

might be the most important variable in accounting for variations in food away from home expenditure. The price of FAFH and its substitute, food at home, would also influence the demand for FAFH. If these prices vary by location, location variables such as region and city size may be related to the demand for FAFH.

Household Production Theory. Becker [2] suggested that household spending for goods and services in the marketplace should be considered in the context of a household production model analogous to the economic model of the profit-maximizing firm. Based on this model, the price of the time of household members would be a crucial variable in explaining food away from home spending, as the price of the substitute commodity, food at home, includes not only the market price of groceries, but also the time of the household members in preparing the food, cleaning up, etc. The price of groceries may vary little in a cross-sectional sample, but the opportunity cost of the time of family members may vary substantially. In addition, there are substantial economies of scale in producing food at home, but only limited economies of scale in purchasing food away from home. Therefore, the demand for food away from home should be lower for large families than for small families, all other things equal. The household production model also suggests an additional reason for an impact of location variables, as the full cost of FAFH includes travel time, so the full cost of food away from home may be higher in rural areas.

The value of the wife's time may vary with her employment status. Having a paid job may be related to higher food away from home expenditures not only because of higher family income, but also because of the higher cost of food at home due to the higher opportunity cost of the wife's time. Constructing a model of this is difficult, partly because of the transitory nature of the labor force participation of some wives. The impact of the wife's employment on food away from home spending may depend on family size, the wife's age, other family income, and other factors. To simplify the model, rather than using components of family income, or constructing a complex structural model, total current consumption is used as a proxy variable for permanent income in this paper [5;10].

METHODS

The Sample

The sample used in this study was taken from the 1973 interview component of the 1972-73 Consumer Expenditure Survey. This survey is the most recent and most comprehensive cross-sectional data available which provides annual household expenditure and income information classified according to socioeconomic and demographic characteristics [4].

For this study, only husband-wife households where the husband was under age 65 and was employed fulltime were included in the analysis. These households were chosen in order to control

other factors so as to make for a clearer interpretation of the effect of wife's employment status on household expenditures for food away from home.

The Dependent Variable

Annual food away from home expenditures reported for each household was used as the dependent variable. Only three percent of the sample reported zero expenditures, so that there should be little bias with ordinary least squares regression [9].

The Independent Variables

Socioeconomic and demographic variables included in this study were age, education, and employment status of the wife, race, annual total current consumption of the family, region of the United States, and city size. To allow for possible nonlinear effects, quadratic terms were included for consumption, age, and family size. Race was coded as zero for black, and one for white or other nonblack. Education, region, and city size were each coded as dummy variables. The employment status of the wife was computed as full time equivalent weeks worked per year by the wife. The Bureau of Labor Statistics coded the wife's employment status as not working, part-time, and full-time. This variable was coded as zero, 0.5, or one, and multiplied by the reported number of weeks worked per year to yield the number of full-time equivalent weeks worked per year.

The Models

Three models were tested in this study. The first model was a "bivariate" regression model, with groups of related variables entered separately in eight regressions:

1. Total consumption and consumption squared;
2. Wife's employment status (full time equivalent weeks worked per year);
3. Family size and size squared;
4. Age of wife and age squared;
5. Race;
6. Region of the United States;
7. City size;
8. Wife's education.

The second and third models were stepwise regressions. The second model used all the socioeconomic and demographic characteristics used in the bivariate model. This model was used to ascertain the effects of all the variables on FAFH expenditures. The third model included all the variables in the second model, as well as the interactions of the following sets of variables: 1 with 2-8; 2 with 3-8, 3 with 4,5; and 4 with 5.

It is hypothesized in the present study that the use of interaction terms may help to ascertain the relationship between the employment status of the wife and FAFH expenditures for different types of households, as well as to better explain the relationship between the socioeconomic and demographic characteristics, and FAFH expenditures.

RESULTS

Descriptive Statistics

Means and standard deviations of the variables are shown in Table 1. Mean total current consumption was \$10,869, with 90 percent of the households having levels between \$4,500 and \$20,350. Mean food away from home spending was \$532, with 90 percent of the households having levels between \$22 and \$1,468. Mean food away from home consumption as a percent of mean total consumption was 4.9 percent. The mean level of full time equivalent weeks worked by the wife was 19 weeks.

Table 1. Means and Standard Deviations of Variables: 1973 U.S. Bureau of Labor Statistics Interview Survey, Married Couples With Husband Under Age 65 and Employed Full-Time (N=5,069)

Variable	Mean	Standard Deviation
Food Away From Home	532.185	519.233
Total Consumption	10,868.835	5,366.710
Wife's Weeks Worked	18.928	21.459
Family Size	3.115	1.674
Age of Wife	38.758	11.829
Race Not Black	0.926	0.261
Region (base=South, proportion= 0.295)		
Northeast	0.214	0.410
North Central	0.287	0.453
West	0.204	0.403
City Size (base=rural, proportion = 0.170)		
Cen.City,SMSA of million+ (C1)	0.141	0.348
Outside C.C.,SMSA million+(C2)	0.279	0.449
Cen.City,SMSA of 400K-999K(C3)	0.068	0.252
Outside C.C.,400K-999K SMSA(C4)	0.085	0.280
Cen.City,SMSA of 50K-399K (C5)	0.067	0.250
Outside C.C.,50K-399K SMSA(C6)	0.065	0.247
Urban but outside SMSA (C7)	0.125	0.330
Wife's Education (base=D.K./no educ.,proportion = 0.022)		
1-8 years (E1)	0.086	0.280
9-11 years (E2)	0.187	0.390
H.S. grad (E3)	0.452	0.498
13-15 years (E4)	0.130	0.344
B.S. or more(E5)	0.115	0.319

Regressions

The Models. Food away from home consumption was regressed on the independent variables in three ways. In Model I, food away from home was regressed on each set of independent variables separately (Table 2). For instance, the regression of food away from home on total consumption and total consumption squared was:

$$\text{FAFH} = 0.065 C - 4.55E-7 C^2 - 109.550 \quad (\text{adj. } R^2 = 0.268),$$

where FAFH = food away from home consumption, and C = total current consumption.

(The intercept terms and the adjusted R^2 s are not shown in Table 2). The largest adjusted R squared for the other Model I regressions was 0.026 for wife's education. The Models II and III regressions are described above and in Table 2.

Total Consumption. The effect of total consumption on food away from home consumption for each of the three models was roughly linear. For total consumption levels representing 90 percent of the sample, the predicted values for the three models were very close. For Model I, the marginal propensity to consume food away from home at a level of total consumption of zero is 0.065 -- for every extra dollar of total consumption, 6.5 cents is spent on food away from home. At the mean value of total consumption, the marginal propensity to consume (MPC) food away from home is 0.055, and the "income" elasticity is 1.12 -- a one percent increase in total consumption is associated with a 1.12 percent increase in food away from home consumption. At the 95th percentile level of total consumption, the MPC for FAFH is 0.046.

Wife's Employment. In Model I, each extra full time equivalent week worked by the wife was associated with an extra \$3.21 spent per year on food away from home. In Model II, each extra week was associated with \$2.06 spent per year on food away from home. In Model III, each week was associated with an extra \$2.18 for whites and other non-blacks, but with no increase for blacks. Figure 1 shows the relationship between wife's weeks worked and FAFH, with other variables held at mean values for Models II and III.

Family Size. Because of the high correlation between family size and family size squared, only the latter entered in the regression in Model I. Although the quadratic term for family size is only significant at the 0.08 level, the predicted effect of increasing family size from two to nine is almost a 60 dollar increase. In Model II, the linear term for family size is significantly negative, so that holding total consumption constant, there is a substantial drop in predicted food away from home consumption as family size increases. Figure 2 shows the relationship between family size and FAFH, with other variables held at mean values for Models II and III. Based on Model II, at the mean values of the other independent variables, the following are the predicted food away from home (FAFH) total and per capita spending for family sizes from two to nine:

Family Size	Total FAFH	Per Capita FAFH
2	\$580	\$290
3	560	187
4	541	135
5	522	104
6	502	84
7	483	69
8	463	58
9	444	49

Part of the decrease in per capita FAFH with increasing family size may be accounted for by the need for the family to pay for other consumption, as total consumption is held constant in the calculations above. Part of the pattern may also be explained by the greater number of young children in larger families. However, part of the pattern may be explained by the relative time cost of food at home being smaller for larger families.

Age of Wife. In Model I, the age of the wife squared had a significant effect on food away from home consumption. Predicted spending for a household with a 60 year old wife is \$78 higher than for a 20 year old wife. The age of the wife did not enter into the Model II or Model III regression.

Race. Based on the Model I regression on race, black households spent \$187 less than white and other nonblack households. The race coefficient in Model II was only \$118, probably because total consumption was included in the multiple regression. In Model III, the effect of race was more complex, with the difference between blacks and whites greater for households with wives employed full time all year (Figure 3). The difference in FAFH also increased as total consumption increased.

Region. In Model I, there were no significant differences between any regions, with the greatest difference being a \$32 higher level of food away from home spending in the West compared to Northeast states. In Model II, however, households in the South had significantly higher levels of food away from home spending (controlling for total consumption, etc.) than households in the other three regions. The largest difference was between the South and the West, with households in the West having predicted spending \$94 lower than similar households in the South. In Model III, the difference between the South and other regions increased as total consumption increased.

City size. In Model I, the highest predicted spending is for households living in the suburban ring of an SMSA with a million or more population, with a level of food away from home spending \$208 higher than for rural households. Households living in larger metropolitan areas had predicted spending levels significantly higher than rural households, but households living in the central city of an SMSA of 50,000 to 399,999 population, and households living in a non-SMSA urban area did not have predicted spending levels significantly different from rural areas. In Model II, controlling for total consumption, etc. reduced the differences among areas, although households in the largest size SMSAs still had significantly higher food away from home spending. The pattern is much more complex in Model III, with predicted spending highest for the largest size SMSAs, but spending for small cities lower than for rural areas and medium size cities. Figure 4 shows the relationship between FAFH and total consumption for different city sizes, based on Model III.

Wife's education. The basic relationship between food away from home spending and the wife's education in Model I is the higher the wife's education, the higher the spending. However, in Model II, households with a wife with a high school diploma had predicted spending \$35 higher than similar households with wives of higher or lower educational levels. In Model III, the wife's education had a small effect, but the pattern is more complex and not completely consistent.

