LIFELINE RATES IN BANKING AND TELECOMMUNICATIONS: SOCIAL BASES OF SUPPORT AND OPPOSITION

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ABSTRACT

This study examines some of the social bases of support for and opposition to lifeline programs in banking and telecommunications. The empirical results show that income and education are inversely related to support for lifeline programs. In addition, people who classify themselves as political conservatives are less likely to support such a proposal than are political liberals.

A major goal of current regulatory policy in the United States is to increase competition and efficiency in previously-regulated markets. The airline, trucking, energy, health care, telecommunications, and banking industries are all experiencing the growing pains associated with operating in a more fully competitive marketplace.

A transition to a more competitive environment should increase the efficient use of resources and thereby benefit consumers in the aggregate. Nevertheless, allowing market forces to operate may leave some consumers worse off. For example, before airline deregulation, service to some small communities was subsidized with revenues from more profitable routes. Under deregulation, many of these communities lost some or all of their commercial airline service.

The loss of regulation-created subsidies may create problems of access for low-income customers. Consequently, deregulatory efforts have generated a number of proposals designed to address issues of equity and access. For instance, the movement of the banking and telecommunications industries toward cost-based systems of pricing has generated proposals for no-cost or low-cost service options for low-income customers, often referred to as "lifeline" rates.

While most lifeline proposals are decided by legislative or regulatory bodies, little is known about the extent of public support for and opposition to such proposals. Furthermore, what are the reasons why individuals unlikely to be eligible for such lifeline programs might support their establishment? This study examines some of the social bases of support for and opposition to lifeline programs in banking and telecommunications, and thereby casts light on the more fundamental issue of public preference for social welfare programs.

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BACKGROUND

Current Status of Lifeline Programs

The idea of a lifeline rate first received widespread attention in the aftermath of the 1973-74 energy crisis and was motivated by two concerns. The first concern was the impact of rising electricity and natural gas prices on low-income consumers [15]. It was argued that an amount of energy sufficient for basic lighting, heating, and refrigeration should be available at a low price as a matter of equity. The second motivating concern behind energy lifeline proposals was efficient use of resources. At the time, most utilities used declining block pricing, a rate structure which encouraged energy consumption and discouraged efficient energy use. Some regulators viewed lifeline rates as one method of making rates more reflective of the actual costs of producing and distributing energy [8, 11]. If the per unit price was directly related to the quantity purchased then everyone, regardless of income, would have an incentive to conserve energy.

Lifeline rates for energy were adopted in several states and cities during the 1970's [1, 3]. Furthermore, lifeline energy rates received federal approval in the Public Utilities Regulatory Policy Act of 1978. The Act specified that any state-regulated utility which did not have a lifeline rate in effect within two years would have to "determine, after an evidentiary hearing, whether such a rate should be implemented" (Public Law 95-617, Section 114).

Current justifications for lifeline telephone service are similar to those for energy lifelines. First, it s argued that lifeline telephone rates would help keep service affordable to low-income customers during a period in which the break-up of AT&T is expected to increase local telephone rates sharply [5]. Moreover, the argument has been made that insuring universal telephone access generates external benefits for all users of the telephone system by increasing the number of people who can be called [14]. A second justification for lifeline rates is that they are consistent with a more general shift toward efficient pricing of telephone usage based on the cost of providing service. To better reflect these costs, many local telephone companies currently advocate that local telephone service be metered (similar to the way long-distance calls are metered), as opposed to offered on a flat fee basis.

Proposals for local measured service typically allow basic access to the local telephone network at a low rate, thereby essentially creating a form of lifeline service.[2]

Lifeline telephone rates have already been implemented in California, New York, Wisconsin, and Arkansas, and they are being studied in other states. A federal bill containing a means-tested telephone lifeline requirement was passed by the House in 1983 (H.R. 3621) and has been reintroduced in the 99th session of Congress (H.R. 151). The Federal Communications Commission has also appointed a panel to determine whether the Commission ought to require some form of lifeline service [4].

Unlike the multiple justifications for both energy and telephone lifeline rates, current proposals for lifeline services in banking are motivated almost exclusively by concern for low-income consumers. Lifeline banking proposals are a response to rising charges for maintaining checking accounts and/or small savings accounts, and automatic teller machine use--changes induced by deregulation [2, 7].

Massachusetts enacted the nation's first lifeline banking law in 1984 [4]. The law uses age (under 19 and over 64) rather than income as the criterion for free checking and savings accounts. Since many banks already offer free accounts to minors and senior citizens [7], the Massachusetts law does not greatly increase consumers' access to banking services. In California, a law was proposed that would have made a "baseline account" (including eight free checks per month) available to any consumer who made an initial deposit of $25. Similar lifeline legislation has been introduced but not enacted in Connecticut, New Hampshire, and New York [12]. There has also been agitation for lifeline banking rates in the United States Congress, two bills having been recently considered in the House (H.R. 2011 and H.R. 2661).

THE MODEL

The fate of lifeline proposals for banking and telephone services is likely to depend, at least in part, on public opinion. Since lifeline policies typically require a majority of consumers to subsidize a minority (e.g., elderly, low-income, and/or unprofitable customers) through higher rates, one might expect support for such policies to be minimal. How then does one account for the high level of interest in lifeline policies at the federal, state, and local level? And what characteristics distinguish lifeline supporters from opponents?

[2] Ironically, many groups which advocate lifeline rates (e.g., The American Association of Retired Persons) oppose local measured service. These groups see telephone service as bordering on a basic human right, one which would be curtailed by any use-sensitive pricing.

Factors Influencing Support for Lifeline Policies

There are no studies of public attitudes toward lifeline proposals per se. Nor is there a theoretically grounded body of research that examines the correlates of public opinion regarding social welfare programs in general. Given the absence of any theoretically-grounded explanations for why people support welfare programs in general or lifeline programs in particular, the strategy adopted here is to proceed in an exploratory fashion and to test a simple model. Essentially, we want to understand why individuals support or oppose transfer programs which are likely to benefit a minority at the expense of the majority.

The initial premise is that an individual's "demand" for the implementation of a means-tested lifeline program in banking or telecommunications depends on perceptions of the personal costs and benefits of that program. These costs and benefits may be direct and concrete or indirect and intangible. In this spirit, we have attempted to identify factors which affect the probability that an individual will benefit from and pay for the establishment of means-tested lifeline rates.

Probability of Benefit

There are at least four factors which could influence the probability that an individual would benefit from means-tested lifeline policies: (1) household income, (2) age, (3) area of residence, and (4) educational attainment. Some of these factors should affect the probability of directly benefiting from lifeline policies while others may have a more subtle, indirect influence.

First, qualifications for a means-tested lifeline program are usually established by assessing total household income, with some adjustment for household size. In assessing their own probability of qualifying for such a program, respondents are likely to base their judgment on their total income, without making the relatively complicated "income-to-needs" adjustment. Thus, if peoples' attitudes about lifeline service reflect their own subjective assessment that they might benefit from such a program, then one would expect an inverse relationship between household income and level of support for lifeline programs, holding other factors constant.

Prior to the recent spate of means-tested lifeline proposals, subsidies in the energy, banking, and telecommunications industries were based on age or area of residence. For example, in many cases people living in rural areas historically have paid the same amount for basic telephone service as have people in urban areas even though the cost of service to rural areas has always been much higher. Similarly, some banks have had a long-standing practice of providing low-cost or no-cost service to children and senior citizens. As members of such special interest groups face higher, unsubsidized prices in deregulated

environments, they might perceive means-tested lifeline proposals as increasing their own chances of receiving similar subsidies. It is therefore hypothesized that older people and people living in rural areas will be more likely to favor the establishment of lifeline service for low-income households than will younger people and people living in urban areas, ceteris paribus.

Finally, it is also hypothesized that level of educational attainment will affect perceptions of the benefits of a lifeline program. Since highly-educated respondents are usually better informed about markets [8], they will more fully recognize the options available to consumers under deregulation. For instance, a highly-educated individual may know that although most banks impose charges on checking accounts, some banks offer free checking. Similarly, better educated consumers may be aware of the fact that there are low-cost options for local telephone service (e.g., two-party lines and optional measured rates). Given their greater ability to exploit any low-cost options provided by the market, more educated individuals will perceive fewer benefits from lifeline policies than less educated people, ceteris paribus.

Probability of Cost

There are at least two factors which could influence the probability that an individual would incur costs form a means-tested lifeline policy: (1) usage rates, and (2) political orientation. The first factor affects the tangible costs to the individual of a means-tested lifeline program while the second factor reflects the less-tangible ideological costs to the individual of instituting such a program.

Since lifeline programs usually entail raising prices for non-eligible customers, the direct costs of these programs are proportional to an individual's level of use. If high-use customers bear more of the program's costs they should be less supportive of lifeline programs than low-use customers, ceteris paribus. For example, if lifeline rates for local telephone service are funded by placing a tax on long-distance calls, one would expect frequent long-distance callers to be less supportive of lifeline rates than would individuals who rarely make long-distance calls.

A persons' political orientation may influence the less-tangible ideological cost of having government intervention in the marketplace. Deregulation has generally been championed by political conservatives. Many of these conservatives would view the establishment of lifeline policies as a costly step backward from their ideal of efficient, cost-based pricing in the marketplace. Thus, it is hypothesized that political conservatives will be less supportive of lifeline policies than will political liberals.

DATA, METHODS, AND ANALYSIS

The data used in the empirical work that follows come from the first wave of panel study that focuses on consumer welfare as it relates to deregulation in the state of Utah. Data on 810 adults from randomly selected Utah households were collected in the initial interview using a computer-assisted telephone interview survey method during July and August 1985. Survey respondents answered questions about their knowledge, behavior, and opinion regarding the banking and telecommunications markets. Among the questions asked were two concerning telephone lifeline legislation and one about banking lifeline legislation.

Two questions were used to measure opinion about telephone lifeline rates because the Utah Public Service Commission was considering two different methods of funding such a program--the first would raise monthly flat rates while the second would tax each long-distance call. The exact wording of the two telephone lifeline questions posed to panel members were:

> Some states are considering lowering telephone rates for low-income people to make sure they can afford local telephone service. Assuming that having these reduced rates would increase the local telephone bills of other customers by 25¢ a month, would you strongly favor, somewhat favor, somewhat oppose, or strongly oppose these special rates for low-income consumers in Utah?
>
> How would you feel about having these special rates for low-income people in Utah if it meant increasing the cost of an average long-distance call by about 2¢--would you strongly favor, somewhat favor, somewhat oppose, or strongly oppose these special rates for low-income consumers in Utah?

The cost estimates used in these two questions were provided by the Utah Division of Public Utilities.

