Table 1). Conventional owners had more frequent problems with 24 elements, while condominium owners had more frequent problems with only five. Soundproofing was the only feature with significantly more problems in condominiums, while interior finish, concrete, wall construction, and kitchen appliances were significantly more frequent problems in conventional houses. It had been hypothesized that owner-occupants of condominiums would report more problems, however, the reverse was true. Therefore, the hypothesis was not accepted.

TABLE 1. Frequency of Problems with Structural Elements: Priority Ranking by All Owners Combined

Structural element	All owners		Condominium owners		Conventional owners	
	<u>n</u>	%	<u>n</u>	%	<u>n</u>	%
Soil grading	140	42.6	84	38.5	56	50.5*
Interior finish	143	41.8	84	36.8	59	51.8**
Floor covering	137	39.9	87	37.5	50	45.0
Plumbing	129	37.5	83	35.8	46	41.1
Exterior finish	125	36.8	76	33.0	49	44.5*
Windows	120	34.9	77	33.5	43	37.7
Doors/locks	117	34.3	73	31.6	44	40.0
Landscaping	103	34.2	77	34.2	26	34.2
Concrete	107	32.2	64	28.1	43	41.3**
Bathroom fixtures	92	26.7	56	24.3	36	31.6
Roof	87	26.1	56	25.0	31	28.4
Wall construction	77	22.6	41	17.6	36	33.3***
Electrical system	74	22.1	46	24.4	28	25.7
Soundproofing	73	21.8	58	25.0**	15	14.6
Floor construction	72	21.1	47	20.3	25	22.7
Kitchen appliances	60	19.8	35	15.2	33	29.2***
Cabinets	66	19.3	43	18.6	23	20.7
Garage	44	15.1	25	13.9	19	17.1
Heating System	49	14.3	34	14.7	15	13.4
Counters	48	14.3	28	12.2	20	18.0
Air conditioning	23	13.9	20	15.5	3	8.3
Laundry	40	12.5	26	12.0	14	13.5
Fireplace	33	11.2	17	9.3	16	14.3
Ceiling finish	32	9.6	19	8.4	13	11.9
Closets	31	9.1	21	9.1	10	9.0
Water heater	30	8.9	22	9.7	8	7.2
Foundation	29	8.8	18	8.1	11	10.2
Ceiling construction	29	8.6	17	17.4	12	11.1
Stairs	15	5.7	10	5.2	5	6.9

\*p < .10. \*\*p < .05. \*\*\*p < .01.

The five most frequently reported problems for all owners were: soil grading and drainage (42.6%), interior wall finishing (41.8%), floor covering (39.9%), plumbing system (37.5%), and exterior finishing (36.8%). Types of problems ranged from minor to major.

Materials and workmanship were evaluated by quality ratings from terrible to outstanding, with good being considered the average or acceptable rating. Out of 27 materials tested, 20 were rated lower in condominiums, with four of these rated significantly lower in condominiums: soundproofing, windows, heating fixtures, and roofing (Table 2). Only concrete material was rated significantly lower by conventional owners. This was in agreement with the hypothesis which stated that condominium owners would rate quality of materials lower than would owners of conventional houses.

It was also hypothesized that workmanship would be rated lower by condominium owners than by conventional owners. However, this hypothesis was not supported because none of the 17 items tested for workmanship were rated significantly lower in condominiums, while three areas of workmanship were rated significantly lower in conventional houses: landscaping, concretework, and brickwork (Table 3).

There was no significant difference in percentage of condominiums and conventional owners who visually inspected their unit (95.7% vs. 99.1%), hired a professional inspector (13.3% vs. 18.8%), reviewed an inspection report (46.5% vs. 50%), or obtained a written warranty (84.8% vs. 87.2%). Visual inspection, professional inspection, and reviewing an inspection report did not

TABLE 2. Quality of Materials: Sixteen Lowest Rated by Condominium Owners

Materials variable	(-)		Good		(+)	
	n	%	n	%	n	%
Soundproofing	74	31.8**	117	50.2	42	18.0
Floor covering	70	31.4	127	57.0	26	11.7
Windows	69	29.5***	131	56.0	34	14.5
Landscaping	61	26.8	111	48.7	56	24.6
Bathroom fixtures	52	22.6	141	61.3	37	16.1
Air conditioning	26	22.2	75	64.1	16	13.7
Plumbing system	51	21.8	157	67.1	26	11.1
Doors	50	21.5	152	65.2	31	13.3
Concrete	44	19.6	153	68.0	28	12.4
Floor construction	42	18.2	134	74.9	23	12.8
Cabinets	40	16.9	132	55.9	64	27.1
Heating fixtures	36	15.9***	146	64.3	45	19.8
Interior walls	37	15.7	174	74.0	24	10.2
Closets	36	15.5	157	67.4	40	17.2
Exterior walls	35	15.1	172	74.1	25	10.8
Roofing	33	14.7**	151	67.4	40	17.9

Note. Rank order listing by ratings lower than Good (-). Originally six categories of ratings were used. These were recoded into three categories. Good was left as one category as it was the median rating for all variables and was considered as "average." Terrible, Bad, and Poor were considered below average (-), and Excellent and Outstanding were considered above average (+).

\*p < .10. \*\*p < .05. \*\*\*p < .01. Significantly lower than ratings by conventional owners.

TABLE 3. Quality of Workmanship: Lowest Rated by Conventional Owners

Workmanship variable	(-)		Good		(+)	
	n	%	n	%	n	%
Landscaping	27	45.0***	29	48.3	4	6.7
Soil grading	44	41.9	55	52.4	6	5.7
Interior painting	41	36.0	67	58.5	6	5.3
Interior trim	39	35.8	64	58.7	6	5.5
Floor covering	38	34.2	62	55.9	11	9.9
Plumbing installation	35	30.7	72	63.2	7	6.1
Concretework	33	30.6**	70	64.8	5	4.6
Door installation	34	29.8	72	63.2	3	7.0
Exterior trim	33	28.9	73	64.0	3	7.0
Exterior painting	30	27.3	73	66.4	7	6.4
Window installation	30	26.3	71	62.3	13	11.4
Tilework	25	24.0	60	57.7	19	18.3
Electrical installation	24	21.1	81	71.1	9	7.9
Cabinetwork	24	20.9	72	62.6	19	16.5
Appliance installation	19	16.8*	34	74.3	10	3.3
Counter installation	19	16.5	76	66.1	20	17.4
Brickwork	13	15.1**	58	67.4	15	17.4

Note. Rank order listing by (-). Originally six categories of ratings were used. These were recoded into three categories. Good was left as one category as it was the median rating for all variables and was considered as "average." Terrible, Bad, and Poor were considered below average (-), and Excellent and Outstanding were considered above average (+).

\*p < .10. \*\*p < .05. \*\*\*p < .01. Significantly lower than ratings by condominium owners.

significantly increase satisfaction with structural quality. A written warranty did increase satisfaction significantly for all owners combined. Professional inspection increased satisfaction with structural quality significantly only for condominium owners.

Among owners of condominiums, 19.9% reported repairs over \$100, while 22.7% of owners of conventional houses had reported repair expenses over \$100. Although it appears conventional owners had more repairs, the difference was not significant. The combined total for all respondents with repair expenses over \$100 was 22.4%. Of those who had repairs costing over \$100, 89.9% contacted the developer to handle the problem. Nearly one-third (32.9%) consulted an attorney. Slightly less than half said the problem had been resolved. The builder paid for repairs in 34.2% of the cases, while the resident assumed the burden for 29.1%. Homeowner Associations paid for 2.5%, 19% were not yet settled, and 15.2% were listed as "other." Some of these were covered by insurance, while many were split settlements between resident and builder.

### CONCLUSIONS

Although satisfaction with structural quality is generally high for owner-occupants of both condominiums and conventional houses, there appears to be room for improvement. The large minority of dissatisfied owners raises the question of what percentage is acceptable.

It has been shown that structural quality is not necessarily better in conventional homes than in condominiums, and that overall satisfaction with structural quality is virtually equal when comparing owners of conventional homes. It appears that when tenure is controlled for ownership, the type of structure, whether single-family or multi-family, is not a significant factor in satisfaction with structural quality. The inference from comments by owners was that the reputation of the builder and the developer may be a more significant factor contributing to satisfaction with structural quality.

There are several specific aspects of construction, both in materials and workmanship, which homeowners are dissatisfied with. These may indicate areas where cost-cutting is given priority over quality by builders, yet consumers might prefer higher quality rather than a small savings in cost. Consumers need to be aware of the most common problem areas in order to make a wise buying decision and help prevent unexpected repair expenses. Developers should be concerned and respond to areas where quality of materials and workmanship have been rated lowest by consumers.