Total consumption and total consumption squared accounted for 92 percent of the explained variance in food away from home spending in Model II. In all three models, the amount spent for FAFH increased as total consumption increased. None of the other variables in either original form or as interaction terms accounted for a large variation in FAFH. As real income and real total consumption increase in the future, food away from home spending should continue to increase.

As the number of weeks a wife worked during a year increased, FAFH expenditures also increased. This suggests that purchased meals are substituted for meals prepared at home as the value of time of the wife increases as she increases her participation in the labor force. As the labor force participation of married women continues to increase, further increases in food away from home spending should take place.

The negative relationship between family size and FAFH found in Models II and III suggests that as family size continues to decrease in the future, food away from home spending should increase.

The lack of relationships between wife's weeks worked and FAFH for black households is somewhat puzzling. Perhaps a greater incidence of extended or other nonnuclear household types may be related to the differences in patterns between whites and blacks. A permanent income effect, or the impact of housing, or other discrimination, may be forcing black families to be "thriftier" than similar white families. Middle and upper income black and white families may become more similar in the future.

The use of interaction terms in the regression model did little to increase the proportion of variance explained (.298) over the value for the regression without the interaction terms (.291). However, the use of interaction terms in the model shows the complexity of the factors influencing the consumption of FAFH. For instance, the positive relationship between wife's weeks worked and FAFH (Models I and II) is shown in Model III to exist only for nonblack families. Given the unexplained variation in expenditures for FAFH with the use of the models in this study, as well as other models used in previous studies, further research is needed to determine what other factors may influence the consumption of FAFH.

IMPLICATIONS

Based on plausible trends for many of the independent variables, substantial future growth in food away from home spending can be expected. This may have implications for nutrition education programs and other types of consumer education. For instance, many consumer-related cooperative extension programs are related to food preparation in the home. In the future, perhaps there should be a shift of emphasis toward food away from home.

Table 2. Regressions with Food Away From Home as Dependent Variable. Model I: "Bivariate" Regressions (only one independent variable or one group of related variables entered); Model II: Stepwise Regression without interaction terms; Model III: Stepwise Regression with interaction terms.

Variable	Model I		Model II		Model III	
	Reg. Coeff.	Stand. Coeff.	Reg. Coeff.	Stand. Coeff.	Reg. Coeff.	Stand. Coeff.
Total Consumption	0.065	0.674***	0.065	0.670***	0.053	0.549***
Consumption Squared	-4.55E-7	-0.196***	-4.30E-7	-0.185***	-----	-----
Wife's Weeks Worked (FTE)	3.208	0.133***	2.055	0.085***	-----	-----
Family Size	did not enter	-----	-19.408	-0.063***	-18.497	-0.060***
Family Size Squared	0.741	0.025*	-----	-----	-----	-----
Age of Wife	did not enter	-----	-----	-----	-----	-----
Age of Wife Squared	0.024	0.045***	-----	-----	-----	-----
Race Not Black	186.820	0.094***	118.382	0.060***	-----	-----
Region (base=South)						
Northeast	-20.490	-0.016	-93.644	-0.074***	-----	-----
North Central	-17.865	-0.016	-67.043	-0.058***	-----	-----
West	11.496	0.009	-93.333	-0.072***	-----	-----
City Size (base=rural)						
Gen.City,SMSA of million+ (C1)	135.214	0.091***	73.988	0.050***	55.729	0.037***
Outside C.C.,SMSA million+(C2)	208.856	0.180***	47.645	0.041***	-----	-----
Gen.City,SMSA of 400K-999K(C3)	107.645	0.052***	52.136	0.025**	-----	-----
Outside C.C.,400K-999K(SMSA)(C4)	130.360	0.070***	-----	-----	-----	-----
Gen.City,SMSA of 50K-399K (C5)	46.658	0.022	-----	-----	-----	-----
Outside C.C.,50K-399K SMSA(C6)	81.345	0.039**	-----	-----	-----	-----
Urban but outside SMSA (C7)	44.218	0.028	-35.260	-0.022*	-----	-----
Wife's Education (base=H.S. grad, no ed., or D.K.)						
1-8 years (E1)	-217.614	-0.117***	-----	-----	-----	-----
9-11 years (E2)	-81.780	-0.061***	-----	-----	-----	-----
H.S. grad (E3)	did not enter	-----	34.800	0.033***	-----	-----
13-15 years (E4)	46.535	0.031**	-----	-----	-----	-----
B.S. or more(E5)	125.860	0.077***	-----	-----	-----	-----
Race X Wife's Weeks Worked					2.181	0.088***
Total Consumption Squared X C7					-2.54E-7	-0.044**
Total Consumption Squared X Northwest					-4.38E-7	-0.150***
Total Consumption Squared X West					-4.67E-7	-0.101***
Total Consumption Squared X E3					2.06E-7	0.046***
Total Consumption Squared X C5					-4.11E-7	-0.041***
Total Consumption X North Central					-0.005	-0.050***
Total Consumption Squared X E1					-4.26E-7	-0.031**
Total Consumption X Race					0.006	0.072**
Total Consumption X C2					0.003	0.033**
Constant			-163.844		-47.652	
Adjusted R Squared			0.291		0.298	

* Significant at .10 level
 ** Significant at .05 level
 *** Significant at .01 level or better.

Stepwise regressions for Models II and III had p=.05 to enter; p=.10 to drop a variable, and minimum tolerance=.10.