Although other states are currently considering means-tested lifeline legislation in banking, no such proposal is pending in Utah. Thus, the question that was asked about public support for a banking lifeline policy did not specify a method of distributing costs. The exact wording of the question posed to panel members was:

> Some states are considering laws that would prevent financial institutions from charging low-income customers for checking accounts. Assuming that the cost of providing these free services would increase the costs to the average customer, would you strongly favor, somewhat favor, somewhat oppose, or strongly oppose such a law in Utah?

Combining those who "strongly favor" and "somewhat favor," 63.6 percent of the respondents were in favor of telephone lifeline legislation if it meant that it would raise the local monthly bill of the average customer by 25¢, while 36.4 percent were opposed. The corresponding figures were 67.1 percent in favor and 32.9 percent opposed when the question was phrased so that the cost would be born by those who made long-distance calls. In

contrast to the generally high levels of support for telephone lifeline service, only 25.3 percent of the respondents were in favor of establishing a lifeline program for banking while 74.7 percent were opposed.

These simple descriptive statistics suggest that people's attitudes about the need for telephone service subsidies may be different from their attitudes about banking subsidies. To allow for this possibility, the test of the model is made by estimating three separate equations, one for each of the questions asked about lifeline programs. By estimating each of the equations separately it is possible to control for any commodity-based differences in support for the lifeline proposals. Commodity-based differences in levels of support might exist because of differences in perceptions about whether or not (1) the commodity is a necessity that consumers should be guaranteed access to, and (2) the current pricing structure already allows access to all who want the commodity.

The independent variables included in the three equations have been chosen on the basis of how closely they corresponded to each of the perceived benefit and cost factors discussed in the previous section. Household income for the past year, age, area of residence, and educational attainment are included in each of the three equations to assess how the probability of benefiting from the proposed program affects one's opinion about the program.

Measurement of variations in the tangible costs of the three lifeline proposals are captured by different variables in each of the equations. The first telephone lifeline equation that examines opinion about lifeline rates if they increased the average customer's local bill, includes a variable that measures the respondent's long-distance telephone bill last month. The second telephone lifeline equation that focused on opinion about lifeline rates if they increased the average customer's long-distance bill, includes two variables that are designed to measure cost variations: the number of long-distance calls made at the respondent's residence last month and the previous month's long-distance bill. The banking lifeline equation uses a dummy variable that measures whether or not the respondent currently had a checking account to control for tangible cost differences. Presumably, current account holders would have a higher probability of bearing the costs of the lifeline subsidy than consumers who cannot afford or chose to forego a checking account. In addition, political orientation dummies are included in all three equations to capture any differences in ideological costs that lifeline programs would place on respondents. Descriptive statistics and complete definitions for all of the variables used in the empirical work appear in Table 1.

Although each of the questions had four response categories--strongly favor, somewhat favor, somewhat oppose, strongly oppose--the responses have been collapsed into "favor" and "oppose" to facilitate the estimation of each of the

TABLE 1 Descriptive Statistics

Independent Variables	Mean[b]	Standard Deviation[b]
Respondent's Age (1 = 62 years or over; 0 = otherwise)	.124	.917
Respondent's Education (years)	13.7	2.21
Politics 1[a] (1 = liberal; 0 = otherwise)	.228	.411
Politics 2[a] (1 = moderate; 0 = otherwise)	.286	.453
Household Income (dollars last year)	26,577	13,827
Long-Distance Telephone Bill Last Month (dollars)	26.9	38.5
Number of Long Distance Calls Made Last Month	9.5	14.0
Account (1 = if respondent has a checking account; 0 = otherwise)	.853	.210
Region of Residence (1 = rural; 0 = otherwise)	.304	.468
Opinion on Telephone Lifeline if it Increased Local Bills (1 = support; 0 = oppose)	.636	.480
Opinion on Telephone Lifeline if it Increased Long-Distance Bills (1 = support, 0 = oppose)	.671	.470
Opinion on Banking Lifeline (1 = support; 0 = oppose)	.253	.434

[a]The omitted category in this sequence of dummy variables is composed of those respondents who classified themselves as political conservatives.

[b]These statistics are based on the 653 respondents to the survey who provided complete information on all of the variables of interest.

equations.[3] A multivariate logit technique is used to estimate each of the three lifeline attitude equations. The logit equation predicts the natural logarithm of the odds that a respondent favors lifeline rates rather than opposes them, for any given levels at which the independent variables have been set [13].

Table 2 presents the results of the logit analyses for the three estimated equations. In the logit model, the estimated coefficients are cast so that a one unit change in an independent variable, X_i, produces a β_i percentage change in the natural log of the odds ratio, holding all other factors constant. Because this interpretation is cumbersome, "marginal effects" have been included in Table 2. A marginal effect represents the change in the odds that a respondent would support the establishment of lifeline rates rather than oppose such a law, given a small change in an independent variable, holding all other factors constant. Each marginal effect varies depending on the values for the continuous variables and the modal

[3]Technically, when a dependent variable takes on a fairly limited number of discrete ordinal values ordered probit or multinomial logit are more appropriate estimation procedures to use [9]. Unfortunately, neither an ordered probit routine nor a multinomial logit routine is currently available on the University of Utah campus, and so the response categories were collapsed so that a binary choice model could be estimated instead.

TABLE 2 Parameter Estimates of the Logit Analyses of Opinions About Three Particular Lifeline Proposals (t-statistics in parentheses)

Independent Variables	Equation 1 Coefficients[a]	Marginal Effects[d]	Equation 2 Coefficients[b]	Marginal Effects[d]	Equation 3 Coefficients[c]	Marginal Effects[d]
Constant	2.20 (3.88)**	--	2.57 (4.41)**	--	.248 (.386)	--
Age Dummy	.483 (1.71)*	.118	.464 (1.57)	.111	$-6.60X10^{-3}$ (-.0229)	$-9.57X10^{-4}$
Rural/Urban Dummy	-.420 (-2.25)**	-.102	-.0414 (.212)	-.00989	-.0645 (-.312)	-.00935
Politics 1 Dummy	.968 (4.19)**	.236	.701 (3.02)**	.168	.855 (3.71)**	.124
Politics 2 Dummy	.432 (2.17)**	.105	.329 (1.58)	.0786	.392 (1.74)*	.0568
Account Dummy	--	--	--	--	-.409 (-1.65)*	-.0593
Number of Long Distance Calls	--	--	.0156 (1.81)*	.00373	--	--
Long Distance Bill	$8.32X10^{-4}$ (.374)	$2.03X10^{-4}$	-.0136 (-.368)**	-.00325	--	--
Education	-.109 (-2.25)**	-.0266	-.108 (-2.56)**	-.0258	-.0517 (-1.07)	-.00950
Income	$-1.52X10^{-5}$ (-2.35)**	$-3.7X10^{-6}$	$-1.65X10^{-5}$ (-2.49)**	$-3.9X10^{-6}$	$-2.51X10^{-5}$ (-3.14)**	$-3.6X10^{-6}$
χ^2	76.2		75.0		37.6	

[a]The dependent variable in this equation measured opinion about a proposal to establish a means-tested telephone lifeline program that would be financed by increasing local telephone rates.

[b]The dependent variable in this equation measured opinion about a proposal to establish a means tested telephone lifeline program that would be financed by increasing long-distance telephone rates.

[c]The dependent variable in this equation measured opinion about a proposal to establish a means-tested checking account lifeline program.

[d]The marginal effects have been calculated using the following formula:

$$\frac{\delta P}{\delta X_i} = \left[\frac{e^{\bar{X}\beta}}{(1+e^{\bar{X}\beta})^2} \right] \beta_i$$

Where $\bar{X}_i$ has been computed using the mean values for the continuous variables, and modal values for the discrete variables [10].

[e]The χ^2 was computed by subtracting the χ^2 associated with the full model from the χ^2 associated with the null model. The difference has a χ^2 distribution with 7 degrees of freedom in equations 1 and 3 and 8 degrees of freedom in equation 2. The critical values are $\chi^2_{(7;\ .01)} = 18.48$ and $\chi^2_{(8;\ .01)} = 20.09$.

*t-value statistically significant at the .10 level.
**t-value statistically significant at the .05 level.

values for the dichtomous variables. (In the latter case, mean values would have no logical interpretation.)

A test of the overall goodness of fit for each of the logit equations indicates that all three equations are statistically significant at the .01 level. A closer look at the estimated coefficients indicates that some of the a priori hypotheses are supported by the data, although several are not confirmed.

It was hypothesized that a respondent's household income would be inversely related to support for lifeline rates because the higher the income, the less likely a respondent would be to qualify for a means-tested lifeline program (and thus directly benefit from such a program). In each of the three equations, this hypothesis is supported by a negative and statistically significant coefficient on the income variable. The corresponding marginal effects indicate that a household with $10,000 more in annual income than the average household is anywhere from 3.6 percent (for the equation that measures support and opposition to banking lifeline service) to 3.9 percent (for the equation that measures support and opposition to telephone lifeline service that would be funded by increasing long-distance rates) less likely to support lifeline service, ceteris paribus, than is the average respondent.

The coefficients on the two variables designed to capture variations in attitudes due to affiliations with special interest groups--other than low income households--meet with less success. It was originally posited that individuals who had benefited from telephone and banking subsidies prior to deregulation would support the establishment of means-tested lifeline programs because they would perceive such proposals as increasing the chances that subsidies would be continued or re-instated

for them. Two dummy variables, one that identifies elderly respondents (e.g., those aged 62 and over) and one that identifies respondents living in rural areas, are entered into each of the equations to control for possible variations in attitudes about lifeline due to membership in either of these two groups. The coefficient on the age dummy, while exhibiting the hypothesized (positive) sign in two out of the three equations, is only statistically significant in the first equation. The rural/urban dummy is statistically significant in only one of the three equations--and in that equation the sign is in the opposite direction of what was originally hypothesized.

One possible explanation for the unexpected lack of relationship between age, region of residence, and the respondent's attitude about lifeline policies is that while some elderly and rural residents see the establishment of means-tested lifeline rates as increasing their own chances of getting such a subsidy, others see themselves as competing with low-income households for these subsidized rates. That is, some older (or rural) respondents may believe that if low-income households are given lifeline rates, it will lower their own probability of getting such a subsidy. If this is true, on balance, one might observe no relationship between age or region of residence and attitudes about means-tested lifeline policies.

Educational attainment has been included in each of the equations because it was hypothesized that respondents with more education would be more fully aware of the various options available to consumers in a deregulated market and thus they would be less likely to perceive themselves as benefiting from a lifeline policy, ceteris paribus. In all three equations the negative education coefficient is in line with the hypothesized sign. Furthermore, the education coefficients are statistically significant in the two telephone lifeline equations. A respondent who had one more year of education than the average person was 2.66 percent less likely to support a lifeline telephone rate if it meant that it would raise the average customer's local bill and he/she was 2.58 percent less likely to support such a measure if it meant that the average customer's long distance bill would rise. Hence, it appears more highly educated people perceive fewer direct benefits from telephone lifeline service and thus they are less likely to support a means-tested lifeline program than are their less-educated counterparts.

