

number of single-party flat-rate residential subscribers in each rate group, and the number of exchanges in each rate group.

When holding constant the number of residential subscribers in a group rate, the number of exchanges per rate group provides a measure of the subscriber density of the rate group. For example, if two rate groups each have 100,000 subscribers, a rate group containing two exchanges will be denser than a rate group with twenty exchanges.

Data on the exact number of lines that can be accessed in a local dialing area was not available. In some cases, ranges were given (e.g., 100,000 - 200,000), but they included all classifications of business and residential lines. Where such data were available, the range given for a rate group's size was roughly proportional to the total number of residential subscribers in that rate group. Therefore, the number of residential subscribers in a rate group is used as a proxy measure of the size of a local dialing area.

Data on each state's public service commissioners' length of term and manner of selection have been taken from a publication entitled Regulatory Focus (1985). Length of commissioner term has been measured in years. If a state's commissioners are elected directly by the citizens, they are classified as "elected." All other means of selection are classified as "not elected." This latter category includes those states where the commissioners are chosen by the governor or the legislature, and the one state where commissioners are selected by the state supreme court.

The classification of proxy consumer advocates is derived from information provided in a National Association of State Utility Consumer Advocates' publication (NASUCA 1985). For each state, the interests of residential telephone subscribers are coded as being represented by (1) designated staff in the attorney general's office, (2) designated public service commission staff, or (3) an independent agency (i.e., a state agency that is independent of both the public service commission and the attorney general's office).⁷

⁷In Alabama, Illinois, and New York, more than one agency was listed by NASUCA as representing the consumer's interest in rate cases before the public service commission. Furthermore in California, Oregon, and Wisconsin, CUBs/Bill Access was recorded as the proxy advocate for residential telephone subscribers. In this study proxy advocates are defined to be those agencies that receive a budget directly from the state and are an officially recognized agency within the state government. Although CUBs may have intervenor status in rate hearings, they are basically independent of state control and thus cannot be identified as proxy advocates. In those few cases where more than one state agency was listed or when a CUB was listed as the consumer representative, a second publication, Regulatory Focus

Per capita income data were also coded for each state. These data were taken from the Statistical Abstract of the United States (Bureau of the Census 1986). Like the political variables, the data for per capita income were collected for the 1984 calendar year, whereas the dependent variable, the price of basic residential flat-rate service, was measured as of December, 1986. This allows for the possibility of regulatory lag whereby commission rate decisions take time to reflect economic and political conditions. Descriptive statistics for all of the variables used in analysis appear in Table 1.

TABLE 1. Descriptive Statistics (N = 356)

| Variables | Definition | Mean | Standard Deviation |
|----------------------|---|---------|--------------------|
| FLATRATE | Price of Basic Single-Party Residential Service per Month (in dollars) for a Rate Group | 12.6 | 3.09 |
| LMS | Dummy Variable; 1 = Local Measured Service Option Available in a Rate Group, 0 = No Local Measured Service Option Available | .781 | .414 |
| INCOME | 1984 Per Capita Income for a State (in dollars) | 12,049 | 1,547 |
| EXCNUM | Number of Exchanges in a Rate Group | 19.4 | 31.8 |
| REGSIZE | Number of Single-Party Residential Lines in the Rate Group | 168,744 | 421,906 |
| APPOINT | Dummy Variable; 1 = Public Service Commissioners are Appointed, 0 = Otherwise | .725 | .447 |
| PSCTERM | Term of Public Service Commissioners (in years) | 5.48 | 1.09 |
| CONREP1 ^a | Dummy Variable; 1 = Consumer's Interest is Represented by the Attorney General's Staff, 0 = otherwise | .315 | .465 |
| CONREP2 ^a | Dummy Variable; 1 = Consumer's Interest is Represented by Public Service Commission Staff, 0 = otherwise | .284 | .451 |

^aThe omitted category in this series of dummy variables is composed of those rate groups in states where the consumer's interest in rate cases before the public service commission is represented by an independent state agency.

ESTIMATION AND RESULTS

The objective of this research is to examine the role, if any, that political variables play in the setting of local telephone rates. To this end, two regression equations are estimated. In the first, full model specification, the supply, demand, and political variables have been included. In the second, restricted-model specification, the political variables have been omitted. In both equations, a series of state dummies have also been included to control for state specific effects. The parameter estimates for the two equations appear in Table 2.

was used to identify the primary proxy advocate in the state.

TABLE 2. Estimates of the Restricted and Full Equations with Basic Monthly Flat-Rate Residential Service as the Dependent Variable (t-ratios in parentheses)^a

| Independent Variables | Full Model Coefficients | Restricted Model Coefficients |
|-------------------------|-----------------------------------|-----------------------------------|
| CONSTANT | 56.6 (5.21)** | 27.0 (4.78)** |
| LMS | 1.78 (4.51)** | 1.98 (5.06)** |
| INCOME | -0.00362 (-3.45)** | -0.00143 (-3.00)** |
| EXCNUM | -0.0172 (-4.90)** | -0.0168 (4.79)** |
| RGSIZE | 1.97x10 ⁻⁶ (4.70)** | 1.35x10 ⁻⁶ (4.35)** |
| APPOINT | .592 (0.450) | — |
| PSCTERM | -1.76 (-2.55)** | — |
| CONREP1 | 7.55 (1.86)* | — |
| CONREP2 | 6.49 (2.66)** | — |
| R ² | .777 | .766 |
| Adjusted R ² | .741 | .732 |
| F | 21.7** | 22.6** |

* Significant at .10 level ** Significant at the .05 level.

^aA series of dummy variables are included in the estimation of both equations to allow for state specific effects that might exist when different rate group observations are taken from the same state. To facilitate discussion of the results, these dummy variable coefficients have been omitted from the table.

A test of the significance of the total impact of the political factors on the price of residential flat-rate service can be made by comparing the unadjusted R²'s between the full- and restricted-model equations. This test indicates that by adding the political variables to the model, the explanatory power of the equation is significantly increased.⁸

⁸This test statistic is calculated as:

$$\left[\frac{R^2_f - R^2_r}{1 - R^2_f} \right] \times \left[\frac{n - f}{f - r} \right] = F$$

where, R²_f = the unadjusted R² for the full model equation, R²_r = the unadjusted R² for the restricted model, n = the sample size, f = the number of parameters in the full model, and r = the number of parameters in the restricted model. This statistic has an F distribution with (f - r) and (n - f) degrees of freedom (Kmenta 1986). In terms of the two equations estimated here, the test statistic is:

$$\left[\frac{.777 - .766}{1 - .777} \right] \times \left[\frac{356 - 49}{49 - 45} \right] = 3.76$$

The critical value for F (p=.05; 4, 307) = 2.37.

A more detailed assessment of the role that the political environment plays in the setting of basic residential telephone rates can be gleaned by examining the estimated coefficients in the full-model specification. Virtually all of the estimated coefficients in this equation are statistically significant. The one exception is the coefficient associated with the dummy variable that measured whether the commissioners are appointed or elected. It would appear that the election versus appointment of public service commissioners has no impact on the basic flat-rate charge for residential telephone service, *ceteris paribus*. This finding is supported by most studies of the relationship between method of commissioner selection and residential rates for electricity.

The other political variables in the model fared better than the method of commissioner selection in explaining variation in the prices charged for basic residential telephone service. Each of these coefficients will be discussed in turn.

The coefficient associated with the length of the commissioners' terms indicates that basic telephone rates set by commissioners with longer terms are lower than those set by commissioners with shorter terms, other factors held constant. This is contrary to a finding with respect to allowed rates of return on equity for companies providing electricity (Hagerman and Ratchford 1978). In the case of telephone service, longer terms seem to insulate commissioners from utility pressure, while in the case of electricity, longer terms seem to allow commissioners to ignore public pressure.

Regarding the coefficients for the two consumer representation dummies, recall that the estimated coefficients are interpreted relative to the omitted category--those states where an independent agency represents the consumer's interest in telephone rate cases before the commission. Holding other variables in the equation constant, the estimated coefficients show that basic residential rates are \$6.49 higher when the state public utility commission staff acts as the proxy consumer advocate, and \$7.55 higher when the task of proxy advocacy falls under the mandate of the attorney general's office. This relative ranking of proxy advocate effectiveness conforms with our *a priori* hypothesis (although the difference between representation by the attorney general and commission staffs was not statistically significant).

Although this analysis emphasizes the role of the political environment in the setting of local telephone rates, the estimated impact of the supply and demand factors that were included in the equation warrant some discussion. Three demand factors--per capita income, a dummy variable that measures the presence or absence of an LMS rate option, and a value of service measure--are included in the regression.

The estimation indicates that if per capita income rises by \$1,000, local telephone rates drop by \$3.60, *ceteris paribus*. This statistically

significant negative relationship is contrary to the relationship that was initially hypothesized. One possible explanation for this finding is that households in high income states make more intrastate long-distance calls than households in low-income states. The telephone revenues produced from the added long-distance calling in these high-income states might be used to subsidize the provision of local telephone services at lower basic rates.

The LMS coefficient shows that rate groups having an LMS option pay \$1.78 more for one-party, flat-rate local telephone service than those rate groups where no LMS option is offered, *ceteris paribus*. This estimate supports the hypotheses that commissioners will be more willing to raise basic rates when a low cost option is available for low income households.

The total number of subscribers in a rate group, holding number of exchanges constant, was entered into the equation as the best available measure of the value of service (i.e., the number of lines that can be accessed within the local dialing area). The hypothesis that rates would reflect value of service is supported by the positive coefficient for the variable measuring the number of single-party, flat-rate residential subscribers in a rate group.

Finally, the sign and magnitude of the statistically significant coefficient on the supply variable should be noted. The number of exchanges in a rate group, holding constant the number of residential subscribers (as well as all other variables in the equation), is a measure of the geographical dispersion of the subscribers. The greater the number of exchanges, the more geographically dispersed the subscribers are and the more costly they are to serve. The estimated negative coefficient associated with number of exchanges shows that, contrary to the initial prediction, if subscribers are more scattered, the basic telephone service rate is lower, *ceteris paribus*. This negative relationship is consistent with the historical pattern of minimizing cost considerations in rate-setting in favor of subsidizing rural customers at the expense of urban customers.

DISCUSSION AND CONCLUSIONS

Public utility regulation has a long history of modifying economic considerations in light of political ones. Nowhere has this been more true than in the case of telecommunications services, where the concept of universal service and a vast system of subsidies have required a departure from cost-based approaches to pricing. The increasing deregulation of the telecommunications industry is likely to reduce but not eliminate the role of political factors in rate determination. This study has attempted to explore the impact of several political factors on rates for residential flat-rate local telephone service, while controlling for supply and demand factors.