Soil grading and drainage is the most frequent problem area and can also be one of the most serious. There is some overlap between the most frequent problem items and the lowest rated materials and workmanship. Interior finishing, exterior finishes, floor covering, landscaping, and plumbing are all repeated in more than one

area of response. All of these are examples of areas that consumers and builders need to give more attention.

It is interesting to note that materials were rated significantly better in conventional houses than in condominiums, while workmanship was rated significantly better in condominiums than in conventional houses. It was also interesting that owners of conventional homes had problems with more structural elements than did owners of condominiums. Both consumers and developers need to be more concerned with soundproofing, windows, heating system, and roofing in condominiums. In conventional homes, a closer look needs to be taken at interior finishing, concretework, landscaping, brickwork, and wall construction.

Consumer inspection, professional inspections, and reviewing inspection reports cannot be relied on to adequately judge structural quality; however, professional inspection may contribute to satisfaction with structural quality for owners of condominiums. A written warranty is significantly related to satisfaction with structural quality for all owners combined.

More than 20% of new home buyers can expect to pay \$100 or more in unexpected repair expenses soon after moving in, but they cannot expect the developer to cover the cost more than 35% of the time. The difference in major repairs (over \$100) is not significant between condominium and conventional owners.

#### RECOMMENDATIONS

Educators need to continue providing consumer homebuying information through traditional sources including schools, private real estate related businesses, and government agencies. Emphasis on structural quality evaluation should be included. Content of programs can be enhanced by identifying specific rather than general problems and difficulties encountered, as well as consequences. In addition, educators need to utilize a more aggressive and comprehensive approach to maximize the benefits of mass media and free publicity, such as writing press releases and articles for local papers, or offering to do a segment on local television magazine programs.

Developers and industry-related professionals can be more responsive to consumer needs by providing more pre and post purchase information, follow-up service, and quality control during construction. Builders or their representatives could provide information on types of materials and construction methods used and why. Use of high quality materials and methods can be used to promote sales. Industry representatives should explain inspections, warranties, normal problems to expect, and proper maintenance. In the San Diego area, a soil study is essential, and a statement in layman's terms should be provided to every customer.

Materials should be upgraded in known problem areas such as soundproofing, roofing, and plumbing. Customers can be offered more options for upgrading and package deals for items such as floor coverings, interior finishes, appliances, windows, doors, etc. Only reputable and licenced subcontractors should be used with on-site supervision of workers at all times to ensure quality control of workmanship. An after sale service program should be provided which could be a designated customer service inspector for consumers to call with problems, and/or a 30-, 60-, or 90-day followup visit or inspection. A free or low-cost comprehensive warranty for a minimum of one year should automatically be provided. If industry becomes more involved in self-regulation and problem resolution, it could prevent or reduce the need for further government controls.

Policy makers need to closely monitor problems related to rapid development and provide appropriate controls. Local policy makers should review building codes on a regular basis to determine if standards continue to be adequate, especially for noise insulation, plumbing, heating and cooling, and soil grading. More funding should be budgeted for recruiting, training, and hiring more and highly qualified building inspectors. An annual consumer survey of builder performance could be conducted and published. State policy makers can increase funding for enforcement of current rules and regulations and establish licencing procedures for both public and private building inspectors. Federal policy makers could work toward uniformity of real estate transactions regarding warranties and handling construction defects across state lines, and increase rather than decrease budgets for federal housing agencies which can assist consumers. Cost versus benefit to the consumer should be considered, but problems should not be allowed to become severe before action is taken.

Consumers need to invest a little more time and effort to evaluate this expensive and complex purchase. Selection of a reputable builder is probably the most important step to take. One way is to talk to other homeowners who may have already purchased in the development being considered. All important sources of information should be utilized including the sales agent, escrow and loan reps, educational courses, published information pamphlets, and housing and consumer agencies (such as Chamber of Commerce, Better Business Bureau, State Contractors' Licence Board, Department of Real Estate, City Building Operations and Permit Offices, HUD, FHA, VA, etc.). Prospective homebuyers should know which construction problems are most common and ask specific questions about them in addition to a visual inspection or walk-through.

Several areas for further research are suggested by this study. Identification of categories of major structural problems versus minor repair problems with a measure of perceived importance would provide a useful indicator of the need for stricter controls or enforcement. Perceived value received for price and whether owners would buy the same property with knowledge of structural

problems prior to purchase would be of interest. Builder performance, repair work completed, and quality and timeliness of service would be valuable areas to study.

A longitudinal replication over a period of five or ten years would provide interesting followup data. Construction quality in different regions, states, and real estate markets could be studied for comparison. Specific groups could be targeted for separate analysis, including first-time versus repeat buyers, single persons versus married couples, females versus males, and special interest groups such as the elderly and retired. Cost-benefit analysis could be done on the effectiveness of private and public building inspections and improved noise insulation standards in multi-family housing.

Another question that deserves study is the operation and conduct of Homeowner Associations and Property Management companies, and how satisfactory and responsive they are to homebuyers. Housing satisfaction research should be repeated on a periodic basis to keep current on this very important consumer product. The practical application of this study and future research can contribute to the goal of better housing for everyone.

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## ENERGY CONSERVATION: DISCUSSION

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I was asked to discuss the two papers presented in this session. The first paper is "Determinants of Energy Conservation activities" authored by Carol B. Meeks and the second paper is "Characteristics of Consumers Who Save and Dissave Energy After Installing Energy-Conserving Devices" by Molly Longstreth and Michael Topliff. They are interesting papers. I am particularly delighted to read these papers because, I believe, that various energy conservation efforts have helped greatly to alleviate the energy problems in the U.S. and the world, and truly, we should know more about the behavioral factors of adopting and implementing energy conservation measures.

These two papers can be placed in a nice and logical sequence. Meek's paper deals with the adoption (or installation) of energy conservation devices such as insulation while Longstreth and Topliff investigated whether or not consumers kept their commitment of conserving energy once they installed these conservation devices. The two papers share one common feature, and that is; they both used a large survey database. This attribute surely enhances the credibility of the empirical results.

### COMMENTS ON THE PAPER BY MEEKS

The study attempts to analyze the factors affecting household energy conservation activities reflected in the presence and addition of insulation. A sample of 37,687 single family homeowners from the 1980 annual housing survey was used. Under the chosen method of the linear discriminant analysis, the study was reasonably well executed. My comments focus on methodology, model specification and empirical results.

#### Methodology

Meeks used a linear discriminant function to classify households into particular groups (such as those with and without insulation), using a set of discriminating variables (such as income and household age, etc). The discriminant analysis refers to a statistical procedure for analyzing whether or not a discriminator such as income can be used effectively as a basis to distinguish a household who engaged in a conservation activity from those who did not. More specifically, it is a classification analysis. Even though the discriminant analysis is a relatively simple statistical method, it is not, at least to me, as common as other applied statistical tools such as least square regression or the analysis of variance (ANOVA). Therefore,

it would be helpful if the author can summarize, in more detail, the estimation and hypothesis testing involved in the discriminant analysis. For example, in the discriminant function, the dependent variable is defined as the discriminant score. How is this variable measured? How does the discrimination process work? The author did not provide any methods for evaluating the estimation results. Are there appropriate tests such as  $X^2$  test for measuring the overall goodness of fit? There is one innovative aspect of the methodology used in the paper. That is the random separation of the entire sample into one group (95%) for estimation and the other group (5%) for validation. Even though the particular percentage is rather subjective, the approach remains recommendable.

There is nothing wrong with the use of the discriminant analysis. However, given the objectives of the study, it would be desirable to use other more structural models like Probit or Logit models. These models would not only be able to determine statistically the relative importance of each of the relevant factors affecting conservation activities, they can also be used to predict the probability of adopting the conservation measures. It seems appropriate to treat the possible participation in these conservation activities in a probabilistic context.

#### Model Specification

Although the discriminant analysis does not provide the interpretable quantitative relationships between the dependent and independent variables like the regression analysis, it still embodies a causal relationship. It seems, to me, questionable to use the other energy saving features such as storm doors and windows as the discriminators. My concern has to do with the fact that these are alternative energy conservation activities. They may be complementary or competitive (or substitutes) to the two conservation activities (presence and addition of insulation) analyzed in the study. They maybe are substitutes because, for example, insulation and storm doors can both conserve energy. But the presence of one is likely to reduce the effectiveness of the other. They may be complementary because an installation of insulation may induce the installation of storm doors or windows. Given the budget constraint, households are likely to choose among these alternative conservation measures. The inclusion of "other" energy saving features would distort the causal relationship between the

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dependent and independent variables in the model. It would also complicate the assumption of the error term. Specifically, the presence of storm doors and windows is likely affected by other independent variables (such as income, age of house, etc). Therefore, they are not truly independent.