FIGURE 2 PREDICTED ANNUAL FOOD AWAY FROM HOME SPENDING BY FAMILY SIZE: THREE MODELS

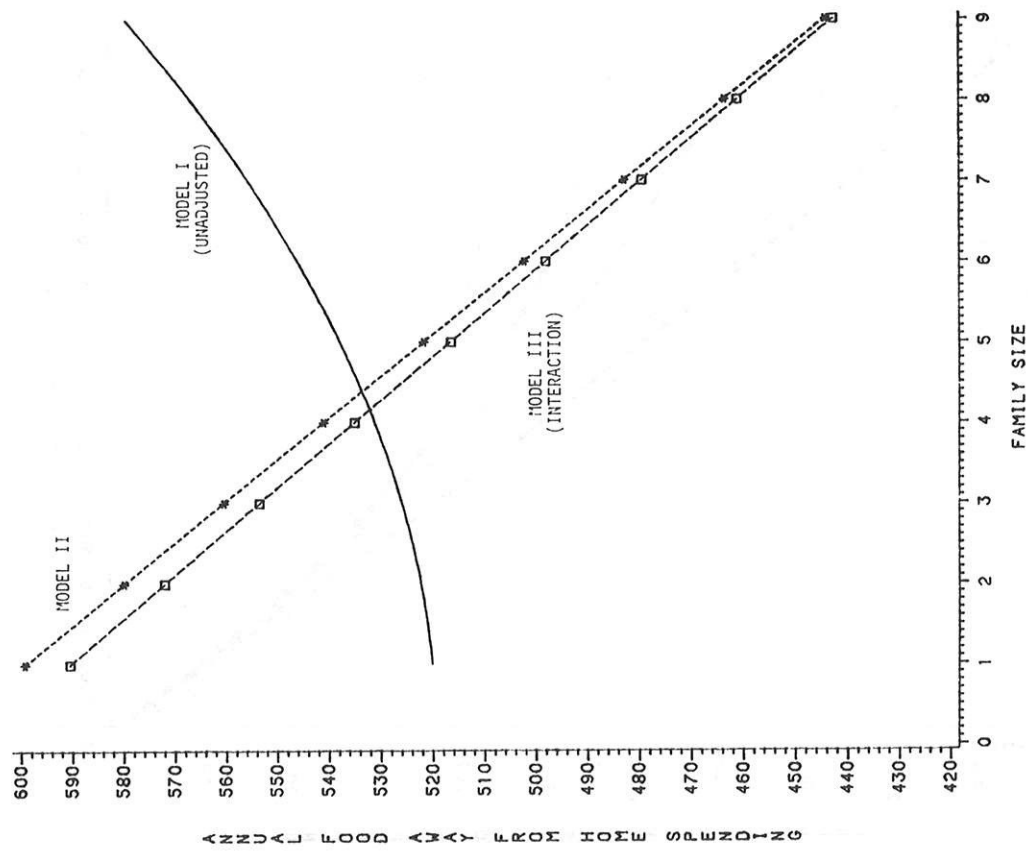


FIGURE 1 PREDICTED ANNUAL FOOD AWAY FROM HOME SPENDING BY FULL TIME EQUIVALENT WEEKS WORKED BY WIFE: THREE MODELS

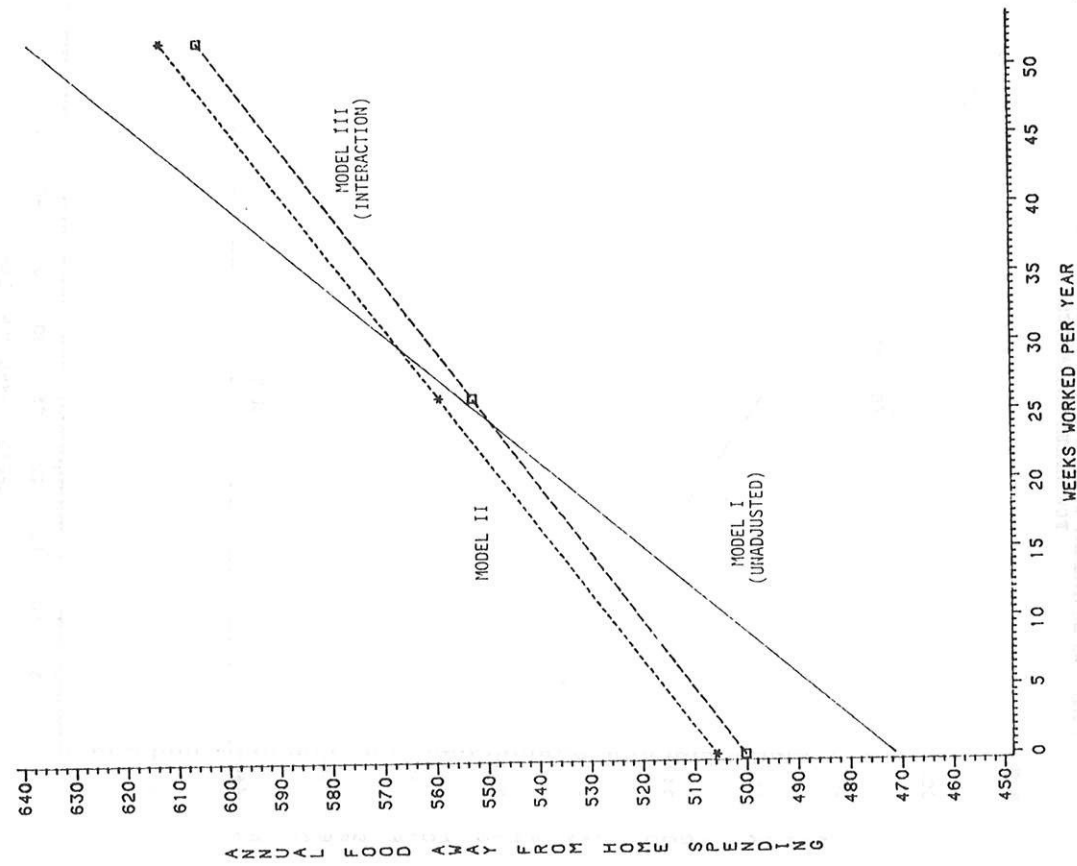


FIGURE 3 PREDICTED ANNUAL FOOD AWAY FROM HOME SPENDING BY FULL TIME EQUIVALENT WEEKS WORKED BY WIFE: INTERACTION MODEL FOR BLACKS AND WHITES

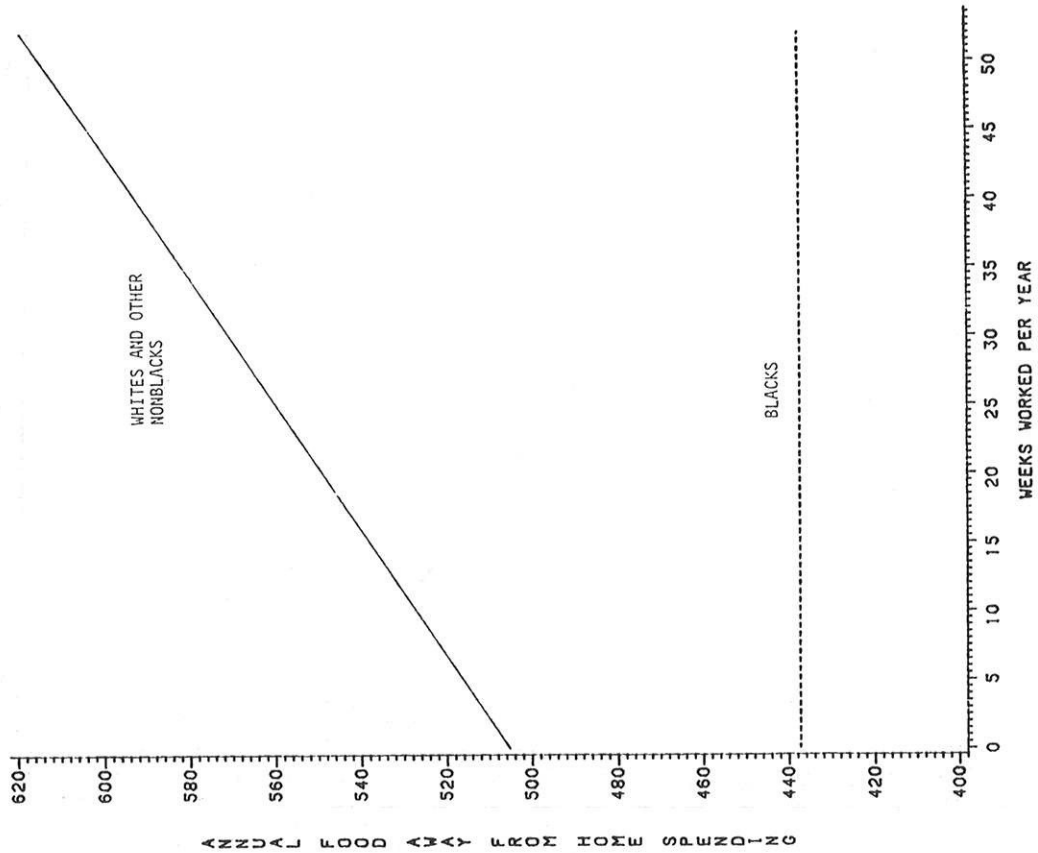
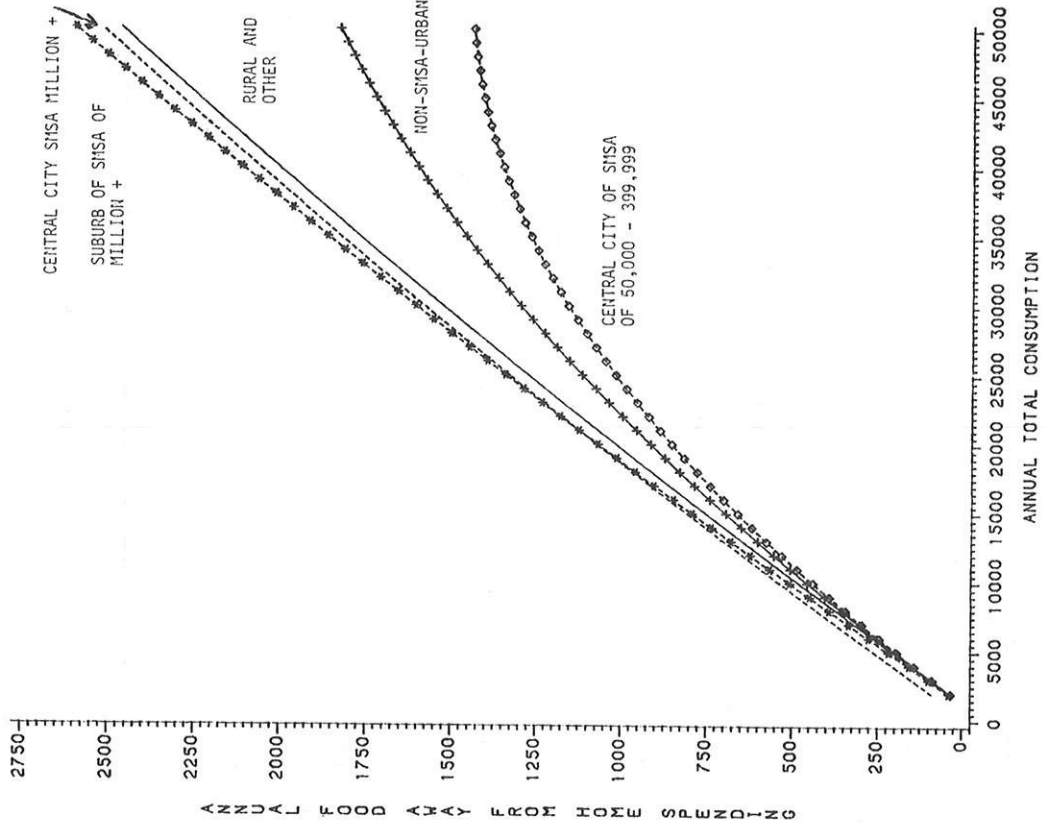


FIGURE 4 PREDICTED ANNUAL FOOD AWAY FROM HOME SPENDING BY TOTAL CONSUMPTION BY CITY SIZE: INTERACTION MODEL



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ABSTRACT

This research investigated differences in the productivity of food and nutrient resources in meal preparation and consumption. Household production theory provided the theoretical framework. Two stage least squares was used to estimate household production functions for family meals. The results were theoretically sound, and have implications for the economic and nutritional well-being of households.

INTRODUCTION

Extensive food and nutrient consumption research has been done within the traditional consumer demand framework (2, 10, 13). Empirical research which utilizes a household production framework, however, has been limited (8, 11, 12). There are cases in which this latter framework may be most appropriate. Household production theory is particularly useful when examining productivity within the household, as well as the demand for market goods used in household production.

Besides the choice of a specific framework, another theoretical, as well as practical issue, which a researcher working in this area must also consider is whether to examine food or nutrients. There are instances when data limitations may determine which measurement is used. It is interesting to ask, "How will results, and consequently, research implications differ depending on the particular definition of food/nutrient resources used?"

The purpose of this research was to determine the quantity of a household's food (nutrient) resources that are transformed into family meals, and to examine the empirical applicability of household production theory to food and nutrient consumption. That is, are the empirical results obtained within a household production framework theoretically sound? Furthermore, this research examines the extent to which the results for food and nutrient resources differ.

There are a number of reasons for examining household food resource utilization within a household production framework. First, empirical evidence is needed to support or contradict the application of firm theory to households and, to date, the amount of empirical research has been limited. Second, how productively a household utilizes its food resources has implications for both its nutritional and economic well-being. Third, food loss occurs during harvest, storage, transportation, or processing, in the marketing system and in the household. Notably absent from analyses of the U. S. food production process is the extent to

which waste occurs at the institutional and household level.

BACKGROUND

There are four basic approaches to researching food usage and waste: diary, archaeological, plate examination and inferential methods (1, 3, 7, 8). There are both similarities and differences between the past research on household food usage and this research. As with work done by Batcher and Johnson, et al. (3, 4, 8), this study is considered to be inferential in nature since no direct questions regarding food waste were asked in the data collection process. Also, all of the previous researchers, except for Batcher, used only one measure of food resources, either actual quantities of food or nutrients. This research will compare the results obtained using both. An economic framework provides the theoretical basis for this research, and in this sense most closely follows the work done by Johnson et al. in which a household production model was utilized. This research differs from Johnson's in that the sample is not limited to low income households, and there is a clearer specification of the theoretical models on which the empirical models are based.

THEORETICAL MODEL

Within the context of household production, the family is viewed as both a producing unit and as a consuming unit. Combining market goods with the time of family members, the household produces family meals and other commodities. The consumption of these commodities provides the household with some level of utility or satisfaction. In general, families attempt to maximize utility subject to technical, monetary, and time constraints. Such optimization on the part of households results in optimal demand functions for food (nutrient) and time inputs, as well as optimal demand functions for family meals and all other home produced commodities (10).