One of the study's overall conclusions is that

emphasis on the political determinants of telephone rates is justified but that contemporary proposals for reform may have selected the wrong target. Whereas direct election of public utility commissioners has been advocated as a means of holding down telephone rates, the method of commissioner selection had little relationship to local residential rates in this study. Rather, the length of commissioner terms and the form of proxy advocacy employed by a state government appear to be important influences on telephone rates. Judging from the study's findings, consumer advocates ought to be pursuing longer commissioner terms and the establishment of an independent consumer counsel as means of holding down rates for flat-rate residential service.

What explains the relationship between longer commission terms and lower telephone rates? One possibility is that longer terms allow commissioners to ignore political pressure exerted by local telephone companies. Another is that longer terms help commissioners develop the technical expertise needed to challenge successfully the complex and amply documented rate requests filed by telephone companies. Given that an earlier study found that longer commissioner terms were associated with higher allowed rates of return for electric companies, it is important that future research explore further the relationship between the length of commission terms and commission decisions for different types of public utilities.

The findings regarding the relative influence of the three forms of proxy advocates on local residential rates also call for further investigation. Two dimensions of proxy advocacy--technical expertise and commitment to the interests of residential consumers--were used here to predict differences among independent consumer counsels, utility commission staffs, and attorney general staffs. Other differences among proxy advocates might exist as well. In particular, how do the three types of proxy advocates compare with respect to the resources at their disposal, including staff size and compensation? Also, since attorneys general vary greatly in their political orientation, is it possible that the efforts of pro-consumer attorneys general are counterbalanced by the indifferent efforts of others? Furthermore, the relationship between proxy advocacy by government entities and private advocacy by consumer groups needs to be examined. It is possible that levels of private advocacy account for both the type of proxy advocacy found in a state and the rates allowed by its utility commission, with no inherent relationship existing between the latter two.

Another of the major conclusions of this study is that economic factors of supply and demand may play less of a role in rate determination than one might expect in an increasingly deregulated environment. There is certainly room for improvement in the way that supply and demand factors were measured in this study, but the presence of counterhypothetical results is striking. On the demand side, local residential telephone rates were lower, not higher, in states

with higher per capita incomes. One might have expected that commissioners in less wealthy states would have held down the price of local telephone service to prevent subscribers from dropping off the system. On the supply side, rates were lower, not higher, for subscribers who were geographically dispersed. The lower cost of serving densely packed subscribers did not seem to be reflected in lower rates.

The unexpected nature of the relationship between some economic factors and residential telephone rates might simply be the legacy of a period of regulation in which political and social considerations overwhelmed economic ones. If so, one would expect the influence of supply and demand factors to increase over time as telecommunications markets are further deregulated. As economic considerations are weighted more heavily in commission decisions, proxy advocacy (and other forms of consumer representation) will remain important as a source of input regarding consumer concern for fairness as well as efficiency in the pricing of local telephone service.

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THE HIERARCHY OF CONSUMER PARTICIPATION:
A MODEL OF KNOWLEDGE AND PROFICIENCY IN DECISION MAKING

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This paper establishes a "hierarchy of consumer participation" comparable to the hierarchy of political participation developed by Milbrath (1965, 1982). Analysis of consumer decision making required by the deregulation of telecommunications shows that independence of decision making, propensity use of sources of information, and propensity to influence others' decisions are highly interrelated. Four main types of consumers are identified: consumer influentials, active consumers, dependent consumers and non-decision makers. The levels of consumer participation should be highly salient in defining targets and programs for consumer research, education, protection and policy.

INTRODUCTION

The consumer education literature reveals a differential receptiveness on the part of consumers to the understanding and use of consumer information and education. Receptiveness to consumer education may vary according to (1) cognition, (2) social background characteristics, (3) occupational grouping, (4) participation in community affairs, (5) level of perception of consumer problems, (6) propensity to complain, (7) and information seeking methods (Bourgeois and Barnes 1976; Wackman and Ward 1976; Wilkie 1976; Hempel and McEwen 1976; Bloom 1976; and, Alder and Pittle 1984; and Hyman 1986, 1987). Similar patterns have been identified for complaint behavior and participation (Hill 1982; Warland, Herrmann and Moore 1984; Hyman 1986; Miewald and Comer 1986).

Participation in American society also is not evenly distributed throughout the population. Those who participate in social, economic and political affairs tend to reflect higher levels of income, education and age (Verba and Nie 1972.) Different patterns of participation have also been identified. Some citizens choose to remain outside, or on the periphery, of decision making. Others become intensely involved. A "hierarchy of political participation" has been identified (Milbrath 1965, Milbrath and Goel 1982).

This study takes a step toward synthesis by using the logic of the political participation model to examine consumer decision making and consumer education. A "hierarchy of participation in

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consumer decision making," based on independence of decision making, use of information, and propensity to influence others is established; and the relationship with social background characteristics, and propensity to be aware of and take action on related consumer problems. Data from an empirical study of mandated consumer decision making in the wake of the deregulation of telecommunications are used as the basis for a model which posits the existence of conceptually and empirically distinct sub-groups based on their proficiency in consumer decision making.

Important policy and program implications derive from the study inasmuch as different approaches to consumer education, protection and policy logically are required for each sub-group. The findings provide policymakers, educators and researchers with a framework for understanding the different sub-groups and their dynamics, and also the social and personality characteristics associated with them. This information, in turn, can provide an approach to the development of more effective policies and programs to inform, educate and/or protect the different sub-groups as appropriate.

DATA AND PROCEDURES

Attendant to the deregulation of the telecommunications system in the U.S., all consumers were required to make decisions in several areas in the year prior to the study reported herein (we assume that taking a default after being requested repeatedly to make an active decision is, in fact, a decision--or a "non-decision"). There was extensive coverage in the media, and by consumer groups, regulators, and the telecommunications industry. All consumers had a relatively equivalent opportunity to know about these areas. Thus, the time element, information exposure, and opportunity to know are held relatively constant. This situation provided a relatively unique opportunity to examine consumer behavior in a situation where everyone had an equivalent opportunity to know and to act.

Data for the analysis are from a representative statewide sample of residential telephone customers in Pennsylvania, the state with the fourth largest urban and the largest rural population. The sample was selected by random digit dialing procedures using the operating ranges of numbers for each local exchange. The result is a completed sample of 500 respondents which forms the basis for this analysis. The dependent variables consist of data on the respondents' recall of information and decisions related to four areas in which decisions

have been required as a result of the breakup of the Bell and AT&T system: (1) knowledge of the new structure of the telecommunications industry as indicated by understanding the separation of long distance and local service systems; (2) customer premise equipment--the ownership of the phone itself; (3) local calling options--the payment or service plans offered by the local company; and, (4) inside wire maintenance--the ownership of telephone wires within the respondent's home. All respondents were required to make decisions in these four areas in the period preceding the study.

A three-tiered hierarchy was utilized to assess the level of knowledge of each respondent: recall, the highest level, is the ability to explain the decision area with no or little prompting; recognition, the second level, is the ability to identify a choice when presented with several options; and ignorance, the final level, involves responses which are incorrect on both of the above levels, as well as "don't know" responses. Consumers were then asked about the independence of their decision, sources of information used, and whether they were involved in influencing others. Several composite measures, scores or scales, are constructed by combining responses from several related items. These procedures provide the basis for examining the interaction of the several dimensions of decision making.

A DECISION-BASED HIERARCHY OF PARTICIPATION IN DECISION MAKING

The research on general participation leads one to conclude that those who are more informed are more rational in their decision-making practices and have higher levels of participation. This section of the study explicitly addresses this issue. Specifically, it is hypothesized that more proficient consumer decision makers tend to make their own decisions; they are more informed and educated; they have the appropriate knowledge and experience for consumer decision making; and, they exhibit a higher propensity to affect the decisions of other consumers, and those in positions of corporate and/or political authority.

Levels of Knowledge and Independence in Decision Making

The telephone ownership decision was chosen as a basis for exploring this issue for several reasons. All consumers were asked to make a choice in the period immediately before the study. It is a high visibility decision in that consumers are confronted daily in magazines, shopping centers, catalogs, etc. with offers of phones to buy. Both industry and consumer groups had extensive information and education programs about this issue. Thus every consumer had the opportunity to know about, and to learn about this issue. Given the offer and the opportunity, we expect that those who are less informed are those who have a lower propensity to perceive and use consumer information materials, and we will examine the issue of whether they are less proficient in their consumer decision making.

First, a large majority of consumers (73 percent) are knowledgeable about their customer premise equipment. About one in three, however, needs to be prompted to recognize this option (20 percent), or is ignorant of this choice (7 percent). These data form the basis for examining independence and dependence in decision making.

Second, following questions about the level of knowledge for the telephone ownership decision, consumers were asked to identify the degree of independence of their decision. Table 1 shows that about two out of three consumers report making their decisions entirely or mostly by themselves. About one in three reports receiving considerable help in making the decision. This distribution across the decision-making categories is conducive to further examination of factors associated with the decision.

TABLE 1. Independence Of Consumer Decisions For The Telephone Ownership Choice

| Decision made: | Percent |
|--------------------------|-----------------|
| Entirely by self | 43.9% |
| Mostly by self | 19.2 |
| Equally with someone | 24.7 |
| Mostly by someone else | 4.0 |
| Entirely by someone else | 4.1 |
| Default--did not act | 4.1 |
| Total | 100.0% (489) |

The Information-Getting Propensity

Third, consumers were then asked about whether they "got information or advice regarding buying or leasing telephones" from any combination among six possible sources. About half of the consumers (51 percent) report using phone company information to inform their decision. About a third use family or friends (39 percent), and a similar proportion uses the print media (33 percent). About one-fourth uses broadcast media (25 percent). Less than one percent reports using information from government sources or community groups. It is clear that not all consumers use the same sources, and some consumers use more than one source.

Zero to six different types of information sources could be named by each respondent. When we total the number of types of sources of information used for each respondent, an "information-getting score" is produced which represents the propensity to use different sources of information in decision making. Eighteen percent report no sources of information were used for their decision. Most consumers (59 percent) report using one or two types, 21 percent report three or four, and few consumers (2 percent) report using four to six. This is as hypothesized, and provides a basis for the third part of our hypothesis--use of information according to the independence of decision making.

Table 2 presents data on the independence of the phone ownership decision according to the total number of sources of information the respondent reported using in making the decision. It shows that a highly significant relationship exists

between independence of decision and number of sources used.