In the empirical assessment of how attitudes about lifeline service would vary in relation to dollar costs incurred, different variables were entered in each equation depending on the question being analyzed. In the first equation, telephone lifeline service is to be financed by increasing customers' local telephone bills by 25 cents per month. In theory, one would expect some variation in level of support depending on the size of a respondent's local telephone bill. Unfortunately, the survey did not collect data on local telephone bills. However, data were collected on long-distance bill amounts. If local telephone bills are fairly constant across users and if respondents are likely to think about local and long-distance charges together (because prior to deregulation these two bills always came as one), then one might anticipate that the greater a respondent's long-distance bill, the smaller the 25 cent surcharge would be as a percentage of that bill, and the more likely the respondent would be to support lifeline service. In this spirit, last month's long-distance bill amount has been entered in the first equation. The estimated coefficient on this variable is not statistically significant although its sign is in the hypothesized direction. This lack of association suggests (1) it is inappropriate to assume that respondents do not think about their local and long-distance telephone bills separately, or (2) the size of a respondent's telephone bill does not alter one's opinion about lifeline programs.

In the second telephone lifeline equation, two cost variables have been included: the respondent's long-distance telephone bill last month and the number of long-distance calls made during that month. Recall that support for lifeline telephone rates should be inversely related to the proportion of the costs of such rates that would be born by a respondent. In this second equation support for telephone lifeline rates should be lower among frequent long-distance callers because the costs of such rates are to be made-up by increasing long-distance phone bills by 2 cents per call. Likewise, the larger a respondent's long-distance bill is, holding the number of calls constant, the more supportive a respondent should be of the proposed lifeline program, because the smaller the cost would be relative to a respondent's already-existing expenditures on long-distance calls.[4]

The estimated coefficients on the bill amount and number of calls variables in the second equation are statistically significant but contrary to the hypothesized relationships. Evidently, the more long-distance calls one makes the more likely a person is to be supportive of lifeline telephone rates that would be financed by raising the cost of a long-distance call. The calculated marginal effect indicates that a person who makes 10 more calls per month than the average individual is 3.7 percent more likely to favor the lifeline proposal. One possible explanation for this unanticipated result is that people who make many long-distance calls see basic telephone service as more of a necessity than do people who make few long-distance calls, ceteris paribus.

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[4]For example, someone who makes 10 long-distance phone calls per month but who has a $100 long-distance phone bill should be more supportive of the lifeline rate than someone who makes the same number of long-distance calls each month but whose long-distance bill is only $10. In the former case, the respondent would see a .02 percent increase in his/her phone bill if a lifeline program were imposed, while in the latter case the respondent would see a 2 percent increase.

The negative sign on the bill amount coefficient indicates that the larger one's long-distance bill is, the less supportive a person will be of such a lifeline rate structure. A respondent whose long-distance bill is $10 above the average is 3.25 percent less likely to favor the telephone lifeline proposal than is the average respondent. Evidently, individuals with high bills are less tolerant of any additional telephone charges placed on them than are individuals with low phone bills, even if the surcharge as a percentage of the total bill is lower for the former group than for the latter.

In the banking equation a dummy variable that identifies who has a checking account has been entered to capture possible differences in the cost incidence of a banking lifeline program. In theory, those who have checking accounts should be less supportive of lifeline checking for low-income customers than those respondents who do not currently have a checking account, ceteris paribus, because members of the former group will be the ones who will bear the costs of this subsidy. The negative coefficient on the checking account dummy in the banking equation conforms with the hypothesized relationship and the coefficient is statistically significant. The corresponding marginal effect indicates that people with checking accounts are almost 6 percent less likely to support the banking lifeline proposal than are those who do not have checking accounts.

All three of the equations contain a set of dummy variables that measure a respondent's political orientation. It was argued earlier that political conservatives, who have historically championed deregulation, would view the establishment of lifeline policies as a retreat from efficient cost-based pricing. Therefore, it was posited that political conservatives would be less supportive of lifeline policies than political liberals. Two political orientation dummies are entered into each of the three equations, one that identifies political liberals and one that identifies respondents who considered themselves to be politically "middle-of-the-road." In each equation, those respondents who classified themselves as political conservative constitute the omitted group.

The significant, positive signs on five out of the six estimated coefficients support the hypothesis that political conservatives would be the least likely to support lifeline rates. The marginal effects indicate that political liberals are 23.6 percent more likely to support telephone lifeline rates if they would increase local phone bills, 16.8 percent more likely to support telephone lifeline rates if they increase long-distance bills, and 12.4 percent more likely to support banking lifeline rates than are their conservative counterparts, ceteris paribus. Correspondingly, those who classify themselves as "middle-of-the-road" are 10.5 percent more likely to favor telephone lifeline rates if they are funded by raising local rates, 7.86 percent more likely to favor telephone lifeline rates if they are funded by raising long-distance rates (although this coefficient is not statistically significant), and 5.68 percent more likely to favor banking lifeline rates than are political conservatives, holding other factors constant.

DISCUSSION

The transition within deregulated industries to cost-based pricing raises the possibility that low-income consumers will not be able to afford services such as banking and telecommunications. In response, lifeline proposals have been advocated to ensure some degree of access. Since these proposals have been offered in a political climate otherwise inhospitable to new social welfare initiatives, any substantial degree of public support would be noteworthy. The research reported here not only assesses levels of support for lifeline programs but also suggests some of the reasons behind varying degrees of support.

The descriptive data indicate that public support for lifeline service varies markedly across commodities. In Utah, support for telephone lifeline service was high relative to support for checking account lifeline services. This difference may reflect a belief that telephone service is a necessity while a checking account is not. Or perhaps people believe that current pricing structures prohibit access to low-income households in the telecommunications market, but not in the banking market. Finally, it is possible that some of the observed differences were an artifact of the way in which the questions were asked. The telephone lifeline questions included detailed information about the dollar costs while the banking lifeline question discussed the costs in vague terms. Consumers may be less likely to voice support for a program when the costs are unspecified. Whatever the reason, these data suggest that policymakers should not generalize from public opinion about lifeline proposals in one market to other markets.

This research also suggests some of the reasons why people who are unlikely to benefit from social welfare programs nevertheless support such programs. All three of the estimated equations demonstrated that the probability of personally benefiting from the proposed program influenced one's opinion of the proposal. Likewise, opinion was also swayed by the probability that an individual would have to finance the program. More surprising were the strong effects of the less-tangible cost-benefit factors such as a respondent's education level and political orientation in determining attitudes about social welfare proposals. While neither of these variables directly affects the probability that an individual will benefit from or pay for the social programs in question, our empirical work nevertheless suggests that these factors dramatically influence public opinion on these issues.

Since lifeline programs involve the subsidization of a minority by the majority, the political prospects of such proposals would be bleak if

public attitudes toward them were determined solely on the basis of narrowly-defined economic self-interest. Our analysis shows that lifeline proposals may also be supported for broader, more ideological reasons. If public policy in the United States continues to stress industry deregulation, it therefore appears that lifeline policies will be a politically acceptable method of addressing problems of equity created in the process.

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DISCUSSION

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ABSTRACT

The three papers under discussion address important public policy issues. The Morse article is one of the many written over the past twenty-five years which addresses the need for universal standards of interest rate disclosure. The Brannigan/Ensor article explains why the appellate court reversed the district court decision and ruled against Consumer's Union in favor of General Signal Corporation. This ruling is currently being appealed and, if upheld, will have a major impact upon the operation of Consumer's Union. The Zick, Mayer, Burton article examines some of the social bases of support for and opoposition to lifeline programs in two deregulated industries.

INTRODUCTION

The three papers being discussed in this session represent three distinct approaches to evaluating policy and the consumer. Zick/Mayer/Burton use a survey research approach to examine some of the social bases of support for and opposition to lifeline programs, while Brannigan/Ensor use a legal case study approach in their research. Morse uses an informal market survey approach in his investigation of savings rate disclosure. Each study represents a distinct approach to public policy and, therefore, will be examined separately.

Morse

As a prelude to a discussion of the Morse study, I would like to mention the types of scholarly activities in which Dr. Morse has been involved. I hope that it will put the discussion paper into perspective. Morse has conducted in depth research on standarization of interest rate disclosure for over twenty-five years. His efforts, a major reason for passage of truth-in-lending legislation, served to overcome the opposition of researchers who testified against the need for uniform rate disclosure. These researchers claimed their study results showed that consumers want only minimal information, e.g., the amount of their monthly payment, which was understandable when interest rate disclosures were confusing and not uniformally disclosed. Anyone who has seen recent advertisements for available credit, such as for the purchase of a new automobile, realizes that consumers also want to know the annual percentage rate.

The Morse paper represents one more piece of scholarly activity conducted over a twenty-five year period. His current research, "Truth-in-Savings' is, in actuality, the flip side of the coin of "Truth-in-Lending". I do not have to tell you the impact that truth-in-lending legislation has had in simplifying the teaching of credit for both college classroom students and for lay audiences. The same results will be reached with usage of Cents-ible interest in the disclosure of interest rates on savings and investment instruments. One question a reader might have is why did Morse select the August 6, 1984 issue of the Washington Post to evaluate a variety of advertised saving instruments. That choice limits his evaluation options to only those offered by various financial institutions in one market. I believe the answer is revealed in paragraph two of Morses' paper. . . . "This same week the U.S. House Banking Committee held hearings on HR2282, the Truth-in-Savings Act." Morse was invited to testify on the merits of this piece of legislation in behalf of consumers. Morse, from my own observations over a period of 7 years, is a master at making ivory tower research come alive and relevant to legislators. Morse used the August 6, 1984 issue of the Washington Post to bring to legislators' attention the problem faced by them and other consumers in evaluating saving information advertisements and to further document the need for using the cents-ible interest method of information disclosure.

The only question I raise with this paper is why Morse does not put this information into perspective with the rest of his twenty-five years of scholarly activity in this area. I hope this was clarified by my introductory comments. I do realize that the authors were limited to seven camera-ready typed pages which probably explains this omission.

The need for cents-ible interest has been well documented by Morse. This paper on interest rate disclosure is the fifth in a series of papers presented by Morse on this topic. The other papers appear in the 1978, 1980, 1983 and 1984 ACCI proceedings. Morse intended the primary focus of his research activities be for the consumption of legislators, regulators, and the lay public, and of secondary importance to researchers and educators. In conclusion, Morse is an excellent role model for us all and is to be commended for his continued effort on behalf of consumers.