To address the question, "How much of a household's food (nutrient) resources are transformed into family meals?" a household production for family meals was defined:

$$(1) Z_1 = f(X_1, H_{w1}, H_{h1}; K)$$

where:

- Z_1 = the quantity of family meals produced and consumed
 X_1 = the quantity of market inputs used in family meal preparation
 H_{w1} = the time input of the wife in meal preparation

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H_{hl} = the time input of the husband in meal preparation
 K = environmental factors that production is conditioned upon (education and experience of the male and female, presence and ages of children, presence of a freezer)

Whether family meals and market inputs should be defined in terms of food or nutrients is a theoretical issue. Defining commodities in terms of nutrients implies that the household derives utility from the nutrients contained in family meals rather than from the family meals themselves. This approach is appropriate to use when one has a Lancasterian view of the world. Lancaster suggests that people derive utility from consumption of the characteristics of a good rather than the good itself (9). This research used both definitions (quantity of nutrients and quantity of food) so that a comparison can be made between the two.

DATA AND EMPIRICAL MODEL

The data used to empirically estimate the production functions for family meals and the nutrients contained in family meals was the 1977-78 Food Consumption Survey collected by the U. S. Department of Agriculture. This data set did not contain any information regarding the time inputs of family members into the production process. Also, for simplification, the environmental factors were not entered directly into the production functions. These omissions will have implications for the statistical properties of the coefficients on food and nutrient inputs.

A further note regarding the estimation of the production functions is that the input demand functions for time and food (nutrients) are dependent on the error term from the production functions. Thus, the independent variables in the production functions are correlated with the error term from the production functions resulting in simultaneous equations bias. Estimation of the production functions by ordinary least squares will give biased and inconsistent estimates of the parameters.

One way to overcome this problem is to use two stage least squares which will give consistent estimates for the parameters. This procedure requires substituting predicted values for the independent variable, food (nutrient) inputs, for the actual quantities (6). This breaks the simultaneity which then allows estimation of the production functions by ordinary least squares.

The predicted values for the inputs were obtained by estimating a demand equation for each input (see the Appendix for the results of these equations). Thus, the actual production function that was estimated was:

$$Z_1 = a + b_1 \hat{X}_1 + e$$

where:

a = the intercept
 Z_1 = the quantity of family meals produced and

consumed
 \hat{X}_1 = the predicted value of the market inputs used in meal preparation
 e = an error term

A linear production function was estimated because it provides a direct estimate of the marginal product of food (nutrient) inputs. Based on economic theory, the marginal product estimates are hypothesized to be positive with a magnitude that lies between zero and one.

The variables in the production function for family meals, expressed in terms of food were measured as follows:

Z_1 = the average daily quantity (in grams) of food prepared and consumed by the household in Spring 1977.

X_1 = the average daily quantity (in grams) of food removed from household supplies in Spring 1977.

The variables in the production functions for family meals, expressed in terms of nutrients, were measured as follows:

Z_1 = the average daily quantity of nutrients (calories, protein and fat) contained in family meals prepared and consumed by household members in Spring 1977.

X_1 = the average daily quantity of nutrients (calories, protein and fat) contained in the food removed from household supplies in Spring 1977.

RESULTS

The results of the production functions are presented in Table 1. The estimated coefficient on food inputs (ESTFDIN) .65. This means that, *ceteris paribus*, and on average, a one unit change in the quantity of food inputs used in preparing family meals will result in a .65 increase in the quantity of family meals actually consumed by family members. This indicates that, at the margin, 35 percent of the food inputs are unaccounted for as being prepared and consumed once removed from household supplies.

There are three production functions (PF#2) that were estimated in terms of nutrients. The estimated coefficients are .26, .30 and .23 on calorie (ESTCALIN), protein (ESTPROIN) and fat (ESTFATIN) inputs, respectively. Each coefficient is statistically significant. These results indicate that, at the margin, up to 74 percent of the nutrients removed from household supplies are not accounted for as being prepared and consumed.

Based on these results, one might be tempted to conclude that a large portion of available resources are wasted. However, the amount of resources that are not transformed into family meals cannot necessarily be considered waste. This point can be further clarified by looking at the estimates of average productivity with respect to the inputs. The average product is simply the ratio of output to input. Based on the input and

TABLE 1. Marginal Product Estimates

Independent Variable	Food	Calorie	Protein	Fat
INTERCEPT	-444.11** (181.02)			
ESTFDIN	0.65** (0.209)			
$R^2 = .39$				
INTERCEPT		2785.77* (130.228)		
ESTCALIN		0.26* (0.013)		
$R^2 = .22$				
INTERCEPT			115.71* (5.455)	
ESTPROIN			0.30* (0.016)	
$R^2 = .21$				
INTERCEPT				133.26* (6.268)
ESTFATIN				0.23* (0.013)
$R^2 = .19$				
* = significant at $\alpha = .01$ N = 1478				

output values at the points of sample means, the average products of calories, protein and fat are equal to .68, .80 and .66, respectively. The average product of food inputs is equal to .49. Thus, for each kilocalorie used in producing family meals, an average of 32 percent of the available kilocalories are unaccounted for. For protein, the average number of grams unaccounted for as being produced and consumed is 20 percent, while for fat it is 34 percent. The average number of grams of food unaccounted for as being produced and consumed is 51 percent.

For nutrients, the marginal product is less than the average product. This indicates that the average product of a given nutrient falls as usage of that nutrient increases. Thus, the more nutrients that the family demands, the less productive each nutrient will be on average. For food, the marginal product is greater than the average product. This indicates that the average product is increasing as usage of food inputs increases.

In evaluating these results, factors that may have caused the estimated values to be inaccurate must be addressed. The coefficients, although statistically significant, may be biased due to the omission of other relevant factors from the production function. The direction of the bias is determined by the product of the sign of the omitted variable and the correlation between the omitted and included variable. The omitted variables are the time inputs of the husband and wife, and the environmental inputs.

The marginal product of time for each spouse, and the environmental inputs can be expected to be positive. The correlation between the food or

nutrient inputs and time (environmental) inputs will be positive if time (environmental) inputs and food or nutrients are complements in production, and negative if they are substitutes. Thus, if food or nutrients and time (environmental) inputs are complements, the estimated coefficient is biased away from zero. If the inputs are substitutes, then the estimated coefficient is biased towards zero. Based on the results from the nutrient input demand functions, the time inputs of both the husband and wife are complements with nutrient inputs. This suggests that the estimated marginal products for each nutrient is biased away from zero. The effect of the spouses' time in the food input demand equation is the opposite of each other. Therefore, it is difficult to determine the direction of the bias for the marginal product of food inputs due to the omission of the time inputs. Also, the relationship between the included variable and the omitted environmental variables are mixed for both equations making it difficult to determine the direction of the bias.

Discussion and Conclusions

The production functions indicate that, for the last unit of nutrient inputs used in producing family meals, .26, .30 and .23 of calories, protein and fat are transformed into family meals. .65 grams of the last gram of food inputs used in producing family meals are transformed into family meals.

The results from the production functions are similar with respect to 1) the positive sign on inputs and 2) the significance of the coefficients. The greatest discrepancy is between the magnitude of the marginal product for nutrients relative to food.

The statistically significant positive marginal products, whose magnitudes lie between 0 and 1, support the application of a household production model to food/nutrient consumption behavior. Had the marginal product estimates been negative, or greater than 1, then there would have been little support for household production theory based on these results. The magnitude of the marginal products for nutrients may be smaller than the marginal product for food because nutrients are components of food.

The marginal products for both food and nutrients suggest that, at the margin, a large percentage of a household's food/nutrients resources are unaccounted for as being prepared and consumed. The average product figures also indicate that the ratio of output to input is relatively low. As compared with previous research, the nutrient figures are somewhat lower, while the food figure is similar to other studies that utilized the inferential approach. Research that utilized absolute measures of food waste generally found that smaller percentages of available food were unaccounted for as being consumed.

The amount of food and nutrient resources that are transformed into family meals provides some indication of how productively households are using

these resources. The unproductive use of food and nutrient resources represents an economic loss to the household, and may also affect the nutritional well-being of household members. The nutritional well-being of household members could potentially be improved by utilizing nutrient resources more productively. Professionals who work with families in managing their food and nutrient resources should be aware of the extent to which households may be using their resources unproductively. Specific reasons for the unproductive use of food and nutrient resources is an area for further research.

The marginal and average product figures also have undesirable implications for households who participate in the Food Stamp Program. There is a 5 percent allowance for food waste in the calculation of food stamp benefits. Although the productivity measures do not measure actual food waste, they do prompt one to consider the possibility that households may waste more than 5 percent of their available food and nutrient resources, on average. If this is the case, then the 5 percent allotment for food waste may not be sufficient in calculating food stamp benefits. This is an area that is deserving of further research.

In summary, this research investigated differences in the marginal productivity of food and nutrient resources in meal preparation and consumption. The appropriateness of food versus nutrients depends primarily on the purpose of the research, and the researchers' theoretical view of the world. Does one believe that consumers demand the characteristics of a good (nutrients) or the good itself (food)? There is, however, a question regarding the appropriateness of aggregating grams of food. Should grams of hamburger, grams of lettuce and grams of eggs be added together? The use of nutrients eliminates this problem. Overall, both approaches provided empirical support for the use of household production theory in describing household behavior.