TABLE 2. Independence of Decision Making and Number of Sources Used

| Indep. of Decision | TOTAL NUMBER OF SOURCES USED | | | | | | | Total |
|--|------------------------------|---------------|---------------|--------------|-------------|------------|------------|-----------------|
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | |
| 6 - ALLSELF (All by self.) | 17.2% | 30.2% | 29.3% | 15.4% | 5.6% | 1.2% | 0.5% | 99.4% (215) |
| 5 - MOSTSELF (Mostly by self.) | 8.5 | 29.8 | 23.4 | 28.7 | 8.5 | 1.0 | - | 99.9% (94) |
| 4 - EQUALELSE (Equal with someone else.) | 14.9 | 36.4 | 29.8 | 14.9 | 1.7 | 2.5 | - | 100.2% (121) |
| 3 - MOSTELSE (Mostly by someone else.) | 10.5 | 63.2 | 10.5 | 15.6 | - | - | - | 99.8% (19) |
| 2 - ALLELSE (Entirely by someone else.) | 15.0 | 85.0 | - | - | - | - | - | 100.0% (20) |
| 1 - DEFAULT (Took default = company decided.) | 100.0 | - | - | - | - | - | - | 100.0% (20) |
| Total % N | 18.0 (88) | 34.0 (166) | 25.2 (123) | 16.6 (81) | 4.5 (22) | 1.6 (8) | 0.2 (1) | 100.0 (489) |

There is a clear pattern whereby those who report greater independence in decision making also report using a higher number of sources of information for their decisions. Independence in consumer decision making is thus associated with a "propensity to utilize more sources of consumer information." Conversely, those who allow someone else to decide for them use few sources of information--they appear to be truly unknowledgable and dependent. These data support the third part of our hypothesis.

Information-Giving: The Propensity to Influence Others

The fourth and final part of our hypothesis expects that those who are more confident in their own decision making will be relied on to a relatively greater extent by others and/or they will try to influence others. We examined this aspect of the issue by asking all respondents about whether they told others about the phone ownership options, helped others make their decision, and/or tried to influence policymakers about the issue. Most consumers do not report involvement in the decisions of others, nor are they involved in complaining or trying to influence decision makers; but, those involved in influencing exhibit a definite pattern.

Considering the premise equipment decision, the majority (57 percent) do not give advice to others, complain to officials in the business involved, or express their opinions to political or community leaders. About one in three (36 percent) give information and advice to acquaintances. About 5 percent complain to officials in the telephone company. Only a small percentage (less than two percent) contact community leaders, newspapers or magazines or government leaders about the issue. This being the case, we have the basis for

examining whether those who take action to aid or influence others are more confident and proficient consumers.

Specifically those who report making the phone ownership decision themselves, or relatively independently, also report influencing others to a greater degree. (Note that these data are based on the number of different types of attempts to influence others, not the actual number of attempts at influence. An individual may have given advice to a number of others, which would be reported here as having been involved in one type of influencing.) Conversely, those who are more dependent on others for their decisions typically are not involved in aiding or influencing others. This pattern is consistent with the previous pattern, and supports the creation of a scale which combines independence of decision making, use of information sources, and propensity to influence others.

Decision Independence and Information Getting/Giving Propensities

To examine all four aspects of our hypothesis together, we constructed a scale based on the level of knowledge weighted first by the independence of decision, second by the propensity to use information (the information-getting score), and third by the propensity to influence the decisions of others (the information-giving score). Table 3 presents data on the relationship of the combined information-getting and -giving scores to independence of decision making.

TABLE 3. Independence of Decision Making and Propensity to Influence Decision of Others

| Decision Independence | INFO GIVING/GETTING INDEX | | | | | | | Total |
|-----------------------|---------------------------|-------------|------------|------------|------------|------------|----------|---------------|
| | 0 | 1 | 2 | 3 | 4-5 | 6-7 | 8+ | |
| 6 - Allself | 12% | 20% | 17% | 18% | 17% | 14% | 4% | 102% (215) |
| 5 - Mostself | 7 | 21 | 14 | 23 | 12 | 21 | 1 | 99% (94) |
| 4 - Equalself | 11 | 25 | 21 | 18 | 11 | 12 | 2 | 100% (121) |
| 3 - Mostelse | 11 | 58 | 11 | 11 | - | 11 | - | 102% (19) |
| 2 - Allelse | 5 | 70 | 10 | 15 | - | - | - | 100% (20) |
| 1 - Default | 100 | - | - | - | - | - | - | 100% (20) |
| Total % N | 14 (69) | 24 (119) | 16 (78) | 18 (87) | 12 (60) | 14 (67) | 2 (9) | 100% (489) |

There is a clear pattern. Those consumers who exhibit greater knowledge and independence in their own decision making have a higher than average tendency to get information from a variety of sources, and to influence the decisions of others. These data provide support for the construction of a "consumer decision making scale" (CDS) based on the combination of the scores for independence of decision, information-getting and information-giving. This scale is used to examine the relationship between proficiency in consumer decision making and other relevant variables.

Social Background and Consumer Proficiency

The social background of consumers in each of the levels of the consumer decision scale (CDS) is informative regarding the targets and need for action and the approaches required for successful implementation. In particular, data on age, education and household income provide insights into the dynamics of consumer decision making. Four levels of proficiency are established by comparing raw frequencies for the CDS with the data presented in Table 3. Consideration of the need for relatively equivalent proportions for statistical analysis is also made. Low scores on the CDS are associated with low consumer proficiency and vice versa.

Age: Table 4 shows that proficiency in decision making is significantly related to the age of the consumer. Significantly higher proportions of older consumers rank low on the decision-making scale. And while there is a progression across the age groupings, the major differences emerge with the 45 and older groupings. Thus, younger consumers tend to be more proficient in their decision making; they exhibit more independence in making choices, and they report using more types of information sources and more areas of attempts to help or influence the decisions of others.

TABLE 4. Consumer Decision Making and Age

| Consumer Decision Scale (CDS) | Age | | | | Totals* |
|-------------------------------|----------------|-----------------|----------------|-----------------|-----------------|
| | LT30 | 30-44 | 45-59 | 60+ | |
| Low | 27.4% | 26.6% | 37.6% | 37.7% | 31.8%(154) |
| Moderate 1 | 28.6 | 28.3 | 32.5 | 43.4 | 32.7 (158) |
| Moderate 2 | 34.5 | 30.5 | 23.9 | 14.2 | 26.0 (126) |
| High | 9.5 | 14.7 | 6.0 | 4.7 | 9.5 (46) |
| Total | 100.0% (80) | 100.1% (214) | 100.0% (77) | 100.0% (116) | 100.0% (484) |

Chi sq = 28.41, 9 DF; p = 0.001

* Totals are the same for all CDS tables and are not repeated.

Education: The education of consumers also shows a statistically significant relationship with proficiency in decision making (Table 5). Consumers with more than a high school education score significantly better on the hierarchy of participation than do those with a high school education or less. Twice as many of the groupings with high school education or less score low on the scale; and, those with more than a high school education are more than twice as likely to score in the higher levels of proficiency in decision making.

TABLE 5. Consumer Decision Making and Education

| Consumer Decision Scale (CDS) | Education | | | |
|-------------------------------|----------------|-----------------|----------------|-----------------|
| | LT HS | HS Grad | So Coll | Coll+ |
| Low | 41.3% | 36.5% | 22.1% | 24.1% |
| Moderate 1 | 41.3 | 31.8 | 31.2 | 29.3 |
| Moderate 2 | 12.5 | 23.8 | 32.5 | 34.5 |
| High | 3.7 | 6.4 | 10.3 | 10.2 |
| Total | 100.1% (80) | 100.0% (214) | 100.1% (77) | 100.0% (116) |

Chi sq = 25.8, 9 DF; p = 0.002

Income: The total household income of respondents is not significantly related to their level on the decision-making hierarchy, although a pattern is suggested. We do note that very few consumers with incomes less than \$10,000 score high on the scale, and conversely for those with incomes \$20,000 and above; these differences fall short of statistical significance.

THE CONSUMER DECISION HIERARCHY AND ASSOCIATED DECISIONS

In order to establish the generalizability of these results, and to support a consumer decision making hierarchy, we examine the relationship between the consumer decision scale (CDS) and other telecommunications decisions made by the same respondents. The CDS, being based on a single decision area, might well be a unique phenomenon. If, however, higher scores on the hierarchy are associated with higher levels of consumer knowledge in other areas, a basis for inferring a general phenomenon will be supported. This section examines this relationship.

Table 6 shows the levels of consumer knowledge on three telecommunications decisions, and knowledge of the body responsible for regulating utilities in Pennsylvania. Based on the tripartite distinction on level of knowledge--recall, recognition, ignorance--the table indicates that varying levels of knowledge exist in the general consumer population for the different decision areas.

TABLE 6. Levels of Knowledge on Telecommunications Decisions

| DECISION AREA | Level of Knowledge | | | Total |
|------------------|----------------------|-------------|--------|---------------|
| | Ignorance/Don't Know | Recognition | Recall | |
| Phone Ownership | 7% | 20% | 73% | 100% (497) |
| Wire Maintenance | 29 | 17 | 54 | 100 (488) |
| Knowledge of PUC | 4 | 57 | 39 | 100 (477) |
| Local Options | 10 | 73 | 17 | 100 (374) |

The table lists the decisions with the higher aggregate levels of recall first, and lower levels later. The consuming public is most informed about the phone ownership decision, with three out of four respondents being able to explain the options without prompting. This is followed by the inside wire maintenance choice, and understanding of the regulatory system as manifest in knowledge of the Public Utility Commission. The ability to recall the three local phone service options is lowest, with less than one out of five consumers being able to name two or more of the three options which were available to them (and from which they had made a choice, including defaults, in the year preceding the study). Since the CDS hierarchy is reflective of the phone ownership decision, we will examine the extent to which consumer knowledge in the other areas is associated with higher levels of consumer participation in decision making.

TABLE 7. Consumer Decision Making and Knowledge Level For Associated Telecommunications Decisions

| A. Inside Wire Maintenance | | | |
|-------------------------------|----------------------|----------------|----------------------|
| Consumer Decision Scale (CDS) | Ignorance/Don't Know | Recognition | Recall |
| Low | 38.9% | 30.6% | 28.8% |
| Moderate 1 | 32.4 | 37.7 | 31.4 |
| Moderate 2 | 20.1 | 17.6 | 31.4 |
| High | 8.6 | 14.1 | 8.3 |
| Total | 100.0% (139) | 100.0% (85) | 99.9% (244) (488) |

Chi Sq = 13.3, 6 DF; p = 0.039

| B. Local Service Options | | | |
|-------------------------------|----------------------|-----------------|-----------------------|
| Consumer Decision Scale (CDS) | Ignorance/Don't Know | Recognition | Recall |
| Low | 33.3% | 30.8% | 15.4% |
| Moderate 1 | 41.7 | 34.4 | 27.7 |
| Moderate 2 | 22.2 | 24.9 | 43.1 |
| High | 2.8 | 9.9 | 13.8 |
| Total | 100.0% (36) | 100.0% (273) | 100.0% (65) (374)* |

Chi Sq = 15.7, 6 DF; p = 0.016

*Lower N's occur because several companies had not implemented a local service option choice.