BRANNIGAN/ENSOR PAPER

As mentioned earlier, all three papers use a different approach in their research undertaking. This speaks to the diversity and strength of ACCI. I agree with most of the conclusions of the two authors except with regard to their discussion of the Lanham Act. The authors believe "the Lanham Act provides only limited protection to CU position." In the case of the Regina advertisement, for example, they believe that CU's only protection is that the company did not display the entire non-commencialization policy of Consumer Union which appears at the beginning of each issue Consumer Report Magazine; instead, the ad merely stated that "CONSUMER REPORTS is not affiliated with Regina and does not endorse products." The authors continue, "If the disclaimer is determined to be insufficient, and therefore the advertisement is misleading, the advertisement does not fall within protection of the First Amendment." I believe the Lanham Act provides Consumer Union protection from a different perspective. The Lanham Act, stated the authors, "covers only those advertisements that are blatantly false, but also those that embrace innuendo, indirect intimations, and ambiguous suggestions!" General Signal Corporation took the rating out of context, and, therefore, the ad could be construed as misleading and thus false. As consumer educators we have warned our audiences of the need to read the whole article. Consumers need to know the methodology and criteria CU is using to weigh the value of the ratings.

As a reader, I was expecting a section on implications. Since this section was omitted, I was left with some questions unanswered by the two authors. These questions are:

-- How will this court decision change the way CU will conduct business in the future if not reversed in a higher court? Will CU have companies sign contracts before testing their products in order to exercise control on tests or will CU have a rating at the conclusion of each articles product rating? Will consumers stop buying Consumer Reports since will be provided the information by company ads? How will this decision effect us as Consumer Educators?

These and other questions are not addressed in this paper, but it would have been helpful and informative to Consumer Educators to have had the authors perspective on these questions. Without addressing the implications to consumers, I question the value of this research and paper to the field.

ZICK/MAYER/BURTON

The authors are to be commended for their timeliness in developing and testing a model for support and opposition to lifeline programs. The trend of the last ten years, has been deregulation of major industries by the federal government and will continue. It will bring more competition and benefits to consumers in the aggregate, but make the plight of the disadvantaged more difficult than ever. This was how Rhoda Karpatkin described the situation during her 1986 Colston E. Warne Lecturer.

The methodology of this study was generally sound and will assist Utah's decisions regarding lifeline rates in the telecommunication industry. On the other hand, I do not believe that any implications can be made regarding lifeline rates in the banking industry. The authors themselves state . . . "it is possible that some of the observed differences were an artifact of the way in which the questions were asked" and thus I can make no inferences from the data with respect to lifeline rates in banking.

My major disappointment is that the authors didn't address the limitations of their study or the need for future research to address important methodological questions raised by their results. The most obvious limitation is that this was a telephone survey, thus, only persons with telephones were interviewed. Certainly this would have a great impact on results involving lifeline rates and telecommunications. Another limitation was the deletions of religion and race. During my discussion of the paper, Burton responded to this limitation, saying that other research conducted in Utah shows no difference between people in Utah and the rest of the country. This might be true in some areas of research but I believe differences will be observed when asking questions from a social welfare perspective. I believe future research must ask these questions, because legislators of other states will certainly raise the question. If, in the second wave of this study, the question of religion is not addressed, the research mentioned by Burton should be at least referenced. Also, future research questions on lifeline rates should have both detailed information about dollar cost as well as unspecified? It is possible that consumers are against lifeline rates until they are informed about how little it will cost them personally.

ESTIMATING THE RETURNS TO INFORMED DECISION-MAKING: WHAT IS A SUBSCRIPTION TO CONSUMER REPORTS WORTH?

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ABSTRACT

Data from 929 product tests in Consumer Reports between January 1975 and November 1984 were used to identify a relatively high quality, low priced item (a "Best Choice") and a qualitatively inferior item (a "Worst Choice") in each product test. The price of each "Worst Choice" was divided by the price of the corresponding "Best Choice" to determine the maximum money loss (in percent) possible from uniformed decision-making in 12 product classes. Three product classes which included durable goods were also examined to determine whether significant differences by subclass existed. Results were compared to Morris' [8,9] findings based on similar data for 1961 through 1968. Implications for consumers and consumer educators are also identified.

Various researchers have provided evidence that a high degree of price dispersion and low price-quality correlations exist in local markets for a number of products. The data analyses indicate that significant consumer payoffs to search are possible and, concomitantly, that consumers who are not fully informed are unlikely to obtain an optimum return from dollars spent. With personal consumption expenditures in the U.S. at $1,192 billion [14, p. 448], the potential loss of consumer welfare from what Morris [9] termed "haphazard purchasing" is great.

Maynes and Assum [7], Maynes [6], Cude [3], and Duncan [4] illustrated the wide range of prices found in local markets for a given level of quality using "perfect information frontiers." For example, Maynes and Assum [7, p. 73] found in one local market that, at $1.59, the highest price for aspirin, a quality constant product, was 4.08 times the lowest price ($.39). They also determined that the ratio of the highest to lowest price for a specific quality level of single lens reflex cameras was 3.74 ($635÷$170).

Several studies, including ones by Riesz [11,12], Sproles [13], and Geistfeld [5], have shown that the price-quality correlations for selected products are weak and even negative. Riesz [12, p. 25], in his study of 685 product categories rated in Consumer Reports between 1961 and 1975, found a mean rank correlation of 0.26. In a similar study focusing on packaged food products, Riesz [11, p. 240] estimated a mean price-quality correlation of 0.19. Sproles [13, p. 67] investigated 135 products in five major product categories. While 51% of the price-quality correlations were positive, 14% were negative. For 35% of the products, there was essentially no relationship between price and quality. Geistfeld [5, p. 340] examined the price-quality correlations for 18 products but, unlike other researchers, used prices from two local markets. He reported (market) price-quality coefficients ranging from -0.75 to 0.83 in one market and from -0.50 to 0.79 in the other.

Despite these data, consumers often underestimate the returns to search. Maynes and Assum [7, pp. 82-83] surveyed consumers to determine how accurately they perceived the price dispersions for selected products in a local market. They reported that, particularly for products with wide price dispersions, underestimation of the highest price charged was the dominant tendency. A 1982 study by Louis Harris and Associates [2, p. 50] provided additional evidence that consumers tend to believe markets perform better than they actually do. Consumers were asked how much difference in value they could expect to find by comparison shopping for six products and services: physicians, new cars, electrical appliances, food, credit, and gasoline. For each of these six items, 40% or fewer expected to find large differences.

Morris [8,9] approached the question from a slightly different perspective. Using data from 637 Consumer Reports product tests between 1961 and 1968, she calculated the maximum monetary loss (in percent) which an uninformed consumer might incur by buying a highly rated, relatively low-priced item (a "Best Choice") rather than a qualitively inferior item in the same product test (a "Worst Choice"). Dividing the price of the "Worst Choice" by that of the "Best Choice," Morris found that the mean percentage difference for the 12 product classes investigated ranged from 120.73% to 240.67%, i.e. consumers could, on the average, pay from 120.73% to 240.67% more for the "Best Choice" than for the "Worst Choice." As Morris [9, p. 107] notes, the potential maximum loss in real income is underestimated since the "Worst Choice" is qualitatively inferior to the "Best Choice."

This study replicates Morris' procedure to provide current data on potential payoffs to consumer search. Specifically, the objectives are:

1) Using data from Consumer Reports product tests for 1975 through 1984, determine the minimum and maximum as well as the mean percentage difference between the prices of the "Best Choice" and "Worst Choice" for 12 product classes,

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2) compare the results from current data to those generated by Morris,

3) determine whether significant differences in maximum monetary loss exist within subclasses for three product categories which include durable goods, and

4) identify implications for consumers and consumer educators.

PROCEDURES

Prior to outlining the procedure used, a review of how Consumer Reports (CR) presents product test results may be useful. CR generally provides information on the prices of models tested as well as an assessment of the models' overall quality. Prices are usually list prices or, less frequently, ones based on market studies by Consumers Union's buyers.

Quality may be indicated in one of several ways. Most commonly, a qualitative ranking is used with categories of "Acceptable" and occasionally "Conditionally Acceptable" or "Not Acceptable." Subdivisions such as "Acceptable - Excellent" and "Acceptable - Very Good" may also be used. Sometimes a model may be check rated (shown by the symbol ✓) indicating that it is of "high overall quality and significantly superior to...(the quality)...of other models" [1]. Models designated as "Best Buys" are those which "are not only rated high (in overall quality) but also priced relatively low and should give more quality per dollar than other Acceptable models" [1].

Occasionally, numerical quality scores may be listed for each model. More often, there is no information on the degree of quality difference between models other than an indication when models are of equal quality or a statement that quality differences between closely ranked models are slight. CR does not disclose the weights assigned to the various characteristics assessed in evaluating quality although a sense of the relative importance of the characteristics can often be gleaned from the accompanying article.

The procedure used by Morris [8,9] was followed as closely as possible. Morris defined a "Best Choice" as:

1) A model classified as a "Best Buy;" if more than one, the cheapest was identified as the "Best Choice."

2) If no "Best Buy" was designated, then a check-rated model was identified as the "Best Choice;" if multiple models were check-rated, the cheapest was selected as the "Best Choice."

3) If no models were check-rated or designated as "Best Buys," then the "Best Choice" was the cheapest of those listed in the top "Acceptable" class. When models were listed in a qualitative hierarchy without subdivision, the "Best Choice" was designated as the cheapest model in the top one-third of those listed.

A "Worst Choice" was defined as the most expensive item in the bottom two-thirds of the ratings, including models, if any, rated as "Conditionally Acceptable" or "Not Acceptable" [8, p. 36]. Under no circumstances, however, could the "Worst Choice" be a "Best Buy," a check-rated model, or a model rated qualitatively superior to the "Best Choice."

Several other principles used by Morris [8,9] were also adopted for this study. Since list prices were reported more often than market prices, market prices were used only when list prices were unavailable. Tests containing three or fewer models and those in which all models were rated "Not Acceptable" or of equal quality were excluded. The final exclusion was items where the list price required the addition of a shipping charge since the total cost to the consumer could not be determined.

The above definitions were used for 929 product tests[2] published in CR between January 1975 and November 1984. For each test, the price of the "Worst Choice" was divided by that of the "Best Choice." The result was an estimate of the maximum monetary loss (in percent) that might be incurred by the consumer who chose the "Worst Choice" rather than the "Best Choice."

RESULTS

The percentage difference between the prices of the "Best Choice" and "Worst Choice" varied greatly from product to product (Table 1). The greatest difference in any product category was an astonishing 2380% (Col. 2). This occurred in the product category Home, Yard, Upkeep and Renovation Equipment for hearing protectors. In the 1975 test, the "Best Choice," E-A-R Plugs, was priced at $.25 per pair. The "Worst Choice," Sonic Ear Valvs 103, was $5.95 per pair. In Column 2 the figure 2380 is the percent that $5.95 is of $.25. The smallest percentage difference in price was 21.21% (Col. 3), occurring in the product class Autos and Automotive Equipment for road emergency signals (roof mounted), tested in 1977. The percentage difference was derived from the comparative list prices of the "Best Choice" ($33) and "Worst Choice" ($7).