It would be more appropriate to incorporate the other energy saving measurers to form alternative energy conservation activities. There would not be just two as specified by the author. One can specify (1) presence of insulation only, (2) presence of insulation and storm doors and windows, and (3) presence of storm doors and windows only, etc. Of course, the number of combinations will multiply very quickly. One should work with the most important and relevant conservation options.

#### Empirical Findings

I would raise two questions.

1. As recognized by the author, the productive power of the estimated model is only moderate. For presence of insulation, the accuracy of predict is about 75% while it is about 61% for addition of insulation. This, of course, suggests that additional discriminators are needed.
2. The meaning of the coefficients of the discriminatory variables (Tables 5 and 6) is not very clear to me? Are there expected signs for these variables? For presence of insulation, all variables has the same sign for the two mutually exclusive groups (insulation vs no insulation). For addition of insulation, only the age of head variable has the opposite sign for the two mutually exclusive groups (insulation added vs no insulation added). Are these opposite signs expected? There are no standard errors or t-ratios reported. So one can not evaluate the statistical significance of these coefficient estimates.

#### COMMENTS ON THE PAPER BY LONGSTRETH AND TOPLIFF

Longstreth and Topliff's maintained hypothesis is that once consumers installed energy conservation devices, they do not necessarily practice conservation ethic. For example, after consumers added insulation to their houses, they may feel that they can keep the thermostat higher than before the conservation devices were installed for economic rather than ethical (such as helping the country) reasons. Energy conservation is aimed to increasing energy utilization efficiency not to decreasing the standard of living. However, it is hard to believe that consumers are not concerned about the pay back for the capital investment of these conservation devices. Just take a look of the aggregate statistics. In the United States, the total energy consumption in the residential and commercial sectors was 25.24 QUADs ( $10^{15}$  Btu) in 1981, 25.63 QUADs in 1982, 25.61 QUADs in 1983 and 25.62 QUADs in 1984.

There are apparent short-run fluctuation in energy consumption. But by and large, the aggregate energy consumption did not change much during 1981-84. (It actually decreased from 1982 to 1984). These are strong indicators that the energy conservation measures have been working in the U.S. Therefore, I remain skeptical about the authors' findings that a high proportion of consumers who had installed energy-conserving devices consequently dissaved. I will discuss my reservations with the following comments on methodology and model specifications.

#### Methodology

The authors conducted rigorous statistical analyses. The use of Logit is appropriate. A brief summary of the Logit model would be useful for readers who are not familiar with the method (similar comment to the previous paper). I also find their definitions of "saving" and "dissaving" to be creative and innovative.

It seems to me, the model has two major shortcomings. First, the model maybe too aggregate to achieve the objectives of the study. It would require a more disaggregate analysis at the end-use level to detect the true consuming behavior of the energy consumers. In this study, household energy consumption is measured by the sum of energy consumed for all end-uses (space heating, cooling, water heating, TV, appliances, etc.) divided by degree days (I presume the sum of heating and cooling degree days). Therefore, the dissaving as defined may not, for example, result from the increase in energy use for space heating after installation of storm windows but from the purchase of a new clothes dryer. If this is the case, it is not a dissaving. How about the same total degree days in 1981 and 1983 observed for two households. For one household, the cooling and heating degree days remained the same between the two years. But for the other, it had higher heating degree days but lower cooling degree days. Consumption behavior for heating and cooling may be different. The current model is not capable for sorting out these important behavioral elements. The empirical results would be much more credible if the model is constructed at the end-use level (unfortunately the RECS data base remains inadequate for this purpose).

The second short-coming is that the model captures only the short-run consumption pattern. In the short run, there are many disturbances such as climate and the timing of the installation of the energy conserving devices. Were these devices installed in earlier months or later months of the specified period (between March 1981 and April 1982)? This could make a lot of differences in explaining the short-run fluctuation of the energy consumption.

#### Model Specification

I have two comments. First, two energy price variables were used in the model. One is the average price for the first period (1980/81) and



the other is the difference between the two periods. There is no theoretical basis for the expected sign for the first price measure. It is, therefore, no surprise that this variable did not have much explanatory power in the model. The second price measure produced mixed results. The use of the difference has one major shortcoming. Consider the two numerical examples:

(1)  $20-21 = 1$  and (2)  $10-11 = 1$  (average price in 1983 minus average price in 1981).

The two examples have the same difference but notice that the first case represents a 4.8% decrease and the second a 9.1% decrease. Perhaps, it is more appropriate to use the relative (%) change in prices between the two periods. Also, it is not clear whether or not the authors used real or current energy prices. The real prices should have been used.

Second, one important set of variables is missing in the model. Specifically, the model should include the changes in the stock of appliances or energy using equipments as explanatory variables. A new purchase of a TV set in 1982/83 would increase electricity consumption despite the installation of energy conservation measures in 1980/81. It would seem essential to have these variables to capture the impacts of the additions of new appliances on energy consumption in the model.

#### SUMMARY

These are two very interesting papers. They contain much useful information related to adoption and implementation of important household energy conservation measures. Both papers also contain a thorough literature review. There are however rooms for improvement in model specification and statistical analysis.

CREATING A CONSUMER PROTECTION MANUAL FOR RHODE ISLAND:  
STUDENTS LEARN PROFESSIONALISM WHILE PROVIDING A SERVICE

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A 38 page Consumer Protection Manual was prepared and published by a specially created class of senior consumer affairs majors. The manual describes consumer rights and responsibilities embodied in federal and state law as well as notable gaps in the law. Covered topics include Retail Sales, Banking and Credit, Real Estate, Food, Motor Vehicles, Insurance, Miscellaneous Goods and Services, Consumer Complaints, and Agencies Offering Answers and Help.

The project idea came out of a Consumer Protection class assignment to research and report on a law. The students were surprised at how little they knew about the law. Additionally, some class members had or were currently serving in field experiences requiring answering consumers' questions or trying to help them seek solutions to problems. They found there was no central place to find the answers. Thus, we decided the state could use such a resource.

Nine seniors from that class enrolled in a Special Problems course the following semester in order to carry out our mission. As instructor, I developed the course objectives and grade criteria, but the students were to be in charge. The course objectives were as follows:

TASK OBJECTIVES

- 1) To locate and review previously published RI consumer law and/or rights materials.
- 2) To fill in the holes with appropriate and updated information needed for a RI consumer protection manual.
- 3) To write the manual in lay language with examples provided for clarity.
- 4) To locate and solicit funding for printing and distributing the finished product. (I arranged a meeting with a campus development office representative to help get them started.)

PROCESS OBJECTIVES

- 1) To work cooperatively as a group in making decisions, dividing labor, and critiquing the quality of the work submitted.
- 2) To work independently as assigned or volunteered so that all plans and others' work can proceed as scheduled.

- 3) To learn methods of legal and organization research at the state level. (Again, I arranged a session with a campus government librarian to familiarize us with the resources and strategies for this arduous task.
- 4) To learn grant seeking and writing skills which includes needs assessment and persuasive writing.

PROJECT ACCOMPLISHMENTS

- 1) A finished manual whose printing cost was funded by Student Affairs and the Dean of our college. (A number of funding sources were pursued unsuccessfully, but one student found and procured the Student Affairs source. I got the Dean's support simply because the school year ended too soon.)
- 2) Students learned new professional skills such as grant seeking, state level legal research, and word processing.
- 3) Students demonstrated (more for themselves than for me) professional skills they already had developed: time management and organization, negotiation, networking, responsibility to self and to others, research and writing skills.
- 4) A greatly needed service was rendered to the state and to future consumer affairs students. (700 of the 1000 copies we had printed were distributed to all the public libraries in the state as well as to key government and private organizations. Others will be used by students enrolled in the Consumer Protection course.)
- 5) The least tangible yet most exciting accomplishments were the pride and confidence the students gained through this project. The pride came not only from the finished product, but the realization that they had done so much fairly independently in such a short time frame. (As I have discussed in a separate paper on Career Development for Consumer Affairs students, I am convinced many of our students harbor overly modest assessments of what they can do in the professional world. I hope that is less true for these nine students as a result of our special project.)

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# A DECISION MATRIX COMPUTER PROGRAM

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## ABSTRACT

A program for MSDOS-compatible computers was written to help give students insight into decision-making under risk. The best action is calculated for each of six decision rules, including Maximax, Maximin, Expected Value, and Expected Utility for a range of levels of relative risk aversion. The program is user-friendly, and has a novice mode.

Evaluation of decisions involving risk is difficult, with information about probabilities and outcomes often not available. There are a variety of possible decision rules which can be used including the Expected Value rule and the Maximin rule. For many decision rules, it is useful to set up a decision matrix with possible states of the world arranged across the top of the matrix and possible actions by the decision maker arranged down the side of the matrix.