APPENDICES

Appendix A. Definitions of Variables Used in the Input Demand Function Estimations

Variable Name	Definition	Unit of Analysis
FDINPUT	Average daily quantity of food removed from household supplies in Spring 1977	grams
CINPUT	Average daily quantity of calories removed from household supplies in Spring 1977	kilo-calories
PINPUT	Average daily quantity of protein removed from household supplies in Spring 1977	grams
FINPUT	Average daily quantity of fat removed from household supplies in Spring 1977	grams
FOODPR	A constructed variable to measure food prices faced by the household in Spring 1977	index
CALPR	A constructed variable to measure the price of calories used in meal preparation	\$
PROPR	A constructed variable to measure the price of protein used in meal preparation	\$
FATPR	A constructed variable to measure the price of fat used in meal preparation	\$

CPILTFD	A constructed price index to measure the consumer price index less food prices in March 1977	index
WAGEFM	An instrumental variable to measure the price of home time for the wife	\$/hour
WAGEML	An instrumental variable to measure the price of home time for the husband	\$/hour
NONWAGE	The sum of income from nonwage sources of the household in 1977	\$
FMLEUDC	The amount of formal education attained by the wife	years
MALEUDC	The amount of formal education attained by the husband	years
FEMEXP	A constructed variable to measure the amount of experience in home production attained by the wife	years
MALEXP	A constructed variable to measure the amount of experience in home production attained by the husband	years
K5	The number of children ages 0 to 5 in the home in Spring 1977	actual number
K17	The number of children ages 6 to 17 in the home in Spring 1977	actual number
FREEZE	The presence of a freezer in the home in Spring 1977	1=presence 0=otherwise

Appendix B. Parameter Estimates for the Demand Function for Food Inputs, FDINPUT, Dependent

Independent Variable	B	Std. Error of B
INTERCEPT	12369.87	14455.297
FOODPR	-628.409*	83.995
CPILTFD	197.601*	75.383
WAGEFM	-1617.221*	543.725
WAGEML	743.134*	179.371
NONWAGE	0.0519	0.0735
FMLEUDC	-1.0296	93.431
MALEUDC	-211.055**	99.382
FEMEXP	-23.105	34.205
MALEXP	30.24	33.198
K5	533.571	370.212
K17	761.064*	184.765
FREEZE	802.529	611.26

N = 1478
 $R^2 = .14$
 * = significant at $\alpha = .01$
 ** = significant at $\alpha = .05$

Appendix C. Parameter Estimates for the Demand Function for Calorie Inputs, CINPUT, Dependent

Independent Variable	B	Std. Error of B
INTERCEPT	-2056.33	4840.81
CALPR	10633544.89*	134167.52
CPILTFD	28.53	26.78
WAGEFM	-298.58	193.70
WAGEML	-204.28*	65.07
NONWAGE	-0.084*	0.026
FMLEUDC	-47.45	33.21
MALEUDC	-66.87***	35.36
FEMEXP	3.42	12.16
MALEXP	-11.47	11.81
K5	601.28*	130.99
K17	821.02*	62.18
FREEZE	207.06	217.45

N = 1478
 $R^2 = .85$
 * = significant at $\alpha = .01$
 ** = significant at $\alpha = .05$

Appendix D. Parameter Estimates for the Demand Function for Protein Inputs, PINPUT, Dependent

Independent Variable	B	Std. Error of B
INTERCEPT	339.56**	153.98
PROPR	3677.68*	43.30
CPILTFD	-1.47**	0.85
WAGEFM	-8.40	6.16
WAGEML	-2.66	2.07
NONWAGE	-0.0022*	0.0008
FMLELUC	-0.54	1.056
MALELUC	-2.35**	1.125
FEMEXP	0.29	0.387
MALEXP	-0.295	0.376
K5	13.278*	4.166
K17	24.45*	1.978
FREEZE	1.17	6.92

N = 1478 R² = .86

* = significant at $\alpha = .01$
 ** = significant at $\alpha = .05$
 *** = significant at $\alpha = .10$

Appendix E. Parameter Estimates for the Demand Function for Fat Inputs, FINPUT, Dependent

Independent Variable	B	Std. Error of B
INTERCEPT	-198.27	270.57
FATPR	52561.24*	750.33
CPILTFD	2.075	1.497
WAGEFM	-7.44	10.83
WAGEML	-8.04**	3.64
NONWAGE	-0.0037**	0.0015
FMLELUC	-4.165**	1.856
MALELUC	-4.19**	1.977
FEMEXP	0.413	0.6797
MALEXP	-0.9966	0.66
K5	24.76*	7.32
K17	28.31*	3.475
FREEZE	15.47	12.15

N = 1478 R² = .81

* = significant at $\alpha = .01$
 ** = significant at $\alpha = .05$
 *** = significant at $\alpha = .10$

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FOOD CONSUMPTION--DISCUSSION

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This discussion focuses on the presentations by Hanna and Carter looking at "Interaction Effects of Demographic Characteristics on Food Away from Home Spending," Foster's research on "Wife's Education and Family Food Expenditures" and "Norum's Food Versus Nutrients: Productivity Differences in Family Meal Production."

The Hanna and Carter paper documents the growth in food away from home (FAFH) spending. They review the extensive literature on this subject citing several problems with previous studies including the inability to clearly specify the impact on FAFH of wives' employment. The controversy involves whether the wife's employment causes a substitution of purchased services for home production or whether the additional income from the wife's work causes an increase in away from home food expenditures.

The study analyzes eight demographic variables: total consumption (a proxy for income), wife's employment, family size, age of wife, race, region of the U.S., city size and wife's education. These variables are analyzed in bivariate regression and in stepwise models including a model explicitly allowing interaction among the independent variables.

In general, the models illustrate the complexity of the FAFH relationships to these demographic characteristics. The interaction model increases R^2 only slightly. Further, the analysis was able to shed limited light on the wife's employment versus income increase issue. While the authors call for additional research, they give few specific suggestions as to new data or additional methods which could be used. They offer some tentative explanations for their findings but fail to provide clear guidelines for confirming those explanations.

Overall, the paper provides a thorough analysis with a unique look at the interaction effects. The paper is an important contribution to this literature. However, important questions remain which cannot be answered without more descriptive investigation of actual family FAFH patterns. The data under this study were not designed for this analysis.

Foster looks at wife's education and food expenditures based on the rationale that the more education the wife has the more productive she will be in household production. In addition, there is also the belief that wife's education may impact knowledge of nutrition and health

issues and thus effect the choice of foods for the family.

Multiple regression was used to analyze the impact of income and wife's education on food consumption at the following four levels of aggregation--expenditures on total food, expenditures on food at home and away from home, expenditure on eight major food groups, and expenditure on 11 individual food products. The results show that wife's education had significant effects on food consumption even when income and other factors were taken into account. These results are consistent with the results of Hanna and Carter. The elasticity estimates in the Foster study appear to show a higher response rate for FAFH on both income and education than in the Hanna and Carter study.

Foster finds some support in her findings for the explanation that wife's education has positive impacts on household production skills. The increased nutritional and health awareness does not show up as clearly in the results. Foster raises several questions about the efficacy of the Consumer Expenditure Survey for research of this kind. She indicates that these data have some fundamental drawbacks for studying the impact of wife's education on food expenditures. She could, I suspect, give us some additional detail on the kind of data she would advise be collected to examine this relationship in greater detail.

This paper brings to light several new findings on the impact of wife's education on food consumption patterns. However, the questions left unanswered are many. This will continue to be an area with extensive research potential.

The Norum paper goes the farthest of the three in introducing a "new" way of looking at family food consumption activities. The basis of the paper is the application of household production theory to family food consumption. Household production theory concentrates on explaining "consumption" by looking at it as the process of taking inputs and "producing" desired attributes. This is analogous to the theory of production which examines the way firms combine inputs like capital and labor to produce goods. The paper goes further in that it looks at the nutrient characteristics of food inputs and the nutrient characteristics of the meals produced.

The analysis looks at the conversion of food to meals (average daily quantity of food in grams removed from household supplies converted to average daily quantity of food in grams of food prepared and consumed) and the conversion of nutrients (calories, protein and fat) from family supplies to nutrients prepared and consumed.

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Thus, the study can look at conversion of food supplies to food consumed and the conversion of nutrient supplies to nutrients consumed. The results indicated that the conversion of food to meals resulted in .65 units of meals consumed for each 1.00 unit of food removed from supplies. Thus .35 units were "wasted".

In the case of nutrients the conversions were for 1 unit of calories removed resulted in .26 units of calories consumed, for fat it was .23 and for protein it was .30. Thus, the nutrient "waste" was much higher than when using food as the category.

Norum goes on to examine the relationship between marginal and average product in these production processes. For nutrients, the more they consumed the less productive they were. For food, the more they consumed the more productive they were. She attributed these findings to biases introduced when omitting relevant variables such as time inputs or other relevant inputs. Norum cites the importance of her findings in terms of household efficiency and implications of inefficient conversions of food and nutrients into consumption.

She specifically raises questions about standard assumptions of household efficiencies such as seen in the food stamp program where only a five percent allowance is given for food waste in the calculation of benefits.

Norum's study is an important attempt to use household production theory in investigating food consumption patterns. However, as the author admits, there is substantial additional work to be done in understanding the household food production process. For example, it seems naive to assume that the objective relative to calorie, fat, and protein is to achieve maximum conversion from inventory to food prepared. Many families are concerned about reducing calories and fat from raw inventory to final finished good.

As Norum indicates, the relationship of time and other environmental variables to the food production processes is important. Additional information could clarify this issue. Finally, all these studies make a contribution to our understanding of food consumption and the information necessary to understand the process better.

In each case, the authors are ultimately stymied by the lack of data available for their needs. As a profession, these and other studies point to the need for us to become concerned again with the collection of primary data. While this has become unfashionable and extremely costly, these studies show that even with sophisticated, modern statistical techniques readily available, secondary data may not give us the information we need.

WOMEN'S LABOR FORCE PARTICIPATION:
ECONOMIC IMPLICATIONS FOR RETIREMENT PLANNING

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ABSTRACT

The number of women participating in the paid labor force has increased dramatically. As a result, changes need to occur in retirement. This roundtable presented some demographic data concerning the labor force participation of women, the economic and financial implications for retirement planning, and the long-term implications of the increased number of women in the paid labor force.

DEMOGRAPHICS

Since World War II, women's labor force participation rates have increased dramatically. In 1983, 52.3 percent of all women were in the civilian work force compared to a participation rate of 24 percent in 1930 (2). In 1984, six out of ten mothers were in the paid labor force and 71 percent of these mothers were working full time (7). Today, a woman's worklife expectancy is increasing faster than her life expectancy, rising from 14.5 years in 1950 to 26 years in 1977 (3). Despite the dramatic increases, women are still concentrated in the lower paying professions. In 1983, 22 percent of employed women were employed in managerial or professional sectors, 45.9 percent were in technical, sales and administrative support, and 18.8 percent were in service occupations (3). Though women's earnings impact greatly on family income, there is a lower savings to income ratio for families with working wives (6).