The mean percentage difference (Col. 4) between the prices of the "Best Choice" and "Worst Choice" ranged from a high of 392.74% for Clothing and Jewelry to a low of 125.35% for Televisions and Related Products. The median percentage (Col. 5) difference also varied by product class from a low of 107.01% (Autos and Automotive Equipment) to a high of 275.69% (Clothing and Jewelry).

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[2]Ratings of services (such as film processing and insurance) are excluded from the analysis.

TABLE 1. Price of "Worst Choice" as a Percent of Price of "Best Choice:" 929 CR Tests, 1975 through 1984.

Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6	Col. 7
	PERCENTAGE DIFFERENCE				NUMBER OF TESTS IN PRODUCT CLASS	
PRODUCT CLASS	HIGHEST	LOWEST	MEAN	MEDIAN	TOTAL	NUMBER WITH % BELOW 100
Clothing & Jewelry	875.00%	137.14%	392.74%	275.69%	6	0
Cosmetics, Drugs & Self-Improvement Products	1957.14	57.78	275.95	144.25	34	4
Cameras & Related Equipment	629.63	106.06	235.30	189.47	30	0
Food & Beverages	1260.00	31.15	200.27	166.67	149	16
Sports, Camping Equipment, & Toys	666.67	71.14	181.09	138.10	76	16
Household & Domestic Goods	637.68	43.75	176.92	147.06	72	16
Home, Yard, Upkeep, & Renovation Equipment	2380.00	40.91	173.79	145.45	194	18
Radio-phonograph Equipment & Related Products	400.00	21.67	161.05	134.83	67	8
Autos & Automotive Equipment	1000.00	21.21	153.95	107.01	97	33
Minor Appliances Under $100	411.76	60.00	152.76	133.33	76	10
Major Appliances Over $100	573.75	47.62	144.87	122.40	106	12
Televisions & Related Products	166.67	100.00	125.35	120.00	22	0
TOTAL			167.37	138.10	929	133

More often than not, the "Worst Choice" was a higher priced item than the "Best Choice" (Cols. 6 and 7); this was true in 796 of the 929 product tests (86%). In three product classes, Clothing and Jewelry, Cameras and Related Equipment, and Televisions and Related Products, each "Worst Choice" was more expensive than the corresponding "Best Choice." In contrast, in over one-third of the Autos and Automotive Equipment product tests (33 out of 97) the "Best Choice" was more expensive than the "Worst Choice."

The 1975-84 data clearly indicate that high potential consumer payoffs to search exist, particularly in certain product classes. A consumer may purchase a qualitatively superior, relatively low-priced item (a "Best Choice") or spend, on the average, 167.37% more for a "Worst Choice" which is qualitatively inferior.

How do these results compare to those generated by Morris using similar data for 1961 through 1968? Morris' [9, p. 109] findings are summarized in Table 2 and contrasted with the current data. The mean percentage difference found by Morris (Col. 6) ranged from a low of 120.73% (Televisions and Related Products) to a high of 240.67% (Cosmetics, Drugs, and Self-Improvement Products). Significant[3] differences (Col. 8) between the two data sets appeared in four product categories. In only one category, Household and Domestic Goods, was the mean 1961-68 percentage difference higher (233.40%, Col. 6) than that derived from 1975-84 data (176.92%, Col. 3). The mean percentage difference for the current data was significantly higher in three product classes: Clothing and Jewelry, Cameras and Related Equipment, and Food and Beverages. Moreover, the mean percentage difference for the 1975-84 sample (167.37%) was significantly higher than Morris found (127.40%). The greater price spread in the 1975-84 data may reflect the general tendency over time of increasing multitudes of product choices and greater sophistication of product design. Both make it more difficult for consumers to make valid price-quality assessments.

A final analysis of the 1975-84 data involved a detailed examination of three product classes which included durable goods: Major Appliances Over $100, Minor Appliances Under $100, and Autos

[3]Since Morris [8,9] did not report standard deviations, the t-tests assume the standard deviations of the two samples are not different. If this assumption is not valid, the results of the t-tests are not meaningful.

TABLE 2. Price of "Worst Choice" as a Percent of Price of "Best Choice:" 1975-84 and 1961-68.

Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6	Col. 7	Col. 8
	1975-84			1961-68			
PRODUCT CLASS	n	MEAN PERCENTAGE DIFFERENCE	S.D.	n	MEAN PERCENTAGE DIFFERENCE	DIRECTION OF CHANGE	t RATIO
Clothing & Jewelry	6	392.74%	253.01	27	154.10%	-	2.09*
Cosmetics, Drugs, & Self-Improvement Products	34	275.95	365.95	28	240.67	-	.38
Cameras & Related Equipment	30	235.30	135.45	36	132.11	-	3.08**
Food & Beverages	149	200.27	138.09	90	133.91	-	3.60**
Sports, Camping Equipment, & Toys	76	181.09	145.91	64	144.91	-	1.46
Household & Domestic Goods	72	176.92	110.93	66	233.40	+	2.99**
Home, Yard, Upkeep, & Renovation Equipment	194	173.79	274.15	68	123.92	-	1.27
Radio-phonograph Equipment & Related Products	67	161.05	77.72	47	140.74	-	1.37
Autos & Automotive Equipment	97	153.95	129.13	49	122.74	-	1.38
Minor Appliances Under $100	76	152.76	67.07	86	142.12	-	1.01
Major Appliances Over $100	106	144.87	75.82	50	123.83	-	1.62
Televisions & Related Products	22	125.35	17.42	26	120.73	-	.92
TOTAL	929	167.37	214.99	637	127.40	-	3.60**

*Significant at the .025 level.

**Significant at the .005 level.

and Automotive Equipment. Five subclasses were identified within the product category Major Applicances (see Table 3). The mean percentage difference in the five subclasses (Col. 6) ranged from 117.38% (Washers/Dryers) to 174.75% (Other Major Appliances). However, t-tests (Col. 7) indicated that none of the subclass means were significantly different from the mean (at the .005 level) for that product class. Similarly, the mean percentage differences for each of the three subclasses under Minor Appliances were not significantly different from the overall mean for that class.

However, the mean percentage difference for the subclass Autos (105.46%) was significantly lower than the mean difference (153.95%) for Autos and Automotive Equipment. In fact, in 29 (Col. 8) of the 62 (Col. 2) product tests of Autos the "Best Choice" was more expensive than the "Worst Choice." Morris [9, p. 37] reported that Autos as a subclass had the smallest percentage difference of any item in her research. The mean percentage difference in the subclass Automotive Equipment (239.85%) was significantly greater than the product cagegory mean, with percentages ranging from 21.21% (Col. 5) to 1000.00% (Col. 4).

SUMMARY, LIMITATIONS, AND CONCLUSIONS

For each of 929 CR product tests from 1975 through 1984, a "Best Choice" and a qualitatively inferior "Worst Choice" were selected. Dividing the price of the "Worst Choice" by the price of the "Best Choice" resulted in an overall mean percentage of 167.37%, indicating that, on the average, an uninformed consumer could pay 167.37% more for a qualitatively inferior item than for a higher quality choice. The mean percentage difference in the price of the "Best Choice" and "Worst Choice" varied by product class from a low of 125.35% for Televisions and Related Products to a high of 392.74% for Clothing and Jewelry. There were significant differences within the product classes in only one (Autos and Automotive Equipment) of the three classes analyzed by subclass. Comparison to Morris' [8,9] research, which used similar data for 1961 through 1968, indicated that the 1975-84 mean percentage difference was significantly higher.

TABLE 3: Price of "Worst Choice" as a Percent of Price of "Best Choice:" Three Product Classes by Subclasses, 1975-1984

Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6	Col. 7	Col. 8
			PERCENT DIFFERENCE			t	NUMBER
PRODUCT CLASS	n	S.D.	HIGHEST	LOWEST	MEAN	RATIO	WITH % BELOW 100
Major Appliances Over $100							
Refrigerators/Freezers	14	12.54	150.00%	98.88%	120.57%	1.19	1
Ranges/Microwaves	10	11.95	141.78	106.00	122.90	.91	0
Washers/Dryers	17	13.73	154.71	93.90	117.38	1.48	1
Heating/Cooling Appliances	26	54.52	297.67	58.17	139.58	.33	4
Other Major Appliances	39	59.93	573.75	47.62	174.75	2.21	6
TOTAL	106	75.82			144.87		12
Minor Appliances Under $100							
Kitchen	34	49.27	250.00	60.00	147.46	.41	4
Heating/Cooling	19	78.89	411.76	67.31	182.54	1.65	1
Other Minor Appliances	23	62.44	323.53	116.67	135.99	1.06	5
TOTAL	76	67.07			152.76		10
Autos & Automotive Equipment							
Equipment	35	180.16	1000.00	21.21	239.85	2.97*	4
Autos	62	23.45	251.49	71.52	105.46	2.91*	29
TOTAL	97	129.13			153.95		33

*Significant at the .005 level

These data reveal the existence of dramatic consumer payoffs to search. They should, however, be considered only rough estimates of the magnitude of those payoffs for a number of reasons which are summarized below.

1) The results represent the maximum monetary loss to consumers due to uninformed purchasing since in each product test a number of other alternatives which shoppers might choose lie between the "Best Choice" and "Worst Choice." They also do not capture the loss in real income that consumers incur when they pay more for a qualitatively inferior product.

2) CR's data on quality and list prices were assumed to be accurate and were not questioned. In reality, consumers may not always agree with CR's quality ratings. A consumer's assessment of the relative importance of product characteristics may differ significantly from that of the CR staff or a consumer may value product characteristics (such as aesthetic qualities) which were not evaluated by CR in rating product quality. If the consumer's evaluation differs significantly from that of CR it is conceivable (although unlikely) that CR's "Worst Choice" could be a consumer's "Best Choice." Moreover, although the "Best Choice" was always qualitatively superior to the "Worst Choice" (due to the selection procedure used), CR generally does not provide the information necessary to determine the degree of quality difference. If quality differentials are small, seeking the lower priced "Best Choice" may not be worthwhile if search costs are high. Two other limitations of CR's data should be noted. Because of the time delay required for testing products and publishing results, products rated may not be available in local markets. Additionally, through bargaining consumers may pay less than list prices.