Teaching students to use decision rules is somewhat difficult, especially if one assigns students to seek out real examples. Often, real examples cannot be neatly described as two states of the world with two actions, so computing decision rules can be burdensome. A computer program can ease the problems of computation while still providing students with applications of decision rules. An existing program was revised, incorporating additional decision rules, including utility maximization of the utility functions of the form  $U = W^X$ ,  $U = \ln(W)$ , and negative exponential  $U = 1 - \exp(aW)$ . An option of either using expert or novice modes was incorporated. Six decision rules (Intriligator 1971; Maynes 1976) are automatically calculated:

1. MAXIMAX. The Optimist's Rule. Choose the action that has the best possible outcome.
2. MAXIMIN (MINIMAX). The Pessimist's Rule. Choose the action with the least bad worst outcome.
3. MINIMAX REGRET. Rule for the Regretful. Choose the action with the least bad regret.
4. LAPLACE. Ignorance Rule. Assume that all states of the world are equally likely. Choose the action with the highest expected outcome.
5. EXPECTED VALUE. Wealth Maximizing Rule. Choose the action with the highest expected value, using estimates of the probability of each state of the world.
6. EXPECTED UTILITY. Utility Maximizing Rule. Choose the action with the highest expected utility, using estimates of the probability of each state of the world. In the novice mode,

the best choice based on expected utility maximization is automatically calculated for each of 10 levels of relative risk aversion (Kimball 1988). When printouts are requested, the certainty wealth equivalents (wealth level with no uncertainty which would produce the same utility as the expected utility of the action) of the best action and the worst action are printed.

Example of output from the Payoff Program:  
Initial wealth = \$100,000. Action 1: do not buy insurance on \$5,000 car. Action 2: buy full insurance on \$5,000 car. State 1: no theft(99% probability) State 2: theft of car (1% probability). Insurance company has 20% load, so charges average policy buyer \$60, will pay out an average of \$50 per policyholder.

	States of the World	
	1	2
	No theft	Theft
Action 1 (do not buy)	\$100,000	\$95,000
Action 2 (buy)	99,940	99,940
Probability	.99	.01

Maximax: Action 1 is best.  
Maximin: Action 2 is best.  
Minimax Regret: Action 2 is best.  
Laplace: Action 2 is best.  
Expected Value: Action 1 is best.  
Expected Utility:

	Relative Risk Aversion	Best Action
U=Square root(Wealth)	0.5	1
U=log(Wealth)	1.0	1
Neg.Exponential, at initial wealth: 3.0	3.0	1
("average" relative risk aversion: (Kimball 1988))		
Neg.Exponential, at initial wealth: 6.0	6.0	1
Neg.Exponential, at initial wealth: 10.0	10.0	2

The program may be obtained for IBM compatible computers by sending a stamped, self-addressed envelope with a formatted 5.25 or 3.5 inch disk. The program is written in compiled BASIC (Zedcor), and will execute directly by typing PAYOFF and pressing the return key. The program includes options for a considerable amount of explanation and prompting users for appropriate responses.

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FAMILY MONEY MANAGEMENT: HOW ONE-EARNER AND TWO-EARNER  
FAMILIES HANDLE MONEY

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The purpose of this study is to investigate how one-earner and two-earner families handle money. In a previous study, this researcher found that families in the full-nest stage were more likely to have joint responsibility for selected financial decisionmaking tasks than they did as newlyweds, possibly a reflection of wives' increased labor force participation or changing societal roles. The wife tended to have the main responsibility for paying bills, a clerical task which could be considered part of her homemaker role. Assuming that two-earner families are more egalitarian than one-earner families, it is hypothesized that two-earner families will be more likely to have joint responsibility for money management tasks than one-earner families.

Data are from "A Panel Study on Consumer Decisions and Asset Management" which was established in 1968 with periodic data collection through 1981. Only data from the 1981 wave are used. Initial sample size was 311 newlywed couples, with husbands aged 30 years or younger; sample size following attrition was 209. Of these, only couples with spouse present and husband employed were included in this study with a final sample size of 161 couples.

Money management variables were measured as who had the main responsibility for various tasks: husband, wife, or both. Chi-square analysis was used.

In general, there was a greater percent of joint responsibility for money management tasks in two-earner families than in one-earner families. When joint responsibility was the largest category for both families, a larger percent of two-earner families answered with this response than one-earner families. Significant differences were found at the .05 level for: (1) who decides disposition of surplus money, and who looks after household's monthly expenditures for (2) clothes, (3) transportation, (4) insurance, and (5) miscellaneous expenses. Joint responsibility was the largest category for who decides disposition of surplus money and who handles money for transportation and miscellaneous expenses in both families. Joint responsibility for insurance expenditures was more prevalent in two-earner families, while wife responsibility was more prevalent in one-earner families. In both families, the wife had the main responsibility for clothes expenditures but more so in one-earner families.

Thus, two-earner families share responsibility for money management. Wives in one-earner families are more likely to have the main responsibility than are wives in two-earner families. One limitation of this study is that data on who makes savings and investment decisions were not available. Analysis of such data would help to determine the extent of egalitarianism regarding money management in both types of families.

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## RESOURCE MANAGEMENT AND EMPLOYMENT STATUS OF FARM FAMILIES

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This research is based primarily on the Illinois section of the S-191 regional research project, Farm Wife's External Employment, Family Economic Productivity and Functioning. Other states participating in the project were Alabama, Kentucky, Louisiana, Nebraska, North Carolina, and Virginia.

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Families are encouraged by consumer educators to reallocate resources in order to alleviate financial problems. This resource reallocation is most evident in the case of farm families. One or more family members has taken external employment, especially in this decade, as a way to save the family farm. The objective of this research is to explore how perceptions of availability of resources are related to employment status of farm families.

### ILLINOIS DATA

Data for 226 husbands and wives, who live on family farms in Illinois, are available for 1985. Mean family size was 3.3 persons. Wives were 49.9 years old on the average, and husbands 52.3. Couples averaged 28.2 years farming. All families were active farmers. One or both spouses were employed at nonfarm jobs in 49 percent of the families.

EXTERNAL EMPLOYMENT STATUS OF 226 FARM FAMILIES	NO.
Both spouses employed	34
Wife only employed	46
Husband only employed	31
Neither spouse employed	115

Respondents were asked to express feelings about resources (e.g., time, energy, money, and health). They also were asked how often events which influence resource management occurred in their families.

### HOUSEHOLD PRODUCTION

Significant relationships ( $p \leq .05$ ), using chi-square analysis, were found between employment status of farm couples and perceptions about resources expressed individually by husbands and by wives. In general, husbands were most dissatisfied with time to do things when both spouses, or only the husband, had nonfarm employment. They tended to be most satisfied

with the way the farm runs when neither spouse or the wife only was employed in nonfarm work. Wives were most satisfied with the way both the farm and house runs when no one had external employment or only the husband was employed. Full-time homemakers were the most satisfied with their housework, while husbands who were full-time farmers most often felt too tired or ill to do housework. When the wife only was employed or both spouses had nonfarm work, wives were more likely to disagree that they would rather hire things done than do them.

### GENDER ROLES AND HEALTH

Other variables significantly ( $p \leq .05$ ) related to employment status included perceptions about gender roles and health. Employed wives were more likely to disagree that a married woman's most important task is to take care of her husband. Wives were most satisfied with husband's health when he was employed off the farm. Husbands were most satisfied with own health, wife's health, and family health when both spouses had external employment.

### FINANCIAL SITUATION

In addition, employment status of farm couples and perceptions concerning the financial situation were significantly ( $p \leq .05$ ) related. When husbands were the only ones employed off the farm, they most often felt time use was the most important indicator of family well-being. Wives were most dissatisfied with farm income when they had external employment and most satisfied with farm income when the husband was the only one with a nonfarm job. Wives also made more final financial decisions when they were employed.

Family size, an indicator of resource needs, also was significantly related to employment status. Large family size was associated with one or both spouses having external employment and small family size with full-time farming.

Interestingly enough, no significant relationships were found between external employment status and how frequently either spouse felt in control of life, depressed about life in general or with their financial situation, or satisfied with spousal relationships. In addition, employment status was not significantly related to perception of income adequacy for either spouse.

Farm men and women seem to make trade offs among their basic resources when they participate in external employment. These findings help us understand the interface of external employment and resource management of farm families.

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# SIGNIFICANCE OF FRIENDS AND NEIGHBORS AMONG NEVADAN RURAL ELDERLY

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## Importance of the Problem:

As the American population ages, attention is focused on the role of friends and neighbors as support systems especially as the trend of retirees to move to rural areas with limited community support systems continues. Nevada has had a number of such communities appear in the past few years and the focus of this study, the Topaz Lake Area located in northwestern Nevada. Are Friends and neighbors supplying needed emotional and physical support to their retired neighbors in these isolated rural areas?