Table 7 shows the relationship between consumers' levels on the CDS and their knowledge level on two associated telecommunications decisions. There is a significant correlation between the CDS and knowledge in both areas. Thus, we infer that there is a pattern which exists across decisions. This pattern is demonstrated more strongly when we establish a combined telecommunications decision index for each respondent and examine its relationship to the CDS. Table 8 shows a significant relationship between the combined "telecommunications decision index" and the consumer decision scale.

TABLE 8. Consumer Decision Making and Level of Knowledge on Key Telecommunications Decisions

| Consumer Decision Scale (CDS) | Telecom. Decision Index | | | Total |
|-------------------------------|-------------------------|----------|-------|--------------|
| | Low | Moderate | High | |
| Low | 28.0% | 43.0% | 29.0% | 100.0% (100) |
| Moderate 1 | 18.8 | 48.4 | 32.8 | 99.9 (122) |
| Moderate 2 | 15.8 | 35.6 | 48.5 | 99.9 (100) |
| High | 16.1 | 45.2 | 38.7 | 100.0 (37) |

Chi Sq = 14.92, 6 DF; p = 0.022 (360)

TABLE 9. Consumer Decision Making and Knowledge of The Public Utility Commission

| Consumer Decision Scale (CDS) | Ignorance/Don't Know | Recognition | Recall |
|-------------------------------|----------------------|----------------|-----------------------|
| Low | 47.4% | 37.1% | 22.0% |
| Moderate | 21.1 | 30.5 | 38.2 |
| Moderate 2 | 26.3 | 22.4 | 30.7 |
| High | 5.3 | 9.9 | 9.1 |
| Total | 100.1% (19) | 99.9% (272) | 100.0% (186) (477) |

Chi Sq = 15.6, 6 DF; p = 0.016

Further support for this conclusion, and the generalizability of the CDS hierarchy to other areas, is provided in Table 9 which depicts the

relationship between the consumer decision scale and knowledge of the utility regulatory body. Again, those consumers with higher decision scale scores also have higher levels of understanding of the regulatory system.

A logical inference from these findings is that the people who rank higher on the CDS hierarchy have a comparative advantage both in the marketplace and in the regulatory arena. We would expect them to be more proficient in exercising their consumer rights and responsibilities.

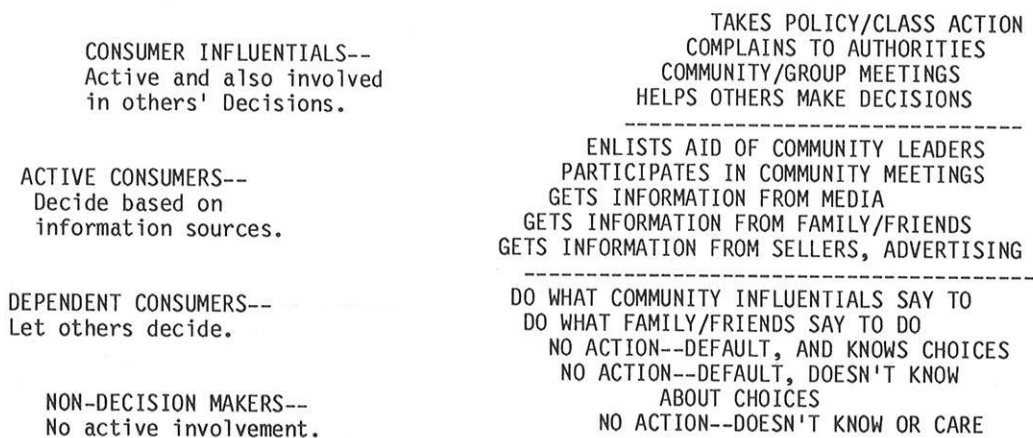
These analyses thusly identify a cumulative character to consumer capabilities in the socio-economic arena. Social background, achievement in education, consumer knowledge and competence, and outcomes in the marketplace are highly interrelated. The comparative advantage enjoyed by some is counterbalanced by the relative disadvantage of others. The existence of an "underclass" may be more pervasive than otherwise presumed.

IMPLICATIONS FOR THE FIELD: A HIERARCHY OF PARTICIPATION IN CONSUMER DECISION MAKING

Consumers are not equally independent in their decision making, they are not equally well informed, they do not use the same sources of information, nor do they equally attempt to influence others. Most importantly, we have demonstrated that level of knowledge, decision independence, propensity to use information sources, and propensity to influence others are significantly related. The empirical findings thus support the creation of a "hierarchy of consumer participation" comparable to the hierarchy of political participation developed by Milbrath (1965, 1982). Four main types of consumers are identified: consumer influentials, active consumers, dependent consumers, and non-decision makers. Figure 1 presents a graphic summary of the hierarchy of consumer participation. Consumer proficiency increases as one moves up the hierarchy.

Consumer influentials are both active and proactive--they make their own decisions using a variety of sources of information, and they are also involved in influencing the decisions of others. At lower levels, influentials give information and advice to family, friends and acquaintances. At higher levels, they seek to influence seller practices, community action, and/or public policy. Consumer influentials exhibit the characteristics of leaders, whether this leadership is in relation to a close circle of significant others, or broader corporate and public policy circles. Consumer influentials are open to, and most likely seek, information about options; and they are sought out by others for information and advice. These individuals are not only targets for consumer information and education, they also provide a reservoir of talent, motivation, and leadership for informing others and influencing policies and programs.

FIGURE 1. Hierarchy Of Consumer Participation



Source: Hyman, 1987

Active consumers, are informed consumers to varying degrees--they make their own decisions based on information from one or more sources. At lower levels on the hierarchy, these consumers may get help from others or decide conjointly with others. At higher levels, their decisions will be generally independent of others, based on information from one or more sources. Active consumers tend to make their own decisions, and they make them based on various degrees of knowledge of options open to them. They tend to be reasonably knowledgeable about the various options, and their concern is more for their own decisions rather than others. Active consumers are prime targets for a variety of consumer information and education programs, and, to varying degrees, they know how to use what they receive.

Dependent consumers let others decide for them--they uncritically do what significant others do or tell them to do. Thus their decisions tend to be made without direct personal consideration of information or evaluation of options. To the extent that the decision leaders to whom they defer understand their situation and have their interests foremost (as with a parent, close friend, or community helper), the final outcomes will most likely be positive. To the extent that the decision leaders have their own (or their business') interest foremost, or at least are unconcerned about the interest of the dependent consumer, the final outcomes will be negative, or at the best, benign. Dependent consumers are prime targets for misleading and deceptive practices, self-serving sellers, con-persons, and unscrupulous businesses. If the negative outcomes are to be avoided, these people require either well-informed, interested and available consumer influentials on whom to rely, or, protection via regulatory specification of defaults, allowable practices, and close monitoring of industry practices.

Non-decision makers are proxy decision makers--they do not take an active part in their decisions and, typically by default, someone else decides for them. At the "lowest" level, they are uninformed

about the decision area, apparently do not care, and when offered a choice, take no action. By default, they frequently give the seller a proxy to decide for them. These people are perhaps the most problematic from both personal and social perspectives. Their health and safety may be threatened by the consequences of non-decisions. They may be unable to afford the goods or services provided by default. They may command resources which they cannot use or which will be used indiscriminately. When such situations occur, individual harm leads to pain and suffering, and increased requirements for other resources such as hospitals, public health, police, fire, income assistance, and other protective services. Companies may need to expend significantly higher resources in collections, complaint handling, monitoring, restitution and protective services. And the public finds itself in the dilemma of either allowing social and personal costs to accrue or protecting these people from negative consequences of their inaction. Consumer information and education programs may be lost on these people who cannot or will not benefit from them; consumer protection may be the only way to avoid the health, safety and economic problems associated with this group.

Program and Policy Implications of the Hierarchy

The levels of consumer participation, based on proficiency and initiative in decision making, are expected to be highly salient in defining targets for consumer action--whether it be research, education, protection or policy. Non-decision makers require either consumer protection by official bodies or fundamental, in-depth education about how and why they need to make wise decisions, as well as information about options for specific decisions. Policymakers generally cannot expect traditional consumer information programs to lead to informed decision making by these "proxy" decision makers. Rather, these consumers need protection if they are to be spared the vicissitudes of the marketplace. Dependent

consumers must have knowledgeable, interested, and trusted consumer influentials who are readily available when decisions are to be made. They, too, might benefit from fundamental, in-depth, consumer education. Otherwise, either private corporate or regulatory practices must assure that the defaults and dominant choices available will have either positive or benign outcomes. Active consumers are the primary target for consumer information and education. Their varying degrees of openness to information, different levels of proficiency, and use of different distribution media, must all be considered in designing and implementing programs and policies. Consumer influentials generally seek out information on their own and are open to a variety of sophisticated approaches. They are potential targets for detailed information as they will become the sources used by others in making decisions. In addition, these consumer leader-types provide a reservoir of interest and talent for developing and revising policies and programs. They may become involved in changing policies or directions of agencies, corporations or organizations.

CONCLUSIONS

The analyses presented in this paper find a persistent and pervasive relationship between micro-level consumer decision making in specific areas of consumer decision making and citizen/consumer behavior in seeking and using information, and in influencing corporate and public policy and practice. It suggests that patterns of participation, knowledge-seeking and decision making are deeply rooted in the socio-political personalities of consumers. This phenomenon, in turn, creates differential patterns of bias in the American political culture.

We have established a "hierarchy of consumer participation" in decision making, at least in one area, with a high probability that it represents a more general phenomenon. We have also demonstrated significant correlations between consumer decision making, propensity to use information for decisions, propensity to influence others, and social background characteristics. Thus we approach a synthesis of knowledge from a number of fields including political science, sociology, consumer economics and education; as well as between concepts of participation, political culture, socialization, information seeking, and decision making. The results should be useful methodologically, theoretically and practically for research, program design and public policy analysis.

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CONSUMER AND RESEARCHER RESPONSE TO THE DEREGULATION OF
THE TELECOMMUNICATIONS INDUSTRY: COMMENTS ON
CUDE, HYMAN, AND BURTON, MAYER, AND ZICK

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The papers discussed below are linked by the common industry which they examine. The Cude and Hyman articles address consumer decision making in the newly deregulated aspects of the telecommunications industry. The Burton, Mayer, Zick paper, on the other hand, investigates consumer representation in the still regulated local service segment. As a group, the papers significantly contribute to our understanding of consumer issues in and beyond the telecommunications industry.