3) The CR tests represent only a limited range of the products consumers buy. While a variety of products are tested, CR's budget ($7.5 million in 1984) [6, p. 6] limits both the number of products tested and the frequency with which products are retested. Additionally, although exceptions occur CR generally does not rate smaller local or house brands, nonstandard products such as furniture, or products purchased by a small number of people (i.e. pacemakers) [6, p. 6]. Moreover, ratings of services were not included in the analysis. Thus the data do not represent the

full range of goods and services consumers purchase.

4) While CR is perhaps the major source of brand by brand ratings of consumer products in the U.S., it should also be recognized that it is not the only source. Consumers may make informed decisions based on other published sources of information, experience, or recommendations from friends and knowledgeable salespersons. However, CR does have 2.9 million subscribers and, since it is available from a number of sources including public libraries and the newstands, its readership has been estimated to be 15 million [6, p. 3]. Additionally, research by Olshavsky and Rosen [10, pp. 122-125] indicated that CR subscribers frequently consult the product tests in making purchase decisions. In a survey of 1000 CR subscribers, 63.8% were aware of CR's recommendations when they last bought a major appliance, and 82.6% considered that information "very important-critical" or "important." Additionally, 84.5% of those consumers who consulted CR bought a recommended brand at least one-half of the time.

Despite the limitations, the results of this research still lead one to conclude that there are dramatic returns possible to informed purchase decisions. In each of the 12 product classes the "Worst Choice" was, on the average, more expensive than the "Best Choice," often by a tremendous margin. Although the more expensive products (stereos, autos, appliances, and televisions) tended to show the lowest price spread between the "Best Choice" and the "Worst Choice," the products with the largest price spreads were ones which are repetitive purchases. Although money savings for each purchase may be small for such goods, the total may accumulate rapidly over time if the items are purchased frequently.

Maynes and Assum [7, p. 66] offer consumer underestimation of price dispersion as one explanation of why local markets perform poorly. Data such as those presented here can be used to make consumers more aware of the returns to informed decision-making.

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COMMUNICATING PERFORMANCE INFORMATION TO CONSUMERS OF CLOTHING: AN ECONOMIC ANALYSIS

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ABSTRACT

The nature of information communicated to clothing consumers is analyzed and a summary of previous findings about consumer satisfaction with clothing performance are presented. It was determined that manufacturer-to-consumer communication systems currently used by clothing manufacturers provide data, not necessarily information. Such communication systems lead to economic losses when consumers in the post-purchase situation realize utility different from that expected at purchase. A conceptual framework for measuring losses in consumer welfare from imperfect information is presented. The model is used to explain why consumers do not take remedial action when clothing is unexpectedly inferior. Implications for information policies are outlined.

INTRODUCTION

Manufacturer-to-consumer communication systems are used by manufacturers to assist the consumer in making decisions about the performance characteristics of clothing. These systems influence consumers' purchase decisions and their expectations about the utility a garment will yield. When expectations are met, satisfaction generally occurs. However, when insufficient date and/or information is communicated to clothing consumers they make errors in predicting performance utility. They obtain goods in combinations which do not maximize their satisfaction. and misallocate their resources, diminishing their well-being. Thus the market failed to serve consumers' needs for information and an economic loss is incurred. Conversely, minimizing economic loss from inaccurate information improves consumers' resource allocation, increases their well-being and helps assure repeat sales for clothing retailers. It is critical that the message communicated to consumers is accurate, complete and in a useful form. Only then can consumers evaluate their preferences for specific goods in terms of needs, and weigh the relative merits of a good for predicting satisfaction in use.

A manufacturer-to-consumer communication system is often broadly referred to as an information system. Care must be taken in using the term information; its definition varies in the literature. Dohan (1976:22) points out the need for a distinction between the terms data and information. Data consists of objective, testable facts about a product. To be informative to the ultimate consumer, data must be processed (Scammo, 1977). "An information system includes not only the production of data but also analysis and interpretation of these data in some purposeful policy decision or problem solution context" (Martin, 1977:397). Information is the end product of a process which imposes form and gives meaning to data. From a consumer point of view, data that is not in an understandable format is not considered information (Russo, 1974). Information has an explicit, easily understood meaning, in relation to garment characteristics. It does not need to be further processed to make it useful in consumer decision-making. A statement that a garment will shrink 3% is data. That it will shrink one inch in length where laundered according to instructions converts that data into information.

Most communication systems used for clothing provide data; a few provide information. Communication systems that provide only data lead consumers to encounter greater costs in consuming garments than they anticipated at the time of purchase. Before purchasing, consumers can determine the purchase price, the cost of searching for information about the characteristics of various types of garments, where to purchase them and the opportunity costs of their time. They can also estimate the post-purchase costs of maintenance such as washing and repair or if the garment does not perform as implied, the cost of early replacement or exchange. It is assumed that the purchase price is the same for all consumers but that all the other costs vary from one consumer to the next, depending on their knowledge base, experience, wage rate, preferences for certainty in decision-making and their propensity to recognize and take remedial actions when products do not perform as expected or are otherwise defective. If post-purchase costs, associated mainly with physical performance, are greater than expected, the effective price of consuming garments increases and the utility received is less than the utility expected. Consumers will have allocated to many resources to those garments and will experience an economic loss.

The design of manufacturer-to-consumer communication systems for clothing is critical because consumer satisfaction with clothing is based on two types of performance in use -- psychic performance and physical performance. The former refers to the psychological and esthetic satisfaction expected due to the fit, fashion, or color of the clothing. Physical performance refers to durability characteristics such as size or color retention. The ability to evaluate the two types of performance in clothing is not equal.

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Consumers generally have the sensory capability to evaluate psychic characteristics such as fit and fashion, whereas they do not have the independent capability to evaluate physical characteristics such as shrinkage potential. Information regarding the physical performance of clothing is usually latent at the time of purchase. Consumers must, therefore, place their trust in the manufacturer and retailer, and buy on the basis of price and visually-perceivable characteristics, assuming a satisfactory level of physical utility will be forthcoming. Once the purchase is made and the garment is put into use, consumers start their own testing program of purchased garments, which reveals the true physical performance characteristics (Anon. 1973). As this evaluation is carried out, the performance utility realized may diverge in either direction from that expected.

I. CLOTHING INFORMATION SYSTEMS

Clothing product communication systems can be classified as voluntary and involuntary with the latter being dictated primarily by legislation. None of the communication systems currently used, either voluntary or legislated, provide the novice clothing consumer with accurate information about quantitative physical performance parameters to be experienced in use.

Legislated labeling of clothing came about with the Wool Products Labeling Act (WPLA) of 1939, Fur Products Labeling Act (FPLA) of 1951, and the Textile Fiber Product Identification Act (TFPIA) of 1958, which mandated objective data about fiber content and percentage.

Some consumers, however, erroneously view fiber content as information when, in fact, it is data. The clothing product is a complex system with fiber content of the fabric being only one piece of relevant data. The wide range of textile fibers available, coupled with the numerous methods of producing, finishing, and applying design to fabrics, not to mention the numerous design options and production techniques used in the fabrication of ready-to-wear garments, make it impossible for the consumer to process fiber content data into information regarding physical performance of garments (Coles 1932) or appropriate care. The physical performance of garments in wear and cleaning are latent values to the consumer, and cannot be accurately assessed visually, even by a textile expert (Laun 1969). Consequently, legislation mandating fiber content on labels may give consumers a false sense of expertise and inhibit them from seeking other relevant information (Udell 1974).

Passage of the care labeling trade regulation in 1972 helped alleviate the danger of predicting care on the basis of fiber content data by providing permanent care information. Care labels carry an implied warranty that, if the care instructions are followed, the garment will retain its appearance. Also, the care label gives the consumer an indication of the cost of maintenance. One problem with care labels has been that many instructions are overly conservative leading to the use of more expensive dry cleaning where careful home laundering would have sufficed. It will be shown later, however, that labels that do not exaggerate performance are more likely to lead to satisfied customers.

Voluntary producer-developed labeling systems include identifying the percentage of garment shrinkage with 3% being the maximum shrinkage considered tolerable. It is common knowledge in the apparel industry that 3% shrinkage will reduce a garment's dimensions by one size. However, most consumers are unaware of this guideline. Given knowledge of this guideline, consumers could process the percentage data and alter their behavior in the market. A limited number of apparel manufacturers process percentage data to provide information - such as, "Inseam will shrink one inch." Upon reading that label, consumers requiring a 29 inch inseam would most likely purchase a 30 inch inseam, ensuring fit after washing. Such information affixed to the garment enables each consumer to make an efficient choice in the market without having to know or recall the guideline. The data has been processed into information; a latent defect of this garment is no longer concealed from the consumer.

Some fiber manufacturers have tried other methods to simplify the process of supplying physical performance information to clothing consumers. For example, Celanese (a fiber manufacturer) established a performance level for each end use and required garment manufacturers to meet those standards before they were allowed to attach the Celanese hang tag to their garments. Such licensed hang tag programs are a form of image labeling which is an implied warranty that the clothing is of high quality and will perform satisfactorily. Consumers, thereby, are not given quantitative physical performance data but an assurance of performance. Such assurance adds to the product's more obvious values of fashion and price (Laun 1969).

Using brand names is another system of communicating hidden value performance to consumers. In an uninformed market where consumers have already learned they cannot rely on visual signals of quality, brand names provide consumers confidence. The consumer assumes that "no manufacturer would put his mark on shoddy or inadequate goods" (Marshall 1967:36), inasmuch as a manufacturer runs the risk of losing repeat sales if the product is unsatisfactory. Oxenfeldt (1950), however, found quality to be highly inconsistent between different lines of a given brand of the same product. This indicates consumers are not necessarily protected by brand names. "The quality of a product is determined by the producer, and he can improve or deteriorate the quality as he sees fit and still continue to use the same brand name," (Gordon 1972:345). Without precise information of an objective nature on past and current purchases, the consumer is powerless to evaluate the continuing validity of a brand name as a predictor of product quality.

Assessment of fit is a critical factor in the consumer's decision to purchase a garment. For the purpose of communicating information about how

garments will fit a consumer's body, manufacturers supply size data. Using body measurements to designate size is more common in the menswear industry than in women's or children's clothing, where sizes are arbitrary numbers. The designer, Siruant Mellian, observed, "Numbers (sizes) don't correlate with anything. . . Those are just codes used to catalogue or stock (merchandise)," (Simmons 1982). To obtain information about garment fit, one is advised to try on every garment before purchase. Unfortunately, a concealed defect in the fabric, e.g. shrinkage, can alter the garment size after washing or dry cleaning and a satisfactory fit at purchase may not coincide with the realized fit after washing.