## Null Hypotheses:

The null hypotheses are founded on Lee's Social Network Theory. There are no significant differences between those with low or high interaction with friends and neighbors and the following variables: sex, age, marital status, income, planned length of stay in the community, proximity of kin, perceived life satisfaction, and perceived life satisfaction among former rural and urban residents.

## Methodology:

The research utilized data from the Nevada Agricultural Experiment Station Project 902, "Growing Older in a Rural Retirement Area: Family and Community Considerations". Community researchers contacted all households in the Topaz Lake Area and obtained surveys from 209 that had one or more individuals 50 years of age and older for a total of 331 individual respondents. Subjects were given a cumulative score on friend and neighbor interaction from three questions from the

survey: "How often do friends visit your home" and "how many friends do you talk to about personal matters".

## Findings:

Using chi square with  $p < .05$ , significant differences were found in the three following categories: income, perceived life satisfaction today, and perceived life satisfaction today of the former urban residents.

## Conclusions:

Those in the higher income group had higher friendship interaction than expected. Those that had high friendship interaction were more satisfied with their lives than those who had low friendship interaction, which is especially true for the former urban residents. The variables that proved not to be significant (sex, age, marital status, planned length of stay in the community, proximity of kin, and life satisfaction among former rural residents) are important to look at since there was no significant difference between them and interaction with friends and neighbors.

1 Graduate Student  
2 Professor

## USING PERSONAL AND ENVIRONMENTAL RESOURCES TO MANAGE STRESS

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### Introduction:

Individuals living in small, isolated, communities experience stressors which may be unique to rural life as well as those stressors which occur regardless of place of residence. When an individual experiences stressor events a level of tension is created. This triggers the use of personal and environmental resources as a means of managing that tension, controlling stress, and maintaining a sense of well being.

There is a strong correlation between tension and stress, therefore the purpose of this study was to use measures of tension, personal resources, and environmental resources to predict levels of stress. Tension was measured by the number of life events an individual had experienced in the past year. Personal resources used in the analysis were satisfaction with family life, satisfaction with family finances, age, gender, number of years in the community, level of education, problem solving coping score, support seeking coping score, and avoidance coping score. Environmental resources used were number of community resources used, level of social interaction, and annual household income. Stress was measured on Cohen's Perceived Stress Scale.

### Methodology:

The data used in this study were taken from the Nevada portion of the Agricultural Experiment Station Regional Research Project, W-167, "Coping With Stress: Adaptation of Nonmetropolitan Families to Socioeconomic Change". A mail

questionnaire was sent to 800 randomly selected households from four rural communities in Nevada. Respondents (N=342) answered questions relating to personal problems, personal demographics, satisfaction with family life, financial situation, and use of community services.

### Results and Conclusions:

In the regression analysis satisfaction with family life was the principle factor in explaining variance in stress scores. Other statistically significant factors were tension, age, and satisfaction with family finances. Together, they explained 25 percent of the variance in stress scores. Although the remaining nine factors were not individually significant in explaining variance in stress scores, all entered the regression equation. In order of entry they were: gender, years in the community, number of community resources used, problem solving coping score, support seeking coping score, social interaction, level of education, avoidance coping score, and total income ( $R^2 = .28$ ).

It was concluded that individuals residing in isolated, economically depressed towns in rural Nevada are survivors. They have lower than average stress scores, stress producing tension having been mitigated by such personal resistance resources as satisfaction with family life and with their financial situation. Since thirty two percent of the variance in stress scores was unexplained, further study is needed to identify additional environmental and personal resistance resources which enhance an individual's ability to manage tension, reduce stress, and maintain well being.

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## ADOLESCENT SPENDING AND SAVING PATTERNS

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Family economists and professionals in the field of human development are concerned about economic socialization [1] processes of children and youth in the United States. Employed adolescents can earn a great deal of money and are allowed to spend their earnings for discretionary items. These spending patterns may result in "premature affluence" [2] and prove to be problematic.

### PURPOSE

The purpose of this study was to examine the spending and saving patterns of adolescents and identify student, family, and economic characteristics related to these behaviors.

### DATA BASE

The 1982 sophomore cohort of the High School and Beyond Study (HSB) of students in U.S. secondary schools was used. Responses of 1,619 employed high school seniors and their parents were analyzed.

The HSB survey asked students how they spend their earnings. Responses included six options: school supplies; contributions to family; car expenses; buy or do things; save for college; or save for another purpose. Respondents designated the amount as "none," "a little," "about half," and "most." Sixty-one percent spent none of their earnings for school supplies and 73 percent indicated no contributions to family income. Sixty percent reported spending one-half or most of their earnings to "buy and do things" and 40 percent reported spending one-half or most of their earnings for car expenses. Approximately 50 percent reported no savings for college or other purposes.

### METHODOLOGY

Three indexes were developed and divided into quartiles to represent levels of contribution. A savings index combined the two purposes for saving; a necessity index combined school expenses and family contributions; and a discretionary index combined "buy and do things" and car expenses.

Factors hypothesized to be related to the student's choice to save, spend for necessities, or spend for discretionary items included student characteristics, student attitudes and behaviors, family characteristics, family attitudes and behaviors, and economic factors. Relationships were tested using the Chi Square statistic of significance ( $p < .05$ ) and the Somer's D measure of association.

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### FINDINGS

Student spending patterns were diverse. However, spending tended towards discretionary purchases with 14 percent spending most of their earnings on discretionary items and only 1.5 percent spending nothing on discretionary items. One percent of the respondents saved most of their earnings and 26 percent saved none of their earnings. Only 0.3 percent spent most of their earnings on necessities and 50 percent spent no earnings on necessities.

Student characteristics, attitudes and behaviors, family characteristics, family attitudes and behaviors, and economic factors were related to choices to save, spend for necessities, or spend for discretionary items. Factors significantly related to all three indexes included: student variables of gender, race, score on a series of cognitive abilities tests, high school grades, orientation towards success in the work world, and family socio-economic status.

### CONCLUSIONS AND IMPLICATIONS

These findings support the possibility that adolescents in this country are socialized into patterns of "premature affluence." A significant proportion of the students spent most of their earnings on discretionary items and very little on necessities and savings. Students who ranked high in discretionary spending were males with a positive work orientation, who valued money and their jobs, and were rated by parents as hard workers. These students were from families with higher incomes and socio-economic status and had two parents and younger fathers.

Parental attitudes and behaviors were related to student behaviors, evidenced in the relationship between parental and student saving. Saving was also related to plans for post secondary education.

Adolescents who spend a large share of their earnings on necessities were from households with fewer resources, evidenced by lower family income, renter status, lower socio-economic status, lower parent educational level, residence in urban areas, family financial problems, and one parent. These findings suggest that "premature affluence" may be limited to those in higher economic groups.

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EFFECT OF SPOUSAL COMMUNICATION ON HOUSEHOLD  
SATISFACTION WITH FINANCIAL SITUATION AND QUALITY OF LIFE

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The main purpose of this study was to identify the causal relationships between spousal communication, satisfaction with financial status and quality of life. Data for this study were obtained through personal interviews of 123 money managers from Marshalltown, Iowa. Results show that money managers who were satisfied with their financial status communicated less to their spouse while those who felt deeply in debt communicated more. Economic factors were also found to be the main predictors of satisfaction with financial status and quality of life.

Family economics stability and security including the management of resources have been identified as important priority areas for new initiatives in home economics research (Abdel-Ghany & Nickols, 1984). In their study of research that has been done in the family economics area from 1972-1982, Abdel-Ghany et al., (1984) concluded that though a wide variety of areas have been covered, some topics are conspicuously absent. The present research intends to focus on one of the topics that have not been widely researched on, namely spousal communication about money matters and how this affects satisfaction with financial status and quality of life.

Communication is an important component of family resource management system (Deacon & Firebaugh, 1981). Effective communication is essential for sharpening goals, clarifying standards involving more than one person, and for discussing satisfaction or dissatisfaction with outcomes (Deacon & Firebaugh, 1981). Communication may be viewed as how people exchange feelings and meanings as they try to understand one another and come to see problems and differences from the other persons point of view. It is the process of transmitting feelings, ideas, facts, and attitudes between human beings (Bienvenu, 1970). Communication has been studied in many different ways, for example, communication style (Norton, 1978), amount and content of communication (Gilbert, 1976; Swift, 1985). Some socioeconomic factors have been found to be related to communication. These include household size (Miller, 1976; White, 1983); employment status (Savage, 1980; White, 1983); education (Savage, 1980); and income (Sabatelli et al., 1982).

A few studies have been done to determine what influences satisfaction with financial situation

of households. Winter, Bivens, and Morris (1984) analyzed the factors that affect the changes in family's financial situation, and the effect of reported changes on their satisfaction level. They found that households who reported a high level of income were more satisfied with their financial situation than those who reported low levels of income. Size of wealth and employment also contributed to high satisfaction with financial situation. Berry and Williams (1987) found that satisfaction with income increased with family income and perceived future financial security.