These refereed papers shared another commonality besides the industry studied. As submitted to this discussant, they were all clearly written. Furthermore, such clarity facilitated an evaluation which did reveal some marked differences in their more substantive aspects: their conceptual and/or theoretical development, the breadth and depth of their literature reviews, and their methodologies and execution.

CUDE

The author mail surveyed a local sample of Illinois Bell customers in order to determine the extent and type of information sought in the equal access (i.e., long distance carrier) decision. The author also ex post facto examined the relationship between the "intensity of search for information and selected characteristics". In other words, the study does not test hypotheses about relationships among variables, but rather generalizes univariate sample characteristics to the population; and as the author points out, was "exploratory" in terms of searching for possible relationships.

ACCI papers should not necessarily be required to include tests of theoretically linked hypotheses or to include extensive literature reviews. However, the ones that do so tend to be better focused, organized, and heuristic, and represent more enduring contributions to consumer science [1].

Although she does not test for a related hypothesis, the author does suggest possible explanatory variables for search/non-search behavior such as Nelson's notion of an "experience good". Any related future research should also benefit from a review of the extensive information processing, perceived risk, and involvement literature from marketing in generating appropriate hypotheses.

Since this paper then is largely an atheoretical, ad hoc effort to determine population needs and

and desires concerning equal access information, the representativeness of the sample becomes critical. The author herself, however, notes its severe limitations. A 35 per cent response rate in such a survey typically results in non-response bias in the form of a more highly educated, wealthier, younger, and more activist sample.

Concerning the author's exploratory logit analysis to determine any relationships among measured variables, the sample representativeness may not be as critical as in the univariate analysis unless one hypothesizes interaction effects between underrepresented characteristics and the relationships found. The dependent variable analyzed was level of search activity undertaken in the equal access decision. Two "exploratory variables" were found to be significantly related. Age was negatively related to equal access search activity while "usual amount of pre-purchase search" was positively related. The above variables represent different measures of similar concepts addressed by Hyman. Furthermore, the noted relationships found among them tend to support his results.

HYMAN

The author telephone surveyed a statewide sample in order to determine their decision making and decision influencing characteristics regarding certain deregulated aspects of the telecommunications industry. Like Cude, Hyman found recent deregulation to be an opportunity to efficiently survey a general population's response to a particular set of product/service decisions since their information exposure, opportunity to know, and mandated decision/non-decision time were relatively constant.

Unlike Cude, however, Hyman's major purpose was to test a theoretical structure with ramifications beyond not only consumer behavior toward the telecommunications industry but beyond consumer behavior as well. He hypothesizes a "hierarchy of consumer participation comparable to the hierarchy of political participation developed by Milbrath".

More specifically Hyman hypothesizes that independence of decision-making, propensity to use sources of information, and propensity to influence other's decisions are highly interrelated. Furthermore, these characteristics can be combined to determine different levels (or groups) of consumer decision makers/influencers. The groups thus determined can be both a useful dependent variable for exploring possible determinants and a useful guide to developing a differential mix of information, education, and/or protection appropriate for each group.

¹Professor of Business

The author's results generally support his hypotheses. The data indicate that the participation variables are interrelated. Furthermore, the groups identified by the combined scores are related to age and education, but not income or poverty. As indicated earlier these results are somewhat supported by Cude's exploratory analysis.

Hyman's analysis concerning relationships with demographics, however, may have benefited from a multivariate approach to control for confounding factors. For instance, he states that although the relationship between consumer participation level and income is not statistically significant, "a pattern is suggested". If the typically confounding variable, education, were controlled, the author may find that income by itself would not even "suggest" a pattern, let alone be significantly related to consumer participation levels. Likewise, the author implies that poverty may be related to consumer participation levels even though it was not found to be statistically significant. Perhaps so, but his conclusions may have been less equivocal if he tested and controlled for more specific behavioral variables such as education, sex, and marital status which are likely to be confounded with poverty.

As stated previously, Hyman's paper has larger theoretical purposes than just an examination of consumer behavior toward the telecommunications industry. However, one may wish to consider whether or not some of the conclusions are warranted by the results. For instance, the author states that "The analyses presented in this paper find a persistent and pervasive relationship between micro-level consumer decision making in specific areas of consumer decision making and citizen/consumer behavior in seeking and using information, and in influencing corporate and public policy and practice". The latter part of the statement implies that a propensity to influence (or simply try to influence) public policy was related to the other participation variables. As far as I could determine not only was that not the case but it could not have been the case given the author's data. He reports only 2% (10 people?) who contacted "community leaders, newspapers, or magazines or government leaders about the issue."

Likewise, the author identifies consumer influentials (in Figure 1) as those who are more likely to undertake political activities such as taking policy class action complaints to authorities, and participation in community group meetings. Yet again, so few people in the sample did these things, that such definitive conclusions cannot be drawn from the data.

The author may have inadvertently extrapolated his results because of the conceptual linkage with Milbraith's hierarchy of political participation. Political activities largely promise public goods or benefits. Hyman primarily measured activities that promised private goods or benefits. The former may be more a result of societal orientation while the latter may be more a result of narrower self-interest behavior. Simi-

larly, political behavior may be partially a function of a propensity to join organizations. Being a proficient consumer, on the other hand, seems less likely to be related to such a propensity.

The policy implications drawn by the author may also be somewhat overstated. For instance, he contends that "...non-decision makers...need protection." But is it possible that this group does not perceive the consumer decisions addressed here to be important enough to require protection? And/or that they perceive "protection" measures in general to be undesirable from a political, economic, philosophical and/or other perspective? If so, should the attitudes and values of the group to be protected be considered at least as important as those of an individual author or even those of most consumer educators and/or advocates in determining policy approaches? Past studies may shed some light on this related issue of consumer attitudes toward policy approaches. Kroll and Stampfl, for instance, found that older respondents (more likely to be "non-decision makers" or "dependent consumers" in the current study) did tend to prefer protection-oriented government interventions as opposed to information/education approaches. Likewise, the more educated respondents (more likely to be "active consumers" or "consumer influentials") did tend to prefer the latter[2]. Such related findings offer further support for the current study's policy suggestions.

BURTON, MAYER, AND ZICK

In contrast to Cude and Hyman, these authors investigated a still regulated component of the telecommunications industry: flat rates for residential service. They wished to determine the impact of several political and regulatory factors such as type of consumer representation directly provided by state government, the length of public utility commissioners' terms, and method of commissioner selection.

Like Hyman, however, their purposes also transcend the telecommunications industry. Their literature review encompasses empirical studies in other utility industries and the hypotheses generated are largely in response to gaps and inconsistencies in utility representation research in general. For example, theirs is the first research concerning any utility industry which examines differential impacts of types of proxy advocates.

The authors thus frame the problem at an appropriate level of generality yet focus in on specific issues common to utility regulation across industries. Such breadth coupled with clarity and circumspection of purpose allow the rest of the analysis to fall neatly into place. Appropriate variables and relationships are measured and tested. Some of the results fill in the identified gaps in previous research. For instance, independent consumer counsels tended to achieve superior results in comparison to other state advocacy structures such as designated staff in attorney generals' offices.

Other paper results contradicted past assumptions and/or empirical results. Method of commissioner selection was not found significantly related to flat-rate levels. Likewise, longer terms for commissioners were found to result in lower flat-rates for consumers in contrast to Hagerman and Ratchford who found that shorter terms were related to lower rates of return.

The results, whether filling in gaps or contradicting other research, were easily put into perspective by the authors' prior analyses of related research. The authors' conclusions and recommendations are likewise harmonious with the rest of their analysis. For instance, considering their results, they question whether the efforts toward securing elected commissioners in more states are as worthwhile as would be efforts toward securing an appropriate state advocacy structure.

Concerning the authors' discussion of possible explanations and future research on the relationship between length of commissioners' terms and telephone rates, a few suggestions may be appropriate. In addition to the authors' possible explanations for why longer commission terms lead to lower rates, future research should also base competing hypotheses on counter arguments. Much political science literature on captive agencies, for instance, would probably suggest Hagerman and Ratchford's results that the longer the term, the higher the rates.

Perhaps different arguments carry different weights over the length of a commissioners' service. If so, interaction or non-linear hypotheses may be relevant. What if, for example, in the early portion of a commissioners' term the need for technical expertise or learning curve arguments are the most relevant, while toward the latter portion the co-optation by industry arguments become paramount. One would thus expect a parabolic relationship between length of service and lower rates. That is, initially as length of service increased, better service and lower rates to consumers would result because of the growing technical competence of the commissioner. As time went on, however, service to consumers would gradually erode due to increasing contact with industry personnel, and thus greater understanding and/or sympathy with their positions.

SUMMARY

The papers presented in this session represent not only studies of different aspects of the same industry, but also different levels of objectives and their attainment. Cude's objectives were largely industry specific and she should be commended for having increased our knowledge of consumer response and needs concerning the equal access decision. Her exploratory analysis may have also contributed to supporting some of Hyman's thesis and in generating hypotheses for future research.

Hyman should be commended for his larger theoretical objectives which can have ramifications for understanding consumer decision making per se as

well as consumer decision making concerning telecommunications deregulation. The results generally supported his hypotheses. However, conclusions concerning the relationship between consumer purchase and consumer political activities must await further research.

Burton, Mayer, and Zick are to be commended for contributing to our knowledge of consumer interest issues in telecommunications regulation and utility regulation in general. More specifically they should be commended for clearly positioning their research in a stream of related empirical studies. They succinctly and persuasively communicate where utility regulation research has been, where it stands now, and where it is likely to go. They have thus elegantly served the cumulative knowledge function of science.

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AMERICAN COUNCIL ON CONSUMER INTERESTS

Frank E. Young, M.D., Ph.D.

Good afternoon. I am happy to be here today at the 34th annual conference of the American Council on Consumer Interests. It has been too many years since the Commissioner of FDA has met with the ACCI to discuss our common goal to improve consumer information, education, and research.

As the head of a government agency devoted to consumer protection and as a physician, I have always put the individual patient or consumer first. Most often that means making a careful, objective evaluation of the facts at hand as we make regulatory decisions that have great public health significance. For example, if we were to act too quickly in the drug review process in response to controversy or to the divergent interests of our constituencies, we might endanger the public. On the other hand, if we act too cautiously, the public will not be able to take advantage of the great advances in modern medicine.