Neither involuntary nor voluntary information systems communicate quantitative information on the performance of textile products. "It is the hidden properties of the finished textile product which can only be determined by the consumer during wearing and cleaning that assure satisfaction" (Fortess 1971:48). Swan and Combs (1976) studied consumer satisfaction with clothing and found that poor physical utility was the primary reason given by consumers for dissatisfaction with clothing, while reports of satisfaction were generally associated with psychic utility in the pre-purchase situation. Color and style are almost the only differences between brands that consumers are capable of judging; it should not be surprising that consumers attach such importance to them. Consumers may desire serviceable products, but they select the product with the greatest aesthetic appeal if, as far as they can determine, all brands are equal in functional performance. The importance consumers attach to psychic factors apparently diminishes as they obtain information about functional attributes (Oxenfeldt 1950).

In the absence of informative labeling, price may be the more important and widely used index of quality. This assumes that price is determined by the competitive interplay of the forces of supply and demand, and there is a direct relationship between the amount of money paid and the quality of goods received (Hollander 1966). In the textile industry, debasing the quality of goods as they move to the low price end of the market is a common practice. Unfortunately for the consumer, such changes are usually not discernable visually. "In the uninformed market it is irrational to judge quality by price. When uninformed buyers tend to rely on indexes, often meaningless ones, for appraising quality and when the majority of buyers are uninformed and rely on such indexes, their opinion cease(s) to be trustworthy. Prices, therefore, which reflect the untrustworthy opinion of buyers, also become unreliable indexes of quality," (Scitvosky 1951:484-5).

Empirical evidence exists in the literature that the widely-held belief, "You get what you pay for," is not valid for clothing. Gale and Dardis (1970) assessed the price/quality relationship for men's shirts. Quality ratings were derived from both the physical tests and wearer evaluations. Findings indicated that a weak price/quality relationship existed, primarily for garment construction as opposed to fabric performance. In wearer evaluations, both price and brand names were found to be directly associated with evaluations of quality. Phelps (1944) reviewed research in the field of home economics and found a mass of evidence that price is a poor indication of quality for the durability of towels, the wearability of cotton and rayon dress fabrics, the colorfastness or shrinkage of other materials. With other products, Oxenfeldt (1950), Friedman (1967), Gardner (1971), Norton (1980), and Maynes (1976), also found the relationship between price and quality to be relatively weak. Consumers making purchase decisions by equating price and quality will often be disappointed, will misallocate their budgets, and incur economic losses.

II. ECONOMICS OF INFORMATION SYSTEMS

A review of economic literature reveals two basic conceptual treatments of the effect of misinformation on consumer demand and subsequent satisfaction or welfare. The first looks at information about product characteristics. Auld (1972) developed a theoretical model illustrating that consumers altered consumption patterns when receiving full information about the characteristics of a product. Colantoni et al. (1976) used a similar theoretical framework applying it to the problem of choosing automobile safety features. He concluded that a consumer will never be better off with less than full information.

The second basic approach is exemplified by Peltzman (1973), who analyzed the welfare effects of imperfect information by estimating the benefits of the 1962 Kefauver-Harris amendment to the Food, Drug, and Cosmetics Act. The model used consumer surplus analysis to measure the relevant costs and benefits. Kinsey, Roe and Senauer (1980) elaborated on Peltzman's model, integrating the possibility of imperfect information directly into the utility function. This model has been used to provide a monetary estimate of the private and social cost of inaccurate gasoline mileage estimates (Senauer, Kinsey and Roe 1984, 1986), and to analyze welfare effects of food labels (Sexton 1981).

Following the second approach, the impact of imperfect information on consumer costs is illustrated in Figure A. The expected utility from consuming a particular quantity of goods can be measured by the total area under the demand curve up to the quantity purchased. The market demand curve, which reflects all consumers' preferences, depicts aggregate willingness to pay different prices for different quantities of goods rather than do without them. It is assumed that all consumers pay the same market price (P_o). Those consumers who are willing to pay more than P_o receive some benefits above that for which they pay. This extra benefit is known as consumers' surplus and is represented by the area below the (original) demand curve (D_o) and above the price P_o; namely, the sum of the areas A and B in Figure A.[1] If consumers had known the garment's true characteristics and its true (higher) costs at the time of purchase, they would have been willing to

pay the purchase price (P_o) minus the extra post-purchase costs incurred (P_o-P_t). In other words, not knowing about (P_o-P_t), they paid too much for the garment. Discovering they paid too much is tantamount to discovering that the true demand curve (D_t) lies below the original demand curve (D_o). Consumers are subsequently willing to pay less than P_o for the original quantity (Q_o) or they are willing to buy fewer garments (Q_t) at the original price (P_o).[2]

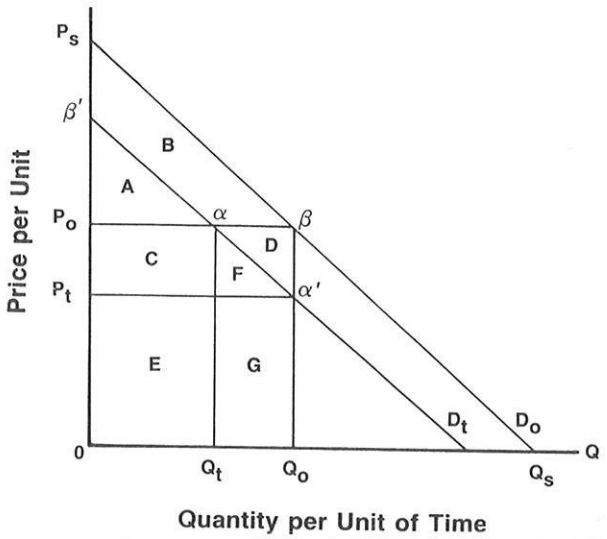

FIGURE A. True demand curve (D_t) below original demand curve (D_o).

The extra units Q_o-Q_t were, however, consumed. The true value of these units was discovered to be $\alpha\alpha' Q_o Q_t$, even though $\alpha\beta Q_o Q_t$ was paid for them. A net loss of (area D), was incurred by purchasing the extra Q_o-Q_t units.

Costs of inaccurate information can alternatively be identified by analyzing changes in consumer surplus under various conditions. Using capital letters to designate specific areas in Figure A, the total expected utility from Q_o at price (P_o) is equal to the area, A+B+C+D+E+F+G. Consumers paid area C+D+E+F+G for the goods leaving area A+B representing consumers' surplus expected at the time of purchase. Making a fully informed choice of only Q_t units at price P_o, the total optimal utility is represented by area A+C+E with area A being optimal consumer surplus.

Consumers who did not have full information and did not make the optimum choice realized utility different from what they expected and different from the optimum. The utility realized from the purchase of Q_o garments at price P_o is the area A+C+E+F+G. The difference between realized consumer surplus and that expected is the negative of areas (B+D). The difference between the optimal and realized consumer surplus is represented by area D, the economic loss suffered by consumers who misallocated their income. It represents dollars spent for garments for which no utility was received. It can also be thought of as the amount of money consumers would be willing to pay for information which would have allowed them to make an optimal choice originally.

Area D can be estimated by knowing the distance $\Delta P = (P_o - P_t)$, the original quantity (Q_o), and the price elasticity (ε) of the demand curve.[3]

$$\text{Area } D = \varepsilon Q_o (\Delta P)^2 / 2P_o \qquad (1)$$

Equation (1) provides a monetary measure of the difference between optimal and realized utility.[4]

Sometimes, an uninformed purchase decision reveals the true demand curve to lie to the right of the original demand curve. This happens when a product performs better than expected and the post-purchase costs of consumption are less than anticipated. Consumers may ultimately spend less time caring for garments or they may last longer than expected. In this case, consumers with full information would have been willing to spend more for the original quantity of garments, or they would have purchased more garments at the original price. Figure B illustrates this situation. Consumers paid P_o' for Q_o' garments, expecting a total utility of A+C+E under demand curve D_o. The expected consumer surplus was A+C. P_t'-P_o' represents the unexpected decrease in consumption costs which translates into an increased willingness to pay P_t'-P_o' more for the original quantity of garments. This reveals the true demand (D_t) where consumers making optimal decisions would have purchased Q_t' garments at price P_o'. The optimal consumer surplus is equal to the area A+B+C+D+F.

Having made a nonoptimal choice, consumers realized consumer surplus (utility) greater than expected by area B+D but they still suffered an economic loss from misallocating their clothing budget by area F. Area F can also be estimated with equation (1).

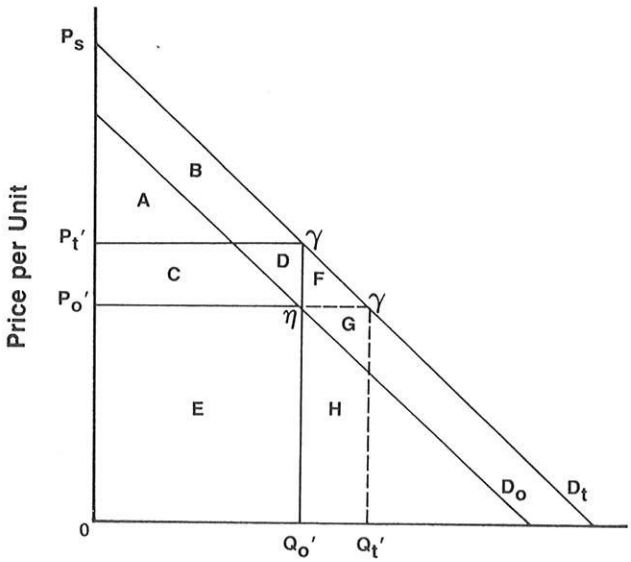

FIGURE B. True demand curve (D_t) above original demand curve (D_o).

It has been demonstrated that the economic loss, known as the allocative error, due to imperfect information can be measured by the triangular areas D and F in Figures A and B, respectively. These areas measure the difference between the utility realized from the actual purchase and the utility that would have been realized if an optimal purchase decision had been made on the basis of perfect information. However, it does measure the difference between the consumer surplus expected and the consumer surplus realized. The question remains of how these differences affect consumers' behavior and their satisfaction.

In the first case, where consumers' surplus is less by area B+D (Figure A), we would expect them to be disappointed and unsatisfied with their purchase decision (Bearden 1983). Dissatisfaction would predictably be expressed in the marketplace in the next time period by purchasing fewer of these garments. Area D is an actual monetary loss while area B is the monetary equivalent of unrealized utility and, as such, it is an appropriate (proxy) measure for the costs of disappointment borne by consumers who have chosen too many inferior garments. By simple inspection, it can be seen that area B is larger than area D, implying that the costs of unrealized utility are greater than the economic allocative loss.