Analyses of the sources and determinants of quality of life has been a central concern of social scientists. Some researchers have studied social indicators of quality of life while others have studied economic indicators (Abdel-Ghany, 1977). Other researchers have used subjective indicators (Campbell, Converse, & Rodgers, 1976). Quality of life has been found to be predicted by various socioeconomic factors. Age has been found to be positively related to satisfaction with quality of life (Campbell et al., 1976; Savage, 1976; Ortiz & Arce, 1986). Strumpel (1973) found a significant relationship between individuals income and a sense of well-being. Spreitzer and Snyder (1977) found that health and economic sufficiency significantly predicted satisfaction with quality of life. Inglehart and Rabier (1986) found that marital status and educational level were positively related to subjective well being of households. Inglehart and Rabier (1986) make an important point that the indicators of quality of life may vary depending on one's social background and affluence of the society in question.

Communication has been found to be significantly related to quality of life. Berry and Williams (1987) found that the higher the amount of communication, the lower the perceived future financial security and the higher the satisfaction with quality of life. Another finding was that agreement over family finances contributed to higher satisfaction with quality of life, through marital satisfaction as an intervening variable. Financial management procedures and network were also found to be positively related to satisfaction with quality of life

## PROCEDURES

### Data

The data for this study were obtained through personal interviews in Fall of 1986 from Marshalltown, Iowa. The interviews were conducted by trained interviewers under the

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supervision of the Statistics Laboratory, Iowa State University. The original sample consisted of 164 cases. Out of these, 132 cases were interviewed and nine of them were excluded from the study due to incomplete information. The sample size was reduced to 123 cases. This study deals with only married respondents reducing the sample size to 89. The unit of analysis was the household's money manager.

The majority of the respondents were female (63 percent), had a mean age of 47 years and an average of 12 years of education. Most money managers were employed part time or full time (69 percent) and the average number of household members was three. For these households, the mean net income was \$28,000 per year and their mean net worth was \$125,000. The respondents reported an average of \$3,840 as the proportion of income saved in 1986.

#### Variables

Independent variables. The independent variables in the study included demographic factors like age, education, household size and home ownership. Economic factors included income, networth, proportion of income saved in 1986 and monthly debt payments. The subjective variables were the money managers' debt perception, presence or absence of financial difficulties and financial goals.

Dependent variables. The dependent variable in the first regression was spousal communication, which was one of the proposed intervening variables and an independent variable in the second and third regression models. Spousal communication was measured by asking the respondents how frequently they communicated to their spouses about money matters. The responses were recorded on a 5-point Likert scale: (0) Never, (1) Seldom, (2) Sometimes, (3) Often, and (4) Very often. Satisfaction with financial status was another dependent variable which was also an intervening variable. This variable was measured by making an index from six items. The respondents were asked: how satisfied are you with your (1) present level of living, (2) amount you have in savings, (3) ability to stay out of debt, (4) ability to pay back what you owe, (5) current level of assets, (6) how prepared financially for emergency expenses. The responses were recorded on a 5-point Likert scale: (1) Extremely dissatisfied, (2) Dissatisfied, (3) Neutral, (4) Satisfied, (5) Extremely satisfied. The third dependent variable was satisfaction with quality of life. The respondents were asked, "How satisfied are you with your overall quality of life?" The answers were also on a 5-point Likert scale from extremely dissatisfied to extremely satisfied.

The descriptive statistics show that the results of satisfaction questions were skewed toward the satisfied end of the scale. For example, 85 percent of the respondents responded that they were satisfied or extremely satisfied with their quality of life. Results on spousal communication show that 78 percent of the respondents reported that they communicated

often, or very often, about money matters with their spouses.

#### Analysis

Pearson correlation was used to show the direction and strength of the relationship between variables. Path analysis was used to test the causal relationship between variables. Path analysis is concerned with estimating the magnitude of the linkages between variables and using those estimates to provide information about the underlying causal processes (Berry & Williams, 1987). Independent variables which were hypothesized to have significant paths to the dependent variables were chosen based on the existing theory, review of literature and the Pearson correlation results.

#### RESULTS AND DISCUSSION

Figure 1 shows the Pearson correlation results. The results show that couples who have high income, and networth and are employed communicated less about money matters. On the contrary, couples who reported presence of financial difficulties and who perceived themselves as being highly indebted reported more communication about money matters. Age was positively correlated with satisfaction with financial status ( $r=.24, P<.05$ ) denoting that older money managers were more satisfied with their financial status. This finding has been supported by other financial satisfaction studies (Spreitzer & Snyder, 1977).

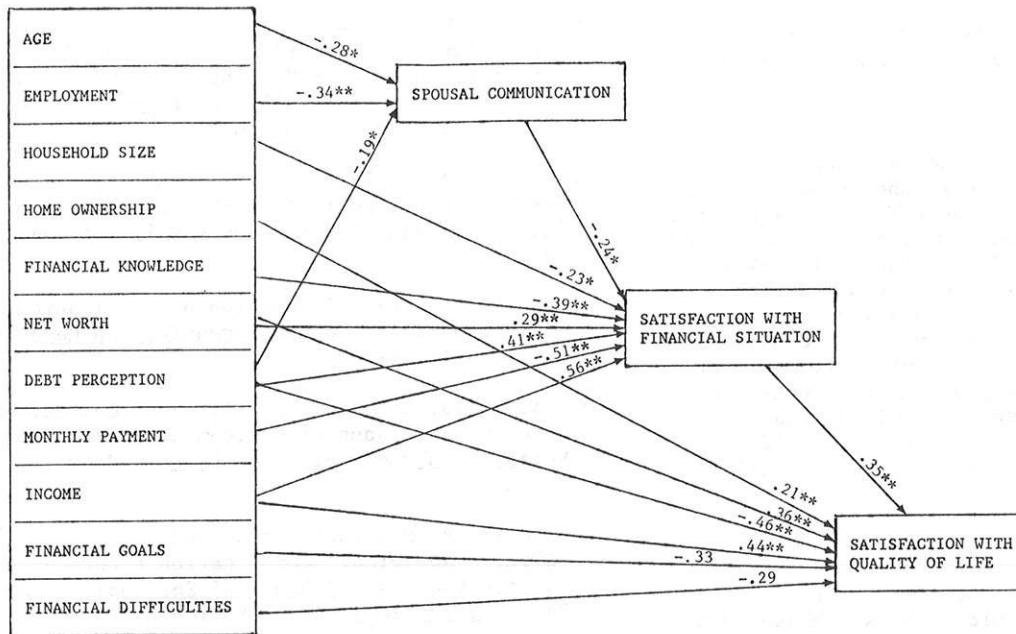
Results also show that the larger the household size the less satisfied the money managers were with their financial status ( $r=-.35, P<.05$ ). Other factors which are positively related to satisfaction with households financial status were networth ( $r=.34, P<.05$ ), savings ( $r=.42, P<.05$ ) and having little or no debt ( $r=-.65, P<.05$ ). Home ownership and income were positively related to satisfaction with quality of life showing that households who are home owners and who have high income are more satisfied with their quality of life.

Spousal communication was negatively related to satisfaction with financial status showing that money managers who felt more satisfied with their financial status communicated less with their spouses ( $r=-.24, P<.05$ ).

Correlation results on quality of life show that older money managers and home owners were more satisfied with their quality of life while those who perceived themselves as being highly indebted were less satisfied with their quality of life.

Table 1 shows the results of the path analysis model. Age and employment are negatively related to spousal communication. This shows that the older, employed money managers communicate less with their spouses. Money managers who are not highly indebted also communicate less with their spouses.

FIGURE 1. Path Analysis Model Showing the Causal Relationships Between Exogenous and Endogenous Variables



\* P<.1  
\*\*P<.05

Satisfaction with financial status was predicted by networth and income. Money managers who reported high networth and income reported high satisfaction with their financial status. On the other hand, highly monthly debt payment lead to less satisfaction with financial status.