These advances are what make our job so challenging and so gratifying. Largely because of the miracles of modern science, the public increasingly expects that "magic bullets" will be found for almost any disease or condition. These growing expectations have been accompanied by a skyrocketing desire for more information.

The FDA has responded to consumer needs for more information because we believe an informed consumer is vital to avoiding potential hazards in FDA-regulated products and because education to prevent public health problems is often the best answer we have.

I will talk today about some of FDA's consumer education activities, which include efforts to combat health fraud associated with AIDS and other diseases, the development of health messages on food labels, as well as a campaign to combat the misuse of steroidal drugs. However, as we all know, effective consumer education on public health issues is just not simple. The subject matter is complex, diverse and ever-changing, and too much or too little information can cause problems.

Consumer education is difficult -- but not impossible -- and the rewards are worth the price. An informed consumer is a vital link in the chain of consumer protection as we strive to take advantage of the advances of modern science while minimizing the risks.

Consumer Education Requires Cooperation

Just as there is no one solution to consumer education, no one group can do it alone. FDA needs input from professional, scientific and consumer groups to develop balanced, accurate educational messages. Then we need to work together to find ways to reach target groups with maximum timeliness, effectiveness, and efficiency.

Later today, we will honor the private sector winners of the first joint FDA-National Coalition for Consumer Education (NCCE) contest. We want to encourage more such efforts, and we also want you to help us get these and other valuable educational messages to the public.

Your research is vital to FDA and other groups who do consumer education. We need to know more about consumer perceptions, behaviors, and motives. I congratulate you on your participation in forums such as this conference, and I urge you to continue applying the results of your research to effective consumer education.

Understanding FDA

Since I am going to be talking about a few FDA programs designed to educate consumers, I think it only fitting that I start with our campaign to explain the drug development process to consumers. FDA's Office of Public Affairs has developed a series of articles in the award-winning FDA Consumer that started with a special issue on drug development, and will continue with a future special issue on food safety.

As a former educator, I believe that the public now, more than ever before, needs a clear understanding of how new drugs are developed, reviewed, and approved. Consumers are also patients or potential patients. They need to understand the different steps in drug development, why they are necessary, and what FDA, the pharmaceutical industry, and health professionals are doing to make those steps as short as possible. We feel confident that American consumers have access to some of the most safe and effective pharmaceutical products in the world.

We feel it is important that consumers recognize that FDA is a valuable ally as they make health-related decisions. Trust is a product of honesty, and that is why we want consumers to know what we are doing. FDA does not have all the answers, nor can we guarantee that every FDA-approved product is absolutely safe or effective. What we can do is do our best to inform consumers about the risks and benefits that underpin agency decisions, so they in turn can make

responsible personal decisions to improve their health while avoiding potentially harmful products or behaviors.

If consumers understand the process, they will be less vulnerable to false hopes, better able to realistically gauge the true value of real breakthroughs and better equipped to recognize health fraud when it occurs. The disease AIDS brings a critical new focus to this need for information, but the same principles apply to other serious diseases, as well as perceived physical problems that tempt people to try fraudulent products.

Health Fraud and AIDS

As I said before, the terrible disease AIDS requires us to take special measures. We are doing everything possible to bring safe and effective drugs and vaccines to the people who need them as soon as possible. Although some people, even AIDS patients, claim FDA is not allowing the marketing of effective AIDS drugs, that is just not true. We hope that public understanding of the drug review process will help to dispel this myth.

With a vaccine many miles down the road, we have looked for ways to help people decrease their risks of getting the disease. For example, one critical area of FDA's concern is the safety of condoms and surgical and examination gloves. Clearly though, consumer education is vital both to AIDS issues in general, and to health fraud in particular.

There is no doubt that AIDS patients and their families are bombarded with an increase in fraudulent treatments that purport to do some good against AIDS. So-called "treatments" include blue-green algae, injections of hydrogen peroxide, the food preservative BHT and herbal capsules that contain poisonous metals. For uninfected consumers, there

is a spermicide that untruthfully claims to kill the AIDS virus and the "saniform," a piece of plastic to cover telephone mouthpieces that was promoted to protect against infection from public phones. The latter, of course, not only takes people's money, but spreads lies about methods of transmission.

To counter these types of health fraud, we have mobilized our inspection force to investigate these products and take enforcement action when necessary. However, the need for consumer education is absolutely critical, even if the so-called treatments are technically harmless. At the very least, some of the more subtle and indirect frauds, unproven drugs and other products are costly. At the worst, they cause patients to ignore more traditional treatments or to believe they are protected when they are not. A recent headline in the Washington Post said it best with, "AIDS sufferers buying hope." I would add that they are most likely buying false hope.

With such a proliferation of new fraudulent products to treat AIDS, education is essential so that consumers can understand the difference between science-based medicine and magical cures. FDA has established a special initiative, coordinated by the Office of Consumer Affairs, to monitor the problem and work with other organizations, including AIDS activist groups, to educate the public. For example, FDA cosponsored a national health fraud conference in March to inform consumers and professionals about ways to combat health fraud.

We also published an article on AIDS fraud in the October issue of the FDA Consumer and have issued an alert to all state and local food and drug officials, urging them to work with us. It might interest you that we have established a health products and promotions information exchange network

with the National Association of Consumer Agency Administrators. Currently, FDA, the Federal Trade Commission, and the United States Postal Service, as well as NACAA members, contribute valuable information to the network on recent enforcement actions, press releases, publications, education materials, and contact people.

It is the type of network we are working to develop with our outside constituencies, such as the ACCI, as well.

We have alerted consumers how to spot AIDS fraud; suggestions include being wary of amazing breakthroughs, or products "guaranteed to work," as well as fake scientific explanations or treatments that can only be obtained outside the United States.

We welcome your help in finding the best ways to reach the public so that they are not so vulnerable to fraud.

Consumer Education: Diet and Health

Now let me move to a discussion of another subject of FDA concern: consumer education regarding the links between diet and disease. Consumer education on this topic is quite a challenge since the scientific solutions to such conditions as cancer, heart disease, and osteoporosis are complex and a final consensus has not been reached.

FDA has a long tradition of educating consumers about the foods they eat. Since 1973, FDA has required manufacturers to put the nutrient content of a food on the label if nutrients have been added or if a nutrition claim is made. Some 55 percent of all foods that come under FDA's jurisdiction now carry nutrition labeling.

Americans are showing an increased interest in preventing disease through dietary changes. And even though scientists don't have

all the answers, FDA wants to be responsive to consumers' needs for the latest information. We do have some evidence that these diseases are connected to overconsumption of foods high in fat, cholesterol, salt, and alcohol and underconsumption of some essential factors such as calcium and fiber.

Food Labeling as Consumer Education

The food label has always been one of our best tools to inform the public. One of FDA's most critical responsibilities involves maintaining consumer trust in the safety of food, in the credibility of food labeling and in the integrity of food packaging. If false, misleading or inadequately supported information appears on food labels, public trust in labeling and indeed in the products themselves, could be compromised. If that were to happen, consumers may become confused and disregard all information on labels.

We know that food labels can be a useful source of information. Since FDA's nutrition labeling regulations were adopted in 1973, nutrition labeling has increased to 55% of the retail value of foods regulated by FDA, with 59% having sodium labeling. Recent surveys show that 75% of the public looks to food labels for information ranging from nutritional content to warnings on tamperings.

Educators, scientists, government and industry must work in partnership if we are to meet our mutual goal of providing truthful and nonmisleading information about diet and health to consumers.

Health messages

We are currently facing quite a challenge as we address the issue of explicit health messages on food labels. We intend to be cautious, but we must also recognize that public health policy can not

always wait for the scientific surety of absolute scientific proof. We must be open to new information and do everything possible to support new evidence that will banish uncertainties. Consumers should have the best, most current information about the links between diet and disease, but consumers also need to know that we simply don't have all the answers at

this point. Good nutrition is a function, not of specific foods, but of total diet over time.

We are still in the process of determining how a new policy of allowing explicit health messages on food labels could best serve the needs of consumers and health professionals while not overregulating a food industry which has an excellent track record. The majority of consumers we have consulted as we have formed our policy believed that concerns about misleading claims were outweighed by the benefit of having more information on which to base their food choices. Many consumer activists, however, have voiced concerns that if health messages are not pre-cleared, they may be very difficult to monitor.

We do want messages to be based on and consistent with valid, reliable, scientific evidence that is publicly available. By encouraging scientific research in academia and industry, we will be in a better position to educate the public.

Targeted Information to Specific Audiences

Health messages on food labels are aimed at the public at large. However, many of the agency's consumer education messages will be more effective if they are targeted specifically to limited audiences.

Although there has been some debate about the connections between diet and disease, no one can deny the dangers of steroids that are

being advertised to athletes -- even high school students -- as a quick way to build muscle. It's not clear that steroids build muscle, but it is clear they can stunt growth, cause cancer, and ruin the liver. FDA seized \$7 million worth of illegal steroids last year and played the lead role among the Federal agencies that investigated and prosecuted dealers.

Enforcement actions are only part of the story. In a campaign aimed mainly at America's youth, FDA set out posters, video news releases, radio public service announcements and brochures to warn about the dangers of using anabolic steroids for body-building.

As with most, if not all, educational efforts, this campaign required cooperation among a number of groups. FDA worked with the Department of Education, the Drug Enforcement Administration, athletic coaching organizations, and the National Football League in the program. As a result, a newsletter and poster on steroids were sent out early in 1988 to 250,000 school officials, coaches and others. We also made available a videotape from the TV program "21 Jump Street," which dealt with steroids.

Young people tend to feel invulnerable -- so they are not an easy target group to reach with public health messages. To find effective ways to change dangerous behaviors in this group will require further research, cooperation, and variety of approaches.

Conclusion

FDA plans to expand its role as an educator -- a priority which is reflected in FDA's action plan to guide the agency into the 21st century. For example, FDA has initiated a series of national seminars on women's health issues such as osteoporosis, cancer, and nutrition. FDA is actively working with the National

Council for Patient Information and Education to promote patient education, and is also cosponsoring a project on prescription drug education for elderly black patients with the auxiliary to the National Medical Association. This spring, FDA will also pilot test a joint "800" toll free hotline for consumers on foods issues with the Department of Agriculture.

From these examples, as well as from other excellent educational ideas we will discuss in the conference, we can see that consumer education from reliable sources is absolutely essential to public health. It is also obvious that we need cooperation and additional research if we are to find the best educational approaches to change health-related behaviors. As scientists, educators and regulators, we have a joint responsibility to find appropriate messages to protect consumers and prevent health problems. This is a challenge that we face together. But first, we need the public's understanding and trust. You might say that we follow Thomas Jefferson's dictum that "an informed public is an understanding one."