ECONOMIC AND FINANCIAL IMPLICATIONS

The adequacy and equity of benefits for women is dependent upon how an individual's retirement system, both Social Security and pension, is set up. Social Security does not necessarily compensate a married working woman fairly for her contribution to the system. A woman who has worked in the paid labor force qualifies for dependent benefits equal to one half her husband's retirement benefit or benefits based on her own work history, whichever is greater (9). As a result of her anticipated high average life expectancy, a woman will receive a lower per period benefit under most pension plans, for the same work history and same earnings rate, as her male counterpart (5). Therefore, while women may receive the same total benefit from a pension plan, they may receive a lower per period benefit resulting in a lower level of living during retirement.

The growth of the middle to older work force and the increase in the number of women in the paid labor force are anticipated to be the most signi-

ficant factors affecting the labor force in the next two decades (8). These increases are causing researchers to re-evaluate wage differentials, fringe benefits, and retirement programs in order to make them more equitable. There is a need for women to be especially alert to the differences between defined-contribution and defined-benefit pension plans as the latter is more likely to provide the same monthly benefit for both men and women (1). Finally, an increase in the mandatory retirement age may benefit women (4) by allowing them to start careers after child-rearing, by remaining in the work force long enough for employers to consider them worth training, and by providing the opportunity to accrue more sizable retirement benefits. Pre-retirement programs need to be made more available and understandable so both men and women alike can do a better job of evaluating the advantages and shortcomings of their present pension coverage before it is too late.

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YOUNG CONSUMER PERCEPTIONS OF THE HONESTY AND ETHICAL STANDARDS
FOR HIGHLY VISIBLE PROFESSIONALS IN SERVICE INDUSTRIES

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ABSTRACT

A survey of 1500 young consumers was conducted to estimate the influence of market experience on the perceptions of the honesty and ethical standards of selected professionals. Young consumer groups were high school students, college students, recent college graduates, and other college graduates who are relatively young and upward mobile.

This study was undertaken to determine if people's perceptions of the honesty and ethical standards of selected professionals in service industries change over a period of time. To determine this, a survey was conducted among 1500 young consumers, all of whom were students or former students in the state of Wisconsin. The young consumers, classified into three groups, were chosen to respond to a questionnaire involving the honesty and ethical standards of selected professionals. The first group was comprised of a random sample of students from twelve different high schools. The second group was a stratified sample of college students at the University of Wisconsin - Whitewater. The last group consisted of adults selected from the mailing list in the alumni office at the same university. Approximately thirty percent of these adults are now living outside the state of Wisconsin. Among the professionals whose honesty and ethics were rated in the study were journalists, medical doctors, advertising practitioners, college professors, engineers, psychiatrists, building contractors, business executives, labor union leaders, and lawyers.

The survey instrument was derived from a Gallop Poll study. All respondents were requested to rate the honesty and ethical standards of the selected professionals on a five point Likert-type scale according to their own opinions. Parametric and non-parametric analysis techniques were used to determine significant differences among the groups.

RESULTS

Most of the responses from the three groups revealed that as age/market experience increases, there was a corresponding decrease in the perceptions of the honesty and ethical standards of the given professionals. The following examples are typical of the results:

	Rated High		Rated High
<u>PSYCHIATRISTS</u>		<u>LAWYERS</u>	
High School Students	51.7%	High School Students	39.2%
College Students	46.4%	College Students	38.6%
Adults	27.3%	Adults	19.2%
	Rated High	<u>ADVERTISING PRACTITIONERS</u>	Rated High
<u>JOURNALISTS</u>			
High School Students	23.1%	High School Students	13.7%
College Students	18.8%	College Students	10.0%
Adults	16.7%	Adults	7.2%

Two professional areas that were exceptions to the rule were engineers and college teachers. The responses to these areas are shown below:

	Rated High	<u>COLLEGE TEACHERS</u>	Rated High
<u>ENGINEERS</u>			
High School Students	53.5%	High School Students	54.7%
College Students	66.4%	College Students	66.8%
Adults	59.5%	Adults	59.9%

Although the college age group and adults rated the honesty and ethical behavior of the engineers and college teachers higher than high school students did, the adults (alumni) consistently rated them lower than did college students. Perhaps these two professional areas appeal most to college students and tend to lose little appeal after personal experience with them.

Another interesting point can be observed when looking at the responses on the survey from the three groups. In every instance the college age group used the "no opinion" response the least. The high school age group and adults used the "no opinion" choice two to four times more often than did the college age group. This might be because college students are accustomed to responding to questions or they think they need to have a response. Perhaps they do not want to be "fence walkers" but feel they must have an opinion about any subject.

The next comparison was made by using only the senior students from the college age group and

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dividing the adults (alumni) into two categories: those who had graduated five years ago and those who had graduated ten years ago. Once again the earlier trend appeared: the older the respondents were and the more knowledge or experience they had with professionals, the lower they rated them according to their honesty and ethical behavior. This trend may indicate that the longer we are out in society dealing in the work-a-day world and becoming involved with various professionals, the less we hold them in esteem. The following six examples are shown to be very typical of the attitudes of these three adult groups:

<u>MEDICAL DOCTOR</u>	Rated High	<u>PSYCHIATRISTS</u>	Rated High
College Seniors	69.6%	College Seniors	40.0%
5 year alumni	61.0%	5 year alumni	30.0%
10 year alumni	57.0%	10 year alumni	27.6%
<u>LAWYERS</u>	Rated High	<u>BUILDING CONTRACTORS</u>	Rated High
College Seniors	33.3%	College Seniors	16.8%
5 year alumni	20.8%	5 year alumni	7.5%
10 year alumni	16.5%	10 year alumni	5.4%
<u>LABOR UNION LEADERS</u>	Rated High	<u>ADVERTISING PRACTITIONERS</u>	Rated High
College Seniors	11.0%	College Seniors	9.6%
5 year alumni	9.4%	5 year alumni	7.6%
10 year alumni	4.3%	10 year alumni	6.5%

In a comparison of the answers from college senior students with those from the adults (alumni) who had been out of college five years and those from alumni who graduated ten years ago, the group of adults that had been out of college five years consistently used the "no opinion" choice two or three times more often than did the college seniors or the ten year alumni. Perhaps some five year alumni may be too busy establishing themselves in a career to take the time or consideration for a thought-out answer to the survey.

FURTHER STUDY

To determine just what factors help determine our opinions and attitudes of the honesty and ethical standards of professionals in service industries, it could be beneficial to have further study completed involving such demographic variables as:

occupation, education and income of parents; rural or urban background; grade point average; and sex. In addition there are areas that could not be quantified: influence of peers, personal first hand experience or involvement with these professionals, influence of current events or media emphasis at the time of the survey, etc.

Since all of the adults for this study were college graduates, it might be interesting to see how adults of the same age but without college degrees would respond to the same questionnaire. If a significant difference surfaced, it might mean the variable of college education was a factor in determining the opinions of adults on the honesty and ethical standards of professionals. Further study might be done in other parts of the country to see if there are geographically-related differences.

From this study, however, it does appear that the more market experience people possess and perhaps the better educated they are, the lower they view the professionals sampled in terms of trust and ethical behavior.

CONTENT ANALYSIS AND CONSUMER RESEARCH

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PURPOSE

The purpose of the roundtable discussion was to acquaint participants with content analysis and its application. Problems and applications of the methodology in consumer research was addressed. Open discussion and an exchange of ideas occurred during the remainder of the session.

INTRODUCTION

According to Holsti, content analysis is any technique for making inferences by objectively and systematically identifying specified characteristics of messages. (1) As a research technique, content analysis has been used extensively in Sociology, Anthropology, Communications and Political Science. Therefore, given the multidisciplinary roots of consumer science, content analysis should also have potential for consumer interest research. Yet, there has not been much respect for content analysis as a methodology because past researchers have not followed appropriate procedures that they would automatically follow with other methodologies. For example, content analysis is frequently used in "fishing expedition" research which lacks theoretical considerations or research designs. There seems to be the feeling that content analysis will render "quick and easy" results for publications. However, a study using a rigorous content analysis can be even more demanding in terms of time and other resources than a study using the traditional methodologies.

The following topics were presented during the discussion: 1). characteristics of the method, 2). research design and making inferences, 3). sampling, 4). measurement unitizing, coding, and categorizing, 5). standards for reliability and validity, 6). computer applications and analysis.

COMMENTS

Several years of the Journal of Consumer Research, Journal of Consumer Affairs, and Journal of Consumer Studies and Home Economics were reviewed for research utilizing content analysis. As anticipated, most of the research

was of the "fishing expedition" type. Suggestions for consumer researchers using content analysis fell into the following areas: 1). Use suitable research designs, 2). Follow rules for category formation, 3). State inter-coder reliability coefficients and which formula was used to calculate the coefficient, 4). Adequately define and justify the sample, 5). Keep an accurate account of all coding training instructions and recording procedures, 6). Become familiar with the literature on the methodology.

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USE OF FRAMEWORK FOR THE CONSUMPTION OF SERVICES:
SELECTING PROVIDERS OF FINANCIAL PLANNING SERVICES

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Abstract

A framework utilizing a six step process can provide structure for teaching about purchasing services. The services examined by this framework can include those provided by individuals directly to other individuals, for e.g. doctors, accountants and dentists and those services provided by companies, for e.g. mail order catalogues and lawn care services. A previous paper considered the application of the framework to selecting providers of financial planning services (1). This paper explains how each step of the framework can be used as an ordered process for examining the purchasing of consumer services.

Introduction

With an increasing percentage of the dollar being spent on services, the tools and skills that have been useful for consumers seeking product information and making decisions about the purchase of tangible goods are inadequate for general use in purchasing principles applicable to both goods and services. As stated in the introduction to a bibliography on consumer services providers, "... finding reliable information on quality or prices is often difficult. Because of this, the marketplace in which services are purchased works poorly. There are large differences among service providers (firms and professionals who provide consumer services) in both price and quality, and little price-quality correlation" (2). Further, since most service providers do business in a single locale, and procedures for choosing service providers are more subjective than for evaluating goods, informational resources such as the influential product testing reports of Consumer's Union are not widely available.