Satisfaction with quality of life was predicted by satisfaction with financial status, networth income and home ownership. However, presence of financial difficulties and being highly in debt led to less satisfaction with quality of life. Results also show that presence of financial

TABLE 1. Pearson Correlation

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Age	1														
2. Home	.15*	1													
3. Household	-.56*	-.03	1												
4. Employment	-.67*	-.09	.33**	1											
5. Income	-.23*	.20*	.21*	.27*	1										
6. Net worth	.38*	.19*	-.33*	.27	.36*	1									
7. Monthly Payment	-.28*	.09	.09	.26*	.64*	.27*	1								
8. 1986 Savings	.06	.14	-.11	.11	.64*	.60*	.44*	1							
9. Financial Goals	-.40*	-.09	.31*	.33*	.23*	-.02	.22*	.02	1						
10. Financial Difficulties	-.43*	-.25*	.17*	.36*	-.02	-.23*	.09	-.18*	.19*	1					
11. Financial Knowledge	-.04*	.32*	.04	.13	.31*	.24*	.19**	.34*	.28*	-.10	1				
12. Debt Perception	.51*	.04	-.46*	-.42*	-.05	.32*	-.21*	.22*	-.24*	-.49*	.05	1			
13. Spousal Comm.	-.17*	.01	.08	-.02	-.13	-.22*	.01	-.19*	.11	.22*	.02	-.23*	1		
14. Sat. with Financial Status	.24*	.08	-.35*	-.16*	.16	.34*	-.08	.42*	-.11	-.36*	.05	.65*	-.25*	1	
15. Sat. with Quality of Life	.17*	.42*	-.36*	-.11	.25*	.12	.13	.16	-.14*	-.09	.04	.24*	-.09	.45*	1

\*P<.05

goals lead to less satisfaction with quality of life. This finding could be justified especially if the goals are not being met adequately.

TABLE 1. Path Analysis Model Showing the Causal Relationships Between Exogenous and Endogenous Variables.

The key findings of this study are that: (1) money managers communicate if they have financial problems and this, the authors feel, is a healthy thing to do; (2) the money managers who have high income and are satisfied with their financial status communicate less. One recommendation would be to encourage even those who are financially well off to communicate because this may help them make better use of their money or help them realize their goals more effectively. On the whole, it is also very evident that economic factors are the key predictors of satisfaction with financial status and quality of life for this sample.

#### Limitations of the Study

One limitation of this study is that the variable, spousal communication, was measured by asking the respondents about frequency of communication. The measurement of this variable could be expanded to incorporate the nature of communication. The measurement may also be improved by asking the respondents about other people that they communicate with for example financial counselors and planners. Communication with professionals may help improve respondents' financial status. The measurement of quality of life in this study used one item. Considering that quality of life is a very wide concept, it could be measured using several items incorporating economic, social and subjective measures.

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## THE CHANGING STRUCTURE OF THE RETAIL MARKET AND ITS EFFECT ON THE CONSUMER

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The retailing market is undergoing a period of rapid structural change. This study provides an empirical analysis of trends in the structure of the general merchandise retail market as a whole and for three modes of retailing over the period 1959-83. An examination of the structure yields some support for the hypothesis that concentration and competition in the market have increased. Profit rates of the leading general merchandise retailers have fallen despite the increased levels of concentration.

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### PURPOSE

Bluestone et al. (1981) noted a contradiction while studying the structure of the retail market: that while the structure has become more oligopolistic over the 1965-77 period, the market itself has become more competitive. Another contradiction was that despite the increased concentration, the profit rates of the leading stores have fallen. The purpose of this study is to confirm and quantify the contradictions identified above and to expand the period of the study to 1959-83. First, we will establish whether the structure of the market has become more concentrated. Second, whether competition in the market has increased. Third, whether falling profit rates were experienced despite increased concentration. All measures are then disaggregated by the three modes of retailing, namely department, discount, and specialty stores.

### DATA SOURCES

The necessary data were compiled from two major sources, namely Fairchild's Financial Manual of Retail Stores, and Standard and Poor's Industry Surveys. Secondary sources were employed where the need arose such as Moody's Industrial Manual, Discount Merchandiser and the Census of Retail Trade.

### METHODOLOGY

The approach used in the study is that of industrial organization theory. According to this theory, the structure of an industry affects its conduct and conduct in turn affects performance. These in turn will affect firm's profitability and efficiency with which resources are allocated. The ultimate target of the entire retail system, the consumer, will be affected in the end.

Seller concentration, one element of industrial structure, is the basis of analysis of the degree and trend of concentration in the market. The two measures of concentration used are Concentration Ratio and Herfindahl Index measures based on sales. Entropy measures were used to test whether competition has increased within the market. Profit rates, one element of industrial performance, were calculated by the ratio of net income to sales. These ratios were then regressed against time. All these measures were calculated for the eight leading firms in the market and the three modes.

### RESULTS

The hypothesis that concentration has increased is supported by the data for the market as a whole. Both concentration ratios and Herfindahl indexes showed a tendency to increase over the period of the study. The results for the three modes indicated that the discount and specialty industries became more concentrated, whereas the department store industry became less concentrated. The result of entropy measures showed increased competition in the market, the specialty, and the discount stores. The department store industry experienced decreased competition.

Results of profit rates showed that the leading stores in the market have experienced falling profit rates over the years. All had negative Pearson Correlation coefficients which were significant at least at the .05 level. Department and discount store industries experienced declining levels of profit, whereas specialty stores had increasing rates of profit.

### CONCLUSIONS AND IMPLICATIONS

Falling profit rates of the leading general merchandise stores should benefit the consumer. These declining profit rates are partly due to a decline in the economy and partly due to the escalated competition among the leading stores. Eventhough the escalated competition would benefit the consumer in terms of lower prices and higher quality products, the recent increased levels of mergers and acquisitions in the retail market may not be in the consumer's long-term interest. The results of the study are of interest to the Federal Trade Commission which tries to maintain competition in the market.

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EARLY RETIREMENT INCENTIVE PROGRAMS:  
A SURVEY OF FACULTY PREFERENCES

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This study focuses upon the issue of early retirement. The faculty at Virginia Tech were asked to respond to a questionnaire that explored their feelings about retirement in general and early retirement incentives in specific. Findings indicate that most faculty had done some planning for retirement. Most were favorably disposed to having some early retirement incentive program available. Non-economic incentives to retirees, such as use of laboratory, office, and parking, were also shown to be very important.

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#### THE RETIREMENT DECISION

The decision to retire is an emotional and economic one. Traditionally, we have considered age 65 as being the usual retirement age, with age 70 being the mandatory retirement date. Federal legislation abolishing mandatory retirement at age 70 has now opened the door for employees to work their entire lifetime, if they so desire. This poses a problem for institutions of higher education in which the employee is given tenure at an early age. The employee then has the option of remaining with that institution into their seventies and eighties, or even longer. The questions then become: (1) at what age(s) should an early retirement incentive be offered, (2) what size of incentive would encourage those you wish to retire to do so, and (3) what form should the payment take--lump sum, annuity, or some type of bridging program. In addition are there some non-economic incentives that could be offered that would make retirement attractive?

#### THE DATA

The data for this study comes from a 1987 study conducted by the Commission on Faculty Affairs at Virginia Tech. Questionnaires were sent to 1872 faculty members at Virginia Tech using campus mail. 994 questionnaires (53%) were returned.

#### RESULTS

Only 16% of the respondents said that they had planned a great deal for retirement. 46% said that they had done some planning and 28% had done a little. These latter categories

represent those who may have started a tax shelter plan or contributed to an IRA but have done no specific planning for anticipated needs during retirement. The greatest concern is for adequate health insurance at a reasonable cost. 80.8% stated this was a serious concern. 95% of the respondents indicated that they had serious or some concern about maintaining their current standard of living. Almost as enlightening was that 45% of the respondents had little or no concern for maintaining their institutional affiliation and perquisites and 30% had little or no concern for maintaining their professional and collegial contacts. When asked at what age would they like to retire, 65% said that they would like to retire before age 65. However, only 52% felt that they would actually be able to retire before age 65. 37.4% said that they were looking forward to retiring and 39% said they were neutral about the prospect. With regard to the types of early retirement incentive programs, the annuity supplement programs and the partial retirement programs were the most desirable. The lump sum severance program was the least desirable. These early retirement incentive programs linked with some non-economic incentives was considered the most desirable package.

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PERSONAL SELF-CONCEPT AND PERCEIVED FINANCIAL  
DIFFICULTIES GO TOGETHER

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The purpose of this research was to explore the factors associated with the self-perception of financial difficulty among a group of metropolitan county government employees. Results suggest that the individuals reporting financial dissatisfaction had a very insecure sense of self and were discontented with other areas of life.

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Based on a 1980 readership survey, *Psychology Today* developed a profile of the "Money Troubled" and the "Money Contented." Three major characteristics were associated with the "Money Troubled": a frustration of material aspirations; an insecure sense of self and related dissatisfaction with friendships and personal growth; and unhappiness with both work and home life. "We cannot tell, of course, how much discontent over money contributes to psychological problems; people who worry about money may simply be chronic worriers" (Rubenstein, 1981: 36-37). The purpose of this research was to explore the factors associated with the self-perception of financial difficulty.

#### METHODOLOGY AND SAMPLE DESCRIPTION

Data were collected in 1986 from a random sample of half of all employees of a Washington, DC SMSA county government. To limit the sample to middle income households, individuals not reporting total family income or whose income was less than \$15,000 were excluded (N=459).