Let us work together so that consumers take advantage of the benefits of modern science while minimizing risks. I look forward to working with you in the future as we share research on consumer issues. Thank you.

A TYPOLOGY TO MEASURE THE IMPACT OF HOMEBASED WORK
ON FAMILY QUALITY OF LIFE

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ABSTRACT

In recent years there has been significant growth in homebased work among women. Little research has been conducted to study the long run effects of quality of family life when one member is engaged in homebased work. A three dimensional typology has been developed which can be used to measure the effects of homebased work on quality of life and satisfactions with both the home and work situations.

Women have moved into the paid laborforce in growing numbers during the past decade. Recently, many have begun to examine income generating alternatives to enhance the family's economic position while permitting propinquitous activity and family development to flourish. Working at home appears to offer this opportunity.

Current Population Survey estimates indicate that women work longer hours at home than do men: 60 percent more women than men labored the equivalent of a full-time work week at home (Horvath, 1986). Because women are typically the primary family caregivers, and home-based employment allows women to combine income generation with their caregiving activities, the potential for both positive and negative outcomes for women is amplified.

The increase in homebased work for women has received considerable publicity recently. The home knitters in rural areas of New England and the telecommuters geographically aligned with urban centers have been the focus of this publicity. Unions have voiced concerns about wages and working conditions and suggested that the home may be in the process of becoming a "sweat shop" where young children labor along with their parents to meet quotas specified by an absentee foreman (Plous, 1982)! Persons engaged in a range of homebased work activities disagree. These workers point to an enhanced quality of life brought about by the meshing of the work and home and emphasize the greater satisfactions possible due to the independence and feelings of control that would not be experienced in a traditional work environment (Hershey, 1985).

This paper proposes a typology of homebased work which can be used to measure the effects of women's in-home income generation on quality of family life and satisfactions with both the home and work situations. In the development of the typology the range of homebased work occupations are described and factors associated with the nature of the work and the work environment delineated and defined.

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AN OVERVIEW OF HOMEBASED WORK

The production of goods in the home was a common practice among workers until the last century (Bernard, 1979). With industrialization the manufacture of goods for family consumption moved from the home to the centrally located factory, and women began their exodus from the home to the worksite. The civil war had opened the occupations of teaching and nursing to women, and by the turn of the century women were replacing men as secretaries, clerks, stenographers and office workers. Today women comprise 80 percent workers in these classifications (U.S. Department of Labor, #298, 1983).

During the 1970's fourteen million new workers entered the workforce, sixty-eight percent of whom were women. Approximately half of which were between the ages of 25 and 34 years (#298, 1983). As the number of married women in the workforce grew, there was a parallel increase in the number of part-time and self-employed females who sought to accommodate their jobs to meet child rearing and other family obligations. Of the nearly two million self employed women in the United States, approximately one half are believed to be homebased (Behr & Lazar, 1983).

The popularity of working at home has increased and has attracted attention of the media in recent years. Among reasons cited for the rise in its popularity are flexibility in meeting household demands, the need for a second income, disappointment with the corporate setting, distaste for commuting, transformation of a hobby into income production, a sense of independence, and the desire to spend more time with family members (Behr & Lazar, 1983).

Media attention came also with the controversy surrounding the rescision of that segment of the Fair Labor Standards Act which restricted in home production of selected apparel items (Fortune, December 10, 1984). The primary opponents of homework are the unions who continue to cite the difficulty of monitoring employers who may be paying sub-standard wages. When work is assigned on a piece-work basis, there is no effective way of ensuring that employees take on a reasonable task load. Children can be helping their parents by stuffing envelopes, knitting or typing in violation of the child labor laws (Plous, 1982). The number of analytical and scholarly studies addressing issues related to homebased work is scarce. Most reports have appeared in the popular journals and are somewhat anecdotal. General conclusions which tend to ignore differences among types of homeworkers are drawn from small samples. Preliminary findings of a national survey on homebased work recently completed by researchers at New York University indicate that women opt for working at home in order to work at their own pace

and to take care of their families. The most frequently cited advantages were to have more time to themselves, spend more time with children, and earn additional income. On the negative side, one third of the survey participants cited isolation as a disadvantage; and one fourth felt that they earned too little money (Hershey, 1985). Additionally, some women find that child care responsibilities hamper their ability to complete the work (Costello, 1987). These findings are in line with those of other smaller studies cited above which concluded that, due to flexibility of scheduling and availability of the worker to family members, working at home enhances the quality of family life.

In an exploratory study, Beach (1985) examined the integration of work and family life of homeworkers engaged in a variety of occupations. She found that although the workdays were frequently interrupted by child, family, and household tasks, these workers were generally satisfied with their work environment. The amount of "job stress" resulting from the interruptions appeared to vary with the absorptiveness of the work. The homeworkers Beach interviewed tended to accommodate work to needs of the family which the subjects viewed as a positive aspect of their working at home. This exploratory study pointed to the need for further inquiry into the question of whether this blending of work and family is positive under a range of conditions.

For centuries the family farm served as both a home and workplace as did the "cottage" which was a buzz of activity in production of market goods. To compare the new homebased worker's environment to these may be to ignore important differences. First, the fields were not literally in the home as are the machines of today's crafters, computer terminals and other office equipment. Second, the work carried on by those former enterprises was not intellectually absorbing. The worker's mind was free to wander or to focus on other activities or diversions within the work environment. And third, the family farmer or cottage crafter of bygone days did not work in isolation. There was constant interaction with family members and customers who were continually milling about the home (Matters, 1983).

When the workplace moved to the centralized factory, the home became a refuge from physically or mentally exhausting work, a place to recharge or rejuvenate oneself. Alternating between home and workplace has been viewed as desirable, often

stimulating creativity (Foegen, 1984). When the two overlap, the effect of leaving work behind is diminished. The temptation to work all the time may be problematic for the homeworker. The traditional worker can leave work at the office, but escape is not easy when the workplace is the home. A residential worksite may be the catalyst for a new type of workaholic and create more job-related stress (Tilly & Scott, 1978).

Housework burnout is said to have led many women into jobs outside the home. Homebased workers may find a new kind of burnout due to additional pressures. Not only can unmade beds and dirty dishes be seen as rebukes, but the dark computer screen, knitting machine or other office equipment may serve as a reminder of work that could or should be done. Pressure to produce could mount while children cry for attention. Income generation at home is likely to "be more attractive to self-disciplined, conscientious workers, the type most susceptible to stress and guilt feeling if work is seen but not done (The Wall Street Journal, November, 12, 1984).

The total influence of a worker at home upon members of the family and the quality of life can only be hypothesized at this time. The study of homebased work should begin with the recognition of the differences among workers, the individual family characteristics, the nature of the work being performed, and the work environment. The advantages and disadvantages of working at home may differ depending upon the aforementioned factors. The impact upon the family may vary due to the interactions among these.

A TYPOLOGY FOR HOMEBASED WORK

A framework for a typology specific to homebased work can be used to measure the consequent satisfactions and quality of life for the homeworker and her family through differentiating among types of income production. To be completely reflective of the complex dynamics hypothesized to exist when the work site is in the home, the proposed typology includes four components of the work/family environment for homebased workers.

Figure 1 illustrates the interaction among the four components: worker/family characteristics, the type of work, the nature of the work, and the work environment. The determinants of the quality of life and satisfactions resulting from homebased

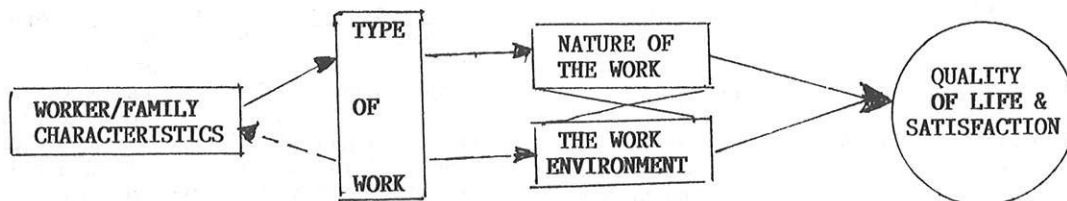


Figure 1: A typology to measure the effects of homebased work on family quality of life

work, while a function of the type of work, are expected to be influenced by worker/family characteristics and moderated by an interaction of the nature of the work and the work environment.

The purpose of the typology framework is to measure the quality of life and satisfactions in a household where at least one member is a home based worker. The quality of life outcome might be represented as follows:

$$(1) \quad Q/L = f(W_t, W_n, W_{env}, WFC)$$

where the quality of life outcome (Q/L) is a function of the type of work (W_t), the nature of the work (W_n), the work environment (W_{env}), and worker/family characteristics (WFC).

DEFINING AND DESCRIBING HOMEBASED WORKERS

Behr and Lazar (1983) identified more than 200 homebased industries and occupations. The wide range is due in part to the reasons behind the choice of occupation. The occupation may have evolved from a hobby or avocation, a need to increase income with few traditional labor alternatives available, or the home may be the customary base of operations for the occupation. The type of homebased occupation is expected to impact on the family's quality of life. However, the magnitude and direction of the impact will be moderated by the nature of the work, worker/family characteristics and the work environment. The relationship between the type of work and quality of life can be summarized by the following propositions:

- P1: Occupations evolving from a hobby or avocation are likely to be associated with higher levels of job satisfaction for the homebased worker.
- P2: Occupations selected primarily for their income generation potential are likely to be associated with lower levels of job satisfaction for the homebased worker.
- P3: The occupational satisfaction of the individual homebased worker will be moderated by variables influencing work and interactions among the nature of the work, the work environment, and the worker's own and family characteristics.
- P4: The occupational satisfaction of the homebased worker will be associated with the family unit's total satisfactions and quality of life.

Using Behr and Lazar's extensive listing, a schema describing five categories of homebased workers' occupations was devised. These are sufficiently broad to enable the inclusion of the many diverse occupations identified as being home based. The five categories termed Homemaking Crafters, Income Enhancers, Telecommuters, Administrative/Professional and Creative/Designers are described in Table 1 and below.