An additional contribution offered by this model, not previously explored, is that it helps explain why many consumers do not take remedial action when a product is unexpectedly inferior (Beardon 1983). Remedial action by the consumer involves the costs of "... his/her time and trouble experimenting with the article, wrapping it up and taking it back, hunting around for a satisfactory substitute," (Chase 1931:251), plus transportation costs. With apparel, the consumer has often purchased matching coordinates or accessories that further increase the monetary loss in the event that a suitable replacement cannot be found. Remedial action then only further increases the post-purchase costs (P_o-P_t, Figure 1) pushing D_t farther down and to the left, increasing the size of areas D and B, exacerbating the economic loss and the costs of disappointment. Minimizing P_o-P_t minimizes the difference between expected and realized utility. It is, therefore, rational for consumers to expend as little time and money as possible to remedy unexpected flaws in merchandise already purchased, unless they can expect to recoup a substantial portion of their losses at minimal cost and/or that loss is a nontrivial portion of their total budget.

With respect to disappointment costs, no one likes to admit they have judged a product incorrectly and were wrong; therefore, they may prefer to remain silent. Even when remedial action is taken and the purchase price is refunded, the retailer may impress upon the consumer that the product was used or cared for incorrectly. Consequently, the consumer suffers psychological loss (Chase 1931). Consumers who prefer to avoid situations of conflict and who value their leisure time would also be expected to minimize their economic losses and their disappointment costs by avoiding remedial action.[5] One strategy for avoiding hassles with returns of defective merchandise is to shop at retail outlets with liberal return policies.

Consumer expectations regarding garment performance are influenced by the retail price. The higher the price paid for an item, the more nearly perfect it is expected to perform. When a raincoat shrank and discolored at the cleaners, the consumer stated, "A raincoat that cost $275 should not shrink or discolor," (Anon. 1976). She sued for one million dollars when the store failed to keep its promise to testify that its garment was of high quality in a legal proceeding against a cleaner. Although such remedial action is not a common occurence, this situation exemplifies expectations relative to purchase price which may lead consumers to exercise their rights. The majority of apparel, however, is moderately priced and losses incurred by individuals are relatively small. In the aggregate, the magnitude of a large number of small losses absorbed by consumers is an unknown entity.

In the case where consumers realize more utility than expected, area B (Figure B) can again serve as a monetary measure of the unexpected difference in expected and realized utility. Its size is determined by the unexpected increase in willingness-to-pay (P_t-P_o) for a superior garment. Area B represents 'bonus' utility which, by inspection, is far greater than the economic loss due to buying too few of these garments. Consumers, in this case, would certainly be expected to be satisfied with their purchase, and their unexpected increase in utility would lead to an increased sense of well-being. The behavioral incentive is simply to purchase more of this type of garment in the next time period.

If unexpected increases and decreases in utility and costs were equally likely, consumers should be willing to spend an amount equal to that represented by area D or area F to obtain information that would permit them to purchase the optimum number of garments. Consumers would not, however, be expected to be equally willing to search and pay for information that would eliminate the loss of unrealized utility (area B in Figure A) and an unexpected gain of utility (area B in Figure B). There exists an asymmetry in the differences between realized and expected utility when consumers incur unexpected costs and unexpected savings. In the former case, consumers are worse off than expected, disappointed, and have rational disincentives to correct their error. In the case of unexpected increases in utility, they are better off than expected and, in spite of allocative mistakes they very likely feel satisfied with their choice.

III. IMPLICATIONS FOR INFORMATION POLICIES

Increased information about physical performance on clothing labels would enable consumers to choose garments that will bring them satisfaction and would lead to a more efficient allocation of consumers' clothing budgets. The difference between consumers who are satisfied and the consumers who are disappointed, lies in the direction of the

difference between realized and expected utility. Inflating consumers' expected utility with optimistic advertising or labeling can lead to disappointment and to extra monetary costs. Consumers should be willing to pay manufacturers not to overstate the performance of their garments. Theoretically, they should be equally willing to pay for information leading to the purchase of an optimal number of superior garments. If information cannot be complete, a slight understatement about performance appears to be preferable, even though it is still inefficient.

An important implication for apparel manufacturers is that the voluntary use of informative physical performance labels becomes a viable choice criteria in the purchase decision. It is possible that the demand for some merchandise will decrease if the label carries information which reveals negative physical performance to the consumer and the price is not concomitantly lowered. However, if the consumers are not subsequently disappointed, they can be expected to be repeat customers. Recognization of the utility value of performance information to consumers could stimulate increased communication between the textile and apparel industry. The textile-apparel interface communication might be improved so that retailers, apparel manufacturers and fabric suppliers work from garment specifications and the communication problems as they now exist may be dissipated. Only then may the "full commercial benefit ... of the technological knowledge that is ... available" be realized (Urguhart 1965).

Implications for educational programs are that they can effectively serve consumers' interests by developing consumers' general skills in analyzing care labels and an awareness of the limitation of labels currently provided. Labels providing information as opposed to data would change the focus of consumer education programs. Emphasis would move to the understanding and application of information on the clothing label as opposed to an interpretation of data made available.

Implications for public policy include mandating informative labels that minimize the surprises experienced by clothing consumers as they wear and care for their garments. Research that establishes the correlation between labels' information, performance utility, price, and consumers' satisfaction will foster efficient allocation of resources and increased consumer well-being.

NOTES

[1]For a discussion about rigorous measures of consumers' surplus, see Willig (1973); Chipman and Moore (1980); Hausman (1981); and Currie, et.al. (1971).

[2]Consumers' willingness to pay P_o for Q_o garments incorporates their known search costs and their expected post-purchase costs of consumption.

[3]Three simplifying assumptions for this estimating model are: (a) a linear demand curve, (b) parallel shift in demand, i.e., new information did not change the price elasticity of demand, and (c) there exists some price for which demand is zero.

[4]By definition, price elasticity = $\varepsilon \frac{\Delta Q/Q_0}{\Delta P/P_0}$

Solving for ΔQ gives: $\Delta Q = \varepsilon(\Delta P/P_o)Q_o$. Thus, Area $D = 1/2\,\Delta P \Delta Q = \varepsilon Q_o(\Delta P)^2/2P_o$.

[5]Differences between consumers who complain and those who do not may be explained largely by the value of their time and by what brings them peace of mind (Laird 1977; Russo 1979; Day 1977). Some view filing complaints as a public duty, realizing the public good. If continued use of an inferior product is particularly irritating, satisfaction may be found by attempting to exchange a product for its purchase price. The same situation would exist if the purchase price were a large share of the consumers' total budget.

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EFFECTS OF NUTRITION LABEL FORMAT ON CONSUMER NUTRITION DECISIONS

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ABSTRACT

This paper reports results of research testing the effects of three nutrition label formats (current, graphical nutrient density, and simple graphic) on consumer nutrition decision making. Findings indicate that supermarket shoppers are able to make decisions most effectively with the simple graphic and the graphical nutrient density formats, but most efficiently with the graphical nutrient density format. The effectiveness of consumer nutrition decision making across the label formats is also affected by shopper's level of education and by whether or not the shopper has principal household responsibility for grocery shopping. The implications of these findings for consumer policy and future research are discussed.

Among the most important consumer information provision actions taken in recent years were the nutrition labeling regulations promulgated by the Food and Drug Administration (FDA) in 1973 [2]. These regulations provided for the now familiar nutrition label found on many packaged food products. The 1973 regulations defined the current format for nutrition labels, a format that includes the following information elements (see Figure 1): serving size, serving per container, calories, and micronutrients as percentages of U.S. Recommended Daily Allowance (U.S. RDA).

Practically since these nutrition labeling regulations appeared, there have been concerns about the quality and effectiveness of the label and efforts to improve the format. These concerns have recently resulted in the publication of a list of new nutrition label formats being considered by the FDA [6]. FDA is presently evaluating these new formats to determine if any one of them should replace the current format. One of the new formats being given strong consideration to succeed the current label is the graphical nutrient density label format [1, 6].

The graphical nutrient density label format appears to have two advantages over the current format [4]. First, the graphical nutrient density format presents information in a graphic display rather than in the numeric display employed in the current format. Second, the graphical nutrient density format allows consumers to compare "nutrient density" across food products. Nutrient density refers to the amount of nutritional value, in terms of percentage of U.S. RDA, consumers will receive from a food relative to the amount of calories a serving of that food contains [5]. (See Appendix)

Most of the empirical support for the graphical nutrient density format is found in a single study by Mohr, Wyse, and Hansen [4]. Mohr, et al. tested the current label format against the graphical nutrient density format with an instore questionnaire. They found that supermarket shoppers made better nutrition decisions using the graphical nutrient density format than the current format. When shopper's education level was controlled for, it was found that among high school graduates the percentage of correct responses to nutrition questions was higher with the graphical nutrient density format than with the current format. Among college graduates, the percentage of correct responses to one of the nutrition questions was higher in the current than in the graphical density format. In addition, Mohr, et al. found that shoppers using the graphical nutrient density format took significantly less time to make the nutrition decisions than did shoppers using the current format. Mohr, et al. concluded that "...the nutrient density format as a help to consumers trying to make nutrition decisions" [4, p. 168].

Unfortunately, the Mohr, et al. [4] study did not also test a major competing label format [6]: the simple graphic format (see Figure 1). Since the simple graphic format was not included in their study, it is not possible to determine whether or not the superiority of the graphical nutrient density format is merely a result of the graphic (as opposed to numeric) nature of information presentation.

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FIGURE 1. Nutrition Label Formats.

CURRENT:

NUTRITION INFORMATION
PER SERVING

Serving Size	1 cup
Servings per Container	8
Calories	110

PERCENTAGE OF U.S.
RECOMMENDED DAILY
ALLOWANCES (U.S.RDA)

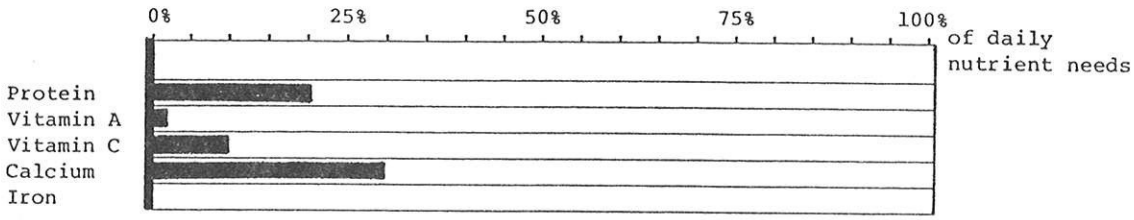
Protein	20
Vitamin A	2
Vitamin C	10
Calcium	30
Iron	0

SIMPLE GRAPHIC:

NUTRITION INFORMATION
PER SERVING

Serving Size	1 cup
Calories	110

PERCENTAGE OF U.S. RECOMMENDED DAILY ALLOWANCES
(U.S.RDA)



GRAPHICAL NUTRIENT DENSITY:

NUTRITION INFORMATION
PER SERVING

Serving Size	1 cup
Calories	110

PERCENTAGE OF U.S. RECOMMENDED DAILY ALLOWANCES
(U.S.RDA)