Asked to rate "how good or difficult your life has been in the past year" among nine areas of life, 78 respondents revealed that finances had been "very difficult." Chi square analysis comparing the responses of this subsample with those of the remaining 381 respondents on five other items revealed a consistent pattern of financial discontent. The financially distressed subsample indicated that they did not have enough money month to month to manage daily expenses and meet basic needs; that they could not manage an unexpected crisis requiring \$500-\$1,000; that they frequently worried about the amount of money available; that they worried about being overextended or using too much credit; and that they were dissatisfied with present standard of living.

Demographically, the subsamples were similar. Respondents in both groups could be described as married females from dual income households; age, education, and family size were similar. Chi square analysis revealed differences in ethnicity and income. The financially distressed group included more blacks and native Americans; those financially satisfied reported higher gross incomes.

#### FINDINGS AND DISCUSSION

To profile the differences in self-concept between the subsamples, several factors were considered. Responses to a 26-item scale to measure the effects of stress, job, and burn-out indicated that the financially distressed group was experiencing significantly more stress.

Responses to a 14-item scale to measure self-concept revealed that the sample of government employees held a more positive self-image than those reporting financial discontent. More than three times as many of the financially distressed respondents disagreed with the statements "on the whole, I am satisfied with myself" and "I feel confident that I am capable of dealing with most problems that occur in my life." The financially discontent were more likely to disagree with the statement "I feel I am very close to being the kind of person that I want to be."

Individuals with internal locus of control approach life with an attitude that life events are self-controlled as opposed to externals who feel that life and fate control them. Internals generally report better personal adjustment. Twice as many of the financially distressed respondents as the others agreed "I have little control over the events and circumstances that affect my life."

Finally, how did the respondents rate how "good or difficult life has been in the past year" in the eight other life areas? Chi square analysis revealed differences between the financial discontents and the rest of the sample in all areas except "my extended family relationships." More of the financial discontents also reported difficulty with marriage, parenting, self, friendships, support systems, job, and health.

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## Children's Knowledge of Money and Consumer Purchases

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The purpose of this paper was to investigate children's knowledge of money and consumer purchases. The study also explored relationships between children's sources of income and knowledge levels as well as other potential factors associated with knowledge. The sample consisted of 84 children and their parents. The children were between 5 and 10 years of age and attended an after-school day care program. The children were interviewed and given a test which included a total of 35 items divided into three basic parts. The sub-sections tested coin and paper money identification and comparative values, the comparative cost of various items children might purchase, and what a given amount of money would purchase. Props were used for the test so that the children could see and feel the items they were comparing. Parents were also surveyed. They provided information about the child's characteristics as a money manager and where the child received the majority of his money. In addition to descriptive statistics,  $t$ -tests and Pearson correlations were used to test for statistical differences in the data. Cronbach's alpha was calculated to test the reliability of the money test scale and its subscale.

Of the 84 children in the sample, 51% were male and 49% were female. The mean age was 7 years, and 30% of the children received allowances as their primary source of money. Most of the remaining children received money on an "as needed" basis from their parents. For the purpose of this paper, children who received regular allowances and those who received most of their income from jobs (10%) were grouped together. There was no statistical relationship between age and sex in the sample or between age and primary source of income.

The scores on the money test ranged from 26% to 100% right with a mean score of 79%. The children scored highest (82% right) on the subsection testing coin and paper money identification, while they scored lowest (70% right) on the subsection testing the comparative costs of various items children might purchase. On the test as a whole, boys scored significantly higher than girls with average scores of 84% and 75%, respectively. Boys also scored significantly higher on the money identification subtest. Children who received money primarily through allowances or from jobs scored significantly higher than children who received money as needed (85% vs. 75% right) on

the total test and two of the subtests (money identification and cost comparison). In addition, age was positively related with the money test scores and each of the subtests. Cronbach's coefficient alpha for the money test was 0.89. The alphas were 0.90, 0.48, and 0.78 for the money identification, cost comparison, and consumer subtests, respectively.

There were several significant relationships between the test subscales and the child's characteristics as a money manager. Children rated as good money managers by their parents were likely to score higher on the money identification subscale. Children rated by their parents as 1) budgeters, 2) planners, 3) borrowers, 4) organized, and 5) future-oriented scored significantly higher when tested on the comparative costs of products children might purchase. Children characterized as risk takers and tightwads by their parents scored higher on the subsection testing knowledge about what a given amount of money would buy.

In summary, there were significant differences in knowledge with boys scoring higher than girls and older children scoring higher on the test than younger children. Children who received allowances as their primary source of money also scored higher on the knowledge test than did children who received money on an "as needed" basis. The most difficult part of the test appeared to be the subscale dealing with comparative costs of purchases. On this sub-section, children who were rated as having positive financial management traits scored significantly higher than children rated by their parents as not having those traits.

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ANOTHER LOOK AT THE U. S. CONSUMER EXPENDITURE SURVEY:  
A COMPARISON OF THE 1972-73 SURVEY AND THE CONTINUING SURVEY METHODOLOGIES

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The Bureau of Labor Statistics (BLS) has been conducting expenditure surveys since the late nineteenth century. The data are used in a wide variety of economic and statistical analyses and in support of Consumer Price Index revisions. Over the years, changes in survey methodology have been introduced. These changes have been highlighted in BLS publications; however, no one review of these changes currently exists. The purpose of this paper is to fill that void by reviewing BLS materials to integrate information related to changes in the survey methodology, and thus to compare and contrast the methodologies employed in the two most recent expenditure surveys. This is not to be considered an exhaustive review. The discussion is designed primarily for Consumer Expenditure Survey public use tape users. Information concerning the methodologies should be of particular importance for researchers who are interested in comparing expenditure patterns for 1972-73 and the 1980's.

#### INTRODUCTION

The Consumer Expenditure Survey of the Bureau of Labor Statistics (BLS) is the most comprehensive and up-to-date source of data available on the expenditures, income, and demographic characteristics of American households. These data are used in a wide variety of economic and statistical analyses and in support of Consumer Price Index (CPI) revisions. The BLS has been conducting expenditure surveys since the late nineteenth century. All of the surveys, with the exception of the most recent one, were designed to collect data periodically, at approximately ten-year intervals. The last periodic survey was conducted in 1972-73. However, the need for more timely data than could be supplied by the periodic surveys lead to the most recent survey which was designed to collect data on a continuing basis (Gieseman and Rogers 1986). This survey, known hereafter in this paper as the Continuing Consumer Expenditure (CCE) Survey, was initiated in October 1979, with the first year of data for 1980.

With each new survey period, the methodologies used to collect and to process the data have become increasingly more sophisticated. However, changes in the survey methodology have been introduced with the recent survey which can pose potential challenges and opportunities for consumer researchers using the BLS expenditure data, particularly if comparisons are to be made between 1972-73 and the 1980's. These changes have been highlighted in various BLS publications; however, no one article currently exists which reviews these major changes together. The

purpose of this paper is to fill that void by reviewing Bureau publications and additional materials in order to integrate information related to changes in the survey methodology, and thus to compare and contrast the methodologies employed in the two most recent expenditure surveys. This is not an exhaustive review. The discussion is designed primarily for Consumer Expenditure Survey public use tape users. In most instances, BLS publications reviewed are not specifically cited in the text but are noted in the Reference list under U. S. Department of Labor.

This paper is divided into three remaining sections. Methodological similarities are first briefly noted, followed by methodological differences. The latter section is subdivided to highlight differences introduced with the CCE Survey according to the overall design, definitions, and Interview- and Diary-specific changes. The last section is a summary with a brief review of the survey methodology research currently underway at the BLS.

#### METHODOLOGY COMPARISON: SIMILARITIES

Basic similarities in methodology for the two survey periods include the sponsorship of the survey, administration of data collection, population coverage, the reporting unit for which expenditures are collected, and data collection instruments. In general, the surveys are quite similar; however, within these areas of similarity, there are differences. Differences are discussed in the next section of the paper.

The surveys are sponsored by the BLS, U. S. Department of Labor, with data collected by the Bureau of the Census. Data are collected from a national probability sample of households designed to represent the total civilian noninstitutional population and a portion of the institutional population. The unit for which expenditure reports are collected is the set of individuals comprising a consumer unit. The 1972-73 CE and the CCE Surveys consist of two separate components, each with its own questionnaire and sample. The components are a Quarterly Interview Panel Survey in which each consumer in the sample is interviewed every three months over five consecutive quarters, and a Diary or recordkeeping instrument completed by the sample consumer units for two consecutive one week periods with the sample spread over a 12 month period.

The Interview is designed to collect data on relatively large expenditure items such as property, vehicles, education, and major appliances. Data are also collected for expenditures which occur at fairly regular intervals such as rent, utility bills, and clothing, and for expenditures incurred on trips. The Interview Survey instrument is used to collect

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