To provide a means by which study of the purchase of services could be achieved in

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a systematic manner, a framework was developed to give organization to the task of seeking and using relevant facts and data. This framework, designed to provide a generalized approach for use in examining the purchase of specific services, utilizes a six step process. It is intended to be used by educators in developing curriculum, by researchers in considering possible research topics and by individual consumers in actually purchasing services.

This framework has been used with adult audiences enrolled in non-credit classes, in-service teachers and in graduate and undergraduate college courses. The framework is intended to be used for the examination of services as defined in a broad sense but governmental services are only to be considered when such services are alternatives to private sector service providers.

The purchasing of services is unique in a number of ways. Frequently a purchase occurs because of an induced demand. The dominant role that human relationships play in the rendering of services further complicates the purchase choice and later evaluation of the quality of the service rendered.

Social mores have made the discussion of payment procedures inappropriate and the presence of third-party payment systems has caused some consumers to determine that such discussion is unnecessary. While price information is difficult to obtain, the obtaining of performance information is not generally available, and objective performance data is almost nonexistent. For the service industries, complaint procedures are generally not well developed, and effective third party assistance is extremely limited. Furthermore, while licensing and certification are intended to protect the public, the proliferation of both in recent years has contributed to the dilemma of consumer information overload without a corresponding increase in useable pre-purchase information.

Many services have changed dramatically over the years, however until consumers go to purchase them they are unaware of such changes. For example, the emphasis in dentistry, accompanied by innovations such as cosmetic bonding. New services

have sprung into existence, ranging from sitters for house and dogs to financial planners providing comprehensive money management services. The methods of delivery of such services have also changed as the recent advent of department store dental clinics and urgent care centers substantiates.

Not only has the growth of the service industry become a larger portion of the GNP, but within that growth different services have captured different positions. To illustrate this point, compare the number of financial planners in 1984 with the number of blacksmiths. Or consider the fact that at the close of World War II most individuals prepared their own tax returns while today estimates run as high as 70% of all returns being prepared by other than the taxpayer.

Abundant resources are available from industries' trade and professional associations. Such associations have been established for most fields of business and consumer interest and number approximately 40,000 nationwide. While these associations are formed to assist in business problems and promote the industry, they do offer varying consumer services. The governmental units linked to a particular service industry are another source of pre-purchase information. For example, both the Federal Trade Commission and the Wisconsin Department of Justice have produced informational booklets on the Federal Trade Commission funeral disclosure rule.

Today there are an estimated 1500 state boards which license or register more than 550 professions and occupations. Historically licensing evolved from the use of the state's police power in protecting the public's health, safety and welfare. State boards perform a variety of services including setting standards, promulgating rules and regulations, issuing and revoking licenses and bringing disciplinary actions. Certification is a public statement regarding the practitioner's competence since only those practitioners who meet prescribed standards of performance are issued certificates. However, those who fail to become certified can still engage in the occupation, for example the accountant who is not a CPA and the life insurance salesman who is not a chartered life underwriter. While a majority of consumers could probably recognize the symbols of M.D. and C.P.A., many might not be able to differentiate between the licensing of the medical doctor and the certifying of the accountant. Probably far fewer consumers could describe the source of the licensing or certification and the standards by which the judging was done. Consumer educators thus need to emphasize

that two basic questions need to be asked about certification: "Who is doing the certifying?" and "What are the standards?".

Consumer problems, certainly exist in the service industries and some problems are common to a number of service providers. One that frequently occurs when a consumer deals with a professional person is a communication barrier, when the jargon of the profession is used. In dealing with repair service providers, it is common to encounter claims for work that supposedly must be done when in fact the reverse is true or claims that work was done when it was not. Other consumer problems are unique to specific services. The emotional state of the consumer increases the potential for poor purchasing when dealing with funeral service providers or mental health professionals. The infrequency of purchasing certain services also contributes to the consumer's difficulties.

In the service sector the inadequate number of efficient, prompt complaint procedures should alert the consumer to the real need of thorough pre-purchase investigation. A consumer can take a dress back to the retailer, send a can of peaches back to the manufacturer or contact a third-party for dispute resolution. In the service industry, however, the complaint redress process has not yet become standardized so it remains of only minimal usefulness to consumers.

To initially locate possible service providers a consumer should talk with persons who work in a particular area or one related to it and have therefore dealt with a service provider. For example, in choosing an attorney, one could talk with persons who have through their employment been in contact with a number of attorneys. The same principle applies when one asks a hospital nurse about physicians, or questions a personnel director about private employment agencies.

The specific questions to be asked service providers should be organized by categories. For example, although day care and nursing care services are at opposite ends of a continuum, there is a great similarity in the specific questions a consumer needs to ask. In both situations, it is important to develop questions in the areas of staff, programs, physical setting and facilities, and policy questions. Within a given industry, the questions should be classified by the facility and equipment, the qualifications of the repair person, and policy questions regarding pricing and complaint handling.

The framework is sequentially developed with each step building on information previously sought. This offers a distinct advantage over the majority of consumer oriented articles on services which have been focused only on the specific questions to be asked of the service providers. That approach however suffers from two major weaknesses. First, is the failure to delineate how to select the service providers to be questioned and secondly, the failure to organize such questions in a helpful or meaningful manner. Thus, the questions to be asked and the purchasing guidelines are the final step in this process.

The steps to be followed are:

#1. Explore the nature of the services. This includes both the definition and explanation of the variety of particular services available within the service area, the identification of the methods and channels of delivery for the service and a delineation of the size and distribution of the industry providing the services.

#2. Specify the resources including the industry's trade and professional associations and the governmental units involved with the service.

#3. Define and explain the registration, certification and/or licensing of the service; determine the source and standards involved.

#4. Enumerate problems common to the purchasing of all services and identify those problems unique to the purchase of the particular service.

#5. Identify the sources and explain the procedures for complaint resolution.

#6. Develop a purchasing guideline which includes the selection of possible providers and delineates and classifies specific questions.

The use of a framework can bring order to the chaos of information and therefore give value to facts and data that would otherwise be useless. This framework is designed to provide a generalized approach for use in examining the purchase of specific services. The framework can be used by educators in developing curriculum, by researchers in considering possible research topics and by individual consumers in actually purchasing services.

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ABSTRACT

Though the economic status of the elderly has improved substantially in the last few decades, elderly women, especially widows, still are among the most disadvantaged in the United States. Due to demographic, economic, and social trends, the elderly's problems are mostly women's problems. The purpose of this roundtable discussion was to 1) accentuate the inappropriateness of referring to "the elderly" as a collective group; 2) to review some reasons why elderly women face financial hardship; and 3) to discuss what educators can do to alleviate poverty among elderly women.

Do women in retirement face poverty or prosperity? The popular press would have us believe prosperity is the norm. Consider these examples:

-- Reports Business Week, older Americans lead in spending power. The discretionary income of those under 35 years of age is \$2,628; 35-50 - \$2,904; 50-55 - \$3,685; 55-60 - \$4,494; 60-65 - \$4,571; and 65 and over - \$5,219 [1].

-- Reports the Washington Post, the elderly exceed average income. Per capita, after-tax income was \$6,300 for those 65 and older in 1980 compared to \$5,964 for the population as a whole [2].

-- Reports the Des Moines Register, "woopies" are a group worth watching. "Woopies" are well-off older people who are not only "your elders, they're probably your betters, financially speaking" [4].

NO COLLECTIVE AGED

The reports are true -- the elderly are far more economically advantaged than in previous decades and are fairly well off. But there is no such thing as the collective aged. The elderly are just as diverse as the population itself; this is especially true for economic status. The over-65 group can be divided by retired versus non-retired, dual versus single pensioners, age (young-old, old-old), race, and sex, the most basic difference of all.

Compared to older men, older women are disproportionately poor. Almost two times more women than men over age 65 live in poverty. Three times more women than men receive Supplemental Security Income. More than 50 percent of single women over age 75 live at or below the poverty level.

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WHY POVERTY?

Women live longer than men and currently outnumber them three to two. The sex ratio of the 65 and over population showed 100 women for every 69 men in 1975; by the year 2000, the ratio is expected to be 100 women for every 65 men.

The life expectancy differential, combined with the greater tendency for older men to remarry and choose younger women, results in huge sex differences in marital status and living arrangements among persons 65 and over. Older men are usually married and relatively few live alone. In contrast almost two-thirds of older women are widowed, divorced, or single and almost half of them live alone or with nonrelatives. Poverty, oftentimes experienced for the first time, is disproportionately high among women facing these circumstances.

Another factor contributing to poverty among women is their lack of college attendance, as compared to men, and their choice of financial dependency on a spouse. Even for those women who do enter the labor force, intermittent employment records and the common choice of low-paying clerical, sales or service occupations negatively affect future retirement benefits.

Complacency about finances is another factor leading to poverty for women in retirement. Bettye Thompson writes, "American laws and practices as well as the Social Security System cast homemakers into a dependency role until as older women they find they must fend for themselves; then a high price is paid for having bought the socially prescribed role" [3].

GROUP DISCUSSION

Discussants agreed that women, whatever their chosen role, have a responsibility to choose competence, not complacency, about finances. Once this competence is attained, confidence in their own ability must be a follow-up. Through classroom and Extension outlets, preventative education can help young women learn how to prepare now for financial security in retirement.

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EXTENSION'S ROLE IN THE FINANCIAL SERVICE INDUSTRY:
A MODEL PROJECT

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ABSTRACT

The Maryland Cooperative Extension Service has created a model project for the purpose of educating the general public in the area of personal finance. The project is funded by USDA and includes extensive training of county Extension home economists and the development of educational materials to be used in programming.

Congress called for new initiatives in 1977 to improve and expand research and extension programs in home economics. The initiatives proposed were organized under four thrusts: family economic stability and security; energy and environment; food, nutrition, and health; and family strengths and social environment. The new initiative being stressed by USDA and addressed by this model project is family economic stability and security.

The Maryland Extension Home Economics Department was awarded a grant by USDA for the purpose of curriculum development in the area of personal and family finance. The curriculum will be used to train county home economists who in turn will provide educational opportunities to the general public.