TABLE 1: Classification of homebased workers

| Category (Definition) | Examples of homebased workers |
|---|---|
| Homemaker/Crafter (evolving from household work) | Child care provider/babysitter Candy-maker, caterer Dressmaker/alterations Housekeeping/ cleaning service Knitter (machine) |
| Income Enhancer (supplementing household income) | Astrologer Cosmetics sales (e. g. Avon) Home-party demonstrator Typist or other clerical work |
| Telecommuter (utilizing computer technology) | Computer programmer/consultant New wave occupations utilizing telecommunications innovations Word processor working on piece or rate schedule |
| Administrative/Professional (traditionally conducted from home) | Bookkeeper Creative entrepreneur Sales representative Insurance agent Architect Translator Writer |
| Creative/Designer | Apparel designer Artist: painter, sculptor Hand knitter Jewelry or craft designer |

Homemaking Crafters include those engaged in occupations based on skills commonly practiced or used as a matter of course in a household. These have evolved from household work such as child care, food preparation, home sewing and general housekeeping. Their conversion to income generating occupations is based on enjoyment of the activity as well convenience. The crafter is expected to achieve heightened satisfaction from earning income while engaging in "household work."

Income Enhancers are those occupations promoted as a means of earning money while staying at home, and have never claimed to provide sufficient economic gains to be the sole support of a family unit. Because the worker is engaging in these endeavors solely for income generation, and because the income generated is likely to be low, job satisfaction is also expected to be low among these workers.

Telecommuters are those who use computer technology in the home. The skill level of these workers ranges from work processing to computer programming. It has been estimated that five million people will be telecommuters within ten years (Foegen, 1984). This type of occupation conducted in the home may culminate in feelings of isolation and hence these workers will experience lower levels of job satisfaction.

Administrative/Professionals are described as those who have traditionally used a home office for the conduct of business. For many, the client

contact was primarily outside the home. This category includes many diverse occupations with different opportunities and constraints. The occupational satisfactions derived from these will be varied and will be impacted heavily by the nature of the work and work environment.

Creative/Designers are those whose occupations may border on a craft but possess a higher level of talent and/or training in an applied area. While they may be either self-employed or work on a contractual basis for a firm, the work is generally signed or otherwise acknowledged to be that of the artist. The freedom and feelings of control often associated with the advantages of homebased work are expected to be experienced most strongly by this category of workers and their resulting job satisfactions should be high.

IDENTIFICATION OF VARIABLES INFLUENCING WORK AND FAMILY INTERACTION

The effects of participation in the labor force by one or more members impacts upon the family unit. Variables endogenous to the nature of the work and dimensions of the work environment may have a profound effect on a family's daily routine as well as on the relationships among individual family members. The worker's orientation toward work and family, as well as the family's attitude toward her work and the individual family situation are variables which could add or detract from the quality of life for the family of a homebased worker. In addition, her own feelings about the work she does and the rewards gained from income production will necessarily pervade the home consequent quality of life for the family. (Table 2).

The set of variables expected to moderate the effects of work on the family unit are those related to the nature of work. Form of employment, skill level, location, and absorptiveness are factors in the nature of work. These variables intervene any occupation whether or not it is homebased. The elements of time, space, location, accessibility of the worker to family members, and the economic determinants of the work are environmental variables that have more potential for determining satisfaction and quality of life of the homebased worker.

WORKER/FAMILY CHARACTERISTICS

Role orientation describes the underlying rationale for which an individual chooses to work at home. It is a factor in the absorptiveness of the work, commitment to the profession or client group, and is a psychological factor endogenous to the individual worker. Role orientation might be expected to moderate and strongly influence homebased workers' perceptions of both the nature of the work and work environment.

For example, Beach (1985) indicated that family and work may be equally weighted by professional home based workers. The same may be true for crafters as attested by numerous home knitters during the FLSA hearings (Costello, 1987). Whether the paid labor is done at a work site or

in the home there are rewards for the worker. The feelings of being a valued member of a productive society in addition to the amount of income derived from work create a positive influence upon the worker's attitude toward life in general. The personal satisfaction derived from the work also provides a reward. The amount of income earned relative to perceptions of economic worth determine the extent to which a worker would evaluate rewards.

Family demands are not mutually exclusive from role orientation. How much energy and time the worker must devote to family members during planned working hours can affect her ability to generation income and her attitude toward both her labor activities and her family. An underlying component of family demands, then, is stage in the family life cycle. Therefore, the cohesion and adaptability of the family becomes a factor. Are other family members flexible enough to adapt to changing demands in the worker's income generation activities? Do the family members feel they are part of the "enterprise" whether they actually partake in income generating activities or not. Worker family characteristics can be represented as follows:

$$(2) \quad WFC = f (RO, R, FD, CA)$$

where the influence of the the individual worker and family characteristics on the quality of life (WFC) is a function of the worker's role orientation (RO), the rewards for the worker (R), the family demands on the worker (FD), and the family's level of cohesion and ability to adapt (CA).

TABLE 2: Variables associated with worker/family characteristics

| Variable | Measurable Characteristic |
|-------------------------|---|
| Role Orientation | Work versus family emphasis Decision to choose homebased work: family versus other reasons |
| Rewards | Perception of own value as worker Satisfaction with work Satisfaction with family life |
| Family Demands | Hours/day devoted to family care versus income generating activity Age and number of children Health of family members |
| Cohesion & Adaptability | Family members score on cohesion and adaptability measure |

The influence of worker/family characteristics can be summarized by the following propositions:

- P5:** When the family is subordinate to the work, the satisfactions of the total family unit are likely to be lower.
- P6:** When the work is subordinate to the family, the satisfactions of the family unit are likely to be higher.

- P7: When the worker's preferred balance between work and family is disturbed, the work is likely to be less satisfied overall.
- P8: When there is balance in the role orientation, satisfactions are likely to be maximized and a higher quality of life experienced for the worker and the total family unit.
- P9: When the demands of family members are predictable or mesh with the work performed, the worker and her family are likely to experience greater satisfactions.
- P10: When family members are able to adapt to changing conditions of the worker's income generating activities, the total family unit will experience higher levels of satisfaction
- P11: When family members feel that their support is important to the worker and her success at income generation, there will be a greater level of satisfaction.
- P12: The worker's perception of adequacy of rewards for the homebased occupation will be positively associated with satisfaction from the work activity.
- P13: The worker/family characteristics will affect the worker's perceptions of the nature of the work and the work environment.

NATURE OF THE WORK

As demonstrated by the schema above, there is a wide diversity in the in the types of work undertaken in the home. While some occupations are stimulating and creative, others are routine and repetitive. The manner in which homebased work affects family quality of life and satisfaction is hypothesized to be moderated by the nature of the homebased work. The nature of the work is composed of those attributes or characteristics associated with a given occupation that are essential to the production or distribution of the good or service. These include the type of employment, location, skill level, and absorptiveness (Table 3). The influence of these variables on the total satisfaction and quality of life may be summarized by the following propositions:

- P14: When elements of the nature of the work constrain family interaction, satisfaction and perceived quality of life are expected to be lower.
- P15: When the elements of the nature of the work foster family interaction and generate support and aid of family members, total family satisfaction and perceived quality of life will be enhanced.
- P16: The influence of the elements of the nature of the work will interact with the type of work and be moderated by factors associated with the work environment.

Skill level is self explanatory and its sole

influence on family satisfaction is minimal; employment, location, and absorptiveness, however, are more complex and require clarification beyond that found in Table 3.

Employment is a dichotomous variable which indicates whether an individual is an employee of a formal organization or is self-employed; it specifies the source of income. An employed person generates income by completing work received while the self-employed, in addition, is required to develop a market or client group for the goods or services produced. A self-employed person has control over the conditions of output and would be expected to enjoy the satisfactions resulting from this control, but this individual may alternatively experience more stress as a result of entrepreneurial requirements. Conversely the stress on the employed worker may be derived from the employers expectations for work quotas.

The location of the business based in the home may vary. In some cases the management and the labor will be carried on entirely in one area. In others the management and administration may be done in the home, with the actual contact with clients and/or completion of the work done elsewhere. Where the worker is required to leave the home at inopportune times, the influence would be negative. Conversely if children could accompany the parent to the work site, the resulting propinquious activity would contribute to higher levels of satisfaction.

TABLE 3: Variables associated with nature of the work

| Variable | Measurable Characteristics |
|----------------|---|
| Employment | Self-employed versus employee Production & distribution in the home versus production only in the home Market development versus production only |
| Location | Production & management both done from the home Management in the home, work done or client contact away from home |
| Skill Level | Educational requirements Experience requirements Talent/expertise requirements |
| Absorptiveness | Level of concentration required Tolerance for distractions or interruptions while working Level of family involvement/commitment to thehomebased enterprise |

Absorptiveness may be a factor associated with a very high demanding skill level. Kanter (1975) elaborated on the concept of absorptiveness:

.....occupational pursuits that not only demand the maximum commitment of the work and define the context for family life, but also implicate other family members and command their direct participation in the work system in either its formal or informal aspects (Kanter, p.172).

Work that requires uninterrupted concentration would be said to be highly absorptive. Others in the workspace would be prohibited from distracting or interrupting the worker. Thus, highly absorptive occupations would be associated with lower levels of interpenetration between work and family and thereby constrain interaction.

To summarize, the nature of the work may be described as:

$$(3) \quad W_n = f(E, L, S, A)$$

where the influence of the nature of homebased work on the family (W_n) is a function of the type of employment (E), amount of total work done in the home (L), worker's skills (S), and the absorptiveness of the task (A).

THE HOME/WORK ENVIRONMENT

A woman's decision to work at home modifies the home environment and pattern of living for all family members. It is hypothesized that factors within the home/work environment will influence family life. Where the work is performed, and how much time the woman must allocate to generate the required/desired income will necessarily pervade the home and family's quality of life (Table 4).

TABLE 4: Variables associated with the work environment

| Variable | Measurable Characteristics |
|-----------|---|
| Time | Amount of time worked (minutes/hours) Patterns of work time (scheduling & sequencing of work) Seasonable variations or adjustments Flexibility of work patterns Lifecycle variations in work patterns |
| Space | Separate or integrated with family activities Barriers to family interruptions |
| Economics | Actual income generated Perceived necessity of income generated Proportion of total family income |

The work environment components are time, space, and economics. The influence of these variables on total satisfactions and family's quality of life may be summarized by the following propositions:

P17: The environmental constraints imposed on the worker as well as family members will be related to the total satisfaction and quality of life experienced by the family unit.

P18: The elements of the work environment will interact with the type of work, the nature of the work, and worker/family characteristics to moderate satisfaction and quality of life of the family unit.

Work time as a variable has many facets. The homebased worker has more control over the scheduling of her work time, including the number of hours worked, than does the traditional on-site

worker. A homebased worker may arrange the time of work to be compatible with routines of other family members. With some types of occupations, however, scheduling flexibility may be restricted by client demands. Seasonal adjustments in time allocated to homebased work may be a result of conscious control, occupational necessity (e.g., construction), and/or a desire for flexibility. The sequencing, time and scheduling of household and family activities may be organized around homebased work. The choice of homebased work may reflect a commitment or priority by the worker to meeting the