The idea for this project originated in December of 1983 when a needs assessment of county home economists indicated a serious lack of expertise in the area of personal finance. This accounted for the limited number of programs being taught in communities on that subject. In order to prepare competent staff the USDA grant is being used in Maryland to:

- provide annual training of County Extension home economists
- develop educational materials for use in county programming

The USDA grant facilitates the sharing of the model materials (publications and visuals) with Extension personnel in other states, Puerto Rico, Guam and the District of Columbia.

Training of County Home Economists

No college or university in the state offers financial planning education in depth; therefore, the courses were developed by state Extension home economics specialists with expertise and responsibilities in the area of finance.

Four non-credit courses were developed. They are taught off-campus in each of the three Maryland Extension regions, and they are structured like credited university classes complete with textbooks, assigned readings, study guides and exams. Agents may take them for university credit if

desired. The four college-level courses are:

Introduction to Personal Finance
Insurance Principles and Practices
Investment Principles and Portfolio Management
Retirement and Estate Planning

Two classes are taught each summer, rotating until all Extension home economists responsible for the area of personal finance are competent to teach the subject.

This training becomes the basis for county agents to present programs to the general public on timely topics such as:

Cutting Your Insurance Costs
Writing Wills in Maryland
Investments for the Novice
Financial Impact of Death and Divorce
Choosing a Financial Advisor

Development of Educational Materials

Extension personnel use a variety of teaching methods. Intensive study is provided through individual contacts, workshops, and small or large group meetings. Large numbers of persons are reached through radio, television, newspapers, newsletters, publications, self-study courses, computer-assisted instruction, and audio-visual teleconferences.

In order to meet these needs, a comprehensive set of materials is being developed by the state specialists for county use in programming. They include bulletins, factsheets, leaders guides, evaluation instruments, and visuals. Some program packets include activities for participants.

The financial areas in which materials are being developed are budgeting, record organization, credit, insurance, savings, investments, retirement and estate planning.

Conclusion

An essential component of the model project is on-going evaluation for the purpose of accountability and administrative decision-making. The first and second phases of agent training have received an overwhelmingly positive evaluation. Programming by agents in the area of personal finance has dramatically increased. These programs are currently being evaluated.

The task of providing financial education to the nation's citizens is Extension's role in the financial service industry. The end result will be knowledgeable consumers. These knowledgeable consumers will make the informed decisions necessary to establish family economic stability and security.

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ABSTRACT

Health and safety have become major consumer issues in the 1980's. Major questions concern who should decide for whom what level of safety and health is appropriate. This paper examines the role of consumers and government in the consumer protection process. Consideration is given to consumer risk perception and risk response, the need for government intervention and the degree to which such intervention increases consumer welfare.

INTRODUCTION

The role of the consumer in the consumer protection process has received increased attention in recent years. Major arguments for relying on consumers to protect themselves pertain to efficiency and equity since multiple risk responses are permitted. The objectives of this paper are to examine consumer risk response in the areas of health and safety and the degree to which reliance on consumers might be optimal for society. The first part of the paper examines consumer risk response and the conditions under which government intervention might be justified. The second part of the paper examines government risk response and various approaches to risk evaluation. The results of this paper are important for consumer educators, consumer economists and policymakers who are concerned with health and safety issues.

PART I: CONSUMER RISK RESPONSE

Reliance on consumers to make decisions in areas of health and safety has considerable appeal for several reasons. First, government intervention by means of health or safety regulations poses a threat to individual liberties. As Swagler noted, "If the government can control certain types of personal activities, what is to prevent that control from being extended" [31, p. 215]. He commented that both smoking and excessive drinking impose serious losses on society due to medical costs and production losses. However, society has been reluctant to ban cigarettes or alcoholic beverages.

The second argument pertains to efficiency. It is argued that individuals may differ in their attitudes towards risk and willingness to pay for risk reduction. Under such circumstances

reliance on consumers to protect themselves is more efficient than government regulations which entail a single level of safety or health for all individuals irrespective of their preferences. A major consumer right - the right to choose - is based on the realization that preferences of individuals vary and that consumption decisions should be left to consumers. Rothenberg [25] argues for "the consumer's right to be often wrong" in preferences to government intervention which is based on incomplete information about consumer tastes and preferences.

Consumer responses to risk regulation may also be off-setting. Thus, the installation of air bags should reduce the risk of death by at least 25 percent unless drivers respond by taking more risks, e.g., speeding, driving recklessly, driving while intoxicated, driving in unsafe conditions. As a result, the estimated 25 percent reduction in fatalities may never occur. This phenomenon was noted by Peltzman [24] in 1975. He investigated the impact of safety regulations for automobiles from 1966 to 1972 and concluded that the response of drivers had offset the beneficial effects of the new safety regulations. Peltzman's findings were controversial and stimulated considerable debate. The ensuing research provided support for safety standards in some instances and support for Peltzman's findings in other instances [5]. The differences in these results were attributed to model specifications. A recent study by Crandall and Graham [5] found evidence that safety standards had reduced fatalities in spite of some offsetting behavior.

Offsetting behavior has also been found for other consumer activities. A study at the University of California at Santa Barbara examined the impact of five engineering programs which were designed to reduce bicycle accidents. They included wider highways, traffic circles and bike-free zones. In spite of these improvements, accidents increased rather than decreased [34]. Viscusi [32] also found an apparent correlation between child-resistant packages and an increase in accidental poisonings. He stated that consumers might have become less safety conscious due to the existence of safety caps.

Finally, government intervention may be subject to considerable regulatory delays. Passive restraints for automobiles are an example of such delays. In July of 1970 the National Highway Safety Bureau issued a standard for passive restraints in automobiles which was to become effective in July of 1973 [17]. This date was extended to the 1976 and 1977 model years in response to concerns expressed by industry. In July 1977 a new rule was issued by the National Highway Traffic Safety Administration (NHTSA) which required front-seat passive protection for all automobiles. The effective dates for large,

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intermediate and small cars were September 1981, 1982 and 1983 respectively. The rule was delayed for one year and was rescinded in October 1981. The decision was appealed and in May 1982 the U.S. Court of Appeals sent the decision back to NHTSA stating that the decision "failed to heed the goals that Congress has asked (the agency) to meet." In response to the Court's ruling the U.S. Department of Transportation ordered that all 1990 models must be equipped with automatic restraints unless two-thirds of the nation's population were covered by state laws requiring seat belt use by 1989. Thus, a twenty-year period will have elapsed between the first passive restraint standard and the actual implementation of a standard or passage of laws mandating seat belt usage.

In view of the advantages of consumer choice and the disadvantages of government regulation, it might be queried why government intervention occurs. One major reason is information failures which means that society cannot rely on consumers to protect themselves [8]. There have been numerous instances of the failure of individuals to purchase insurance in spite of the need for such actions [1, 2, 20, 35]. These real-life findings have been reinforced by several field and laboratory studies of insurance purchase decisions. Slovic found that individuals were "more willing to insure against small losses with relatively high probabilities than against large but unlikely losses" [28, p. 5]. He concluded that individuals tended to discount low probability hazards in contrast to high probability hazards where insurance became a type of investment. The higher the probability of a hazard, the more likely the individual was to receive some return from the investment and the greater the incentive to purchase insurance. A study of the use of seat belts also indicated a failure of consumers to take protective action in spite of the fact that the benefits from such actions were considerably higher than the costs [6]. Inadequate risk perception may be the major reasons for such responses. Slovic investigated the perceived frequency of fatal events and found that there was a considerable difference between actual and perceived frequencies. He concluded that we "cannot assume that intelligent citizens have valid perceptions of the frequency of hazards to which they are exposed" [27, p. 62].

Consumer risk response may also be affected by the fact that the degree of protection provided by their response is limited. Thus, there is no guarantee to the individual that his life will be saved if he takes protective actions, e.g., wears a seat belt, buys a smoke detector. In contrast, there is less uncertainty for society as a whole since a certain number of unidentified lives will be saved when government issues health or safety regulations.

Inadequate risk perception and risk response are not the only reasons for government intervention. Even more critical may be the degree to which the individual has control over the level of risk to which he is exposed. The public may be less tolerant of risk imposed by others. Starr [29]

found that the public was willing to accept higher levels of risk for voluntary than for involuntary activities. Lowrance comments, "it is one thing to go skiing, drive a sports car, use a tool without safeguards, smoke cigarettes or eat the vegetables we have sprayed ourselves; but it is quite another to breathe the air or endure the noise where we live (and few of us are really free to move away), dodge the traffic on our way to work or drink water from our municipal supply" [21, pp. 87-88]. Finally, inadequate risk response may also impose economic losses on others. Thus, the economic losses from smoking (medical costs, lost output) are borne both by the individual and by society in the form of Medicaid, Medicare, and higher insurance premiums. Risk imposed by others or economic losses imposed by others are examples of third party spill-over effects which justify government intervention.

PART II: GOVERNMENT RISK RESPONSE

Lowrance [21] distinguishes between measuring risk and judging safety. "Measuring risk - measuring the probability of severity of harm - is an empirical scientific activity, while judging safety - judging the acceptability of risk - is a normative political activity" [21, pp. 75-76]. In the case of government intervention determining the acceptability of risk is a major problem since individuals differ with respect to their attitude towards risk.

Four basic approaches to risk evaluation have been identified by Kates [18]. They are risk aversion, risk balancing, cost-benefit analysis and risk-benefit analysis. In the first instance, the focus is on risk avoidance and risk minimization irrespective of other risks and benefits. Examples of risk aversion are zero tolerance standards for pollutants, impurities or food additives. The 1958 Delaney Amendment to the Food, Drug and Cosmetics Act is an example of the zero risk approach. It states:

No additive shall be deemed to be safe if it is found to induce cancer when ingested by man or animal, or if it is found, after tests which are appropriate for the evaluation of the safety of food additives, to induce cancer in man or animal.

Havender [15] commented that under this Amendment an additive would have to be banned even if there were contributing benefits. In the case of saccharin, the perceived benefits (weight reduction) were greater than the perceived risks and the proposed ban on saccharin was withdrawn in response to public protest.

Risk balancing compares frequencies of mortality or morbidity for different activities. Besuner and Gibson concluded that the risk associated with a product or activity was acceptable if it fell at the lower end of the scale [23]. For purposes of comparison rates per hour of exposure should be used. In cost-benefit analysis the benefits to society from reducing risk are compared to the costs of the risk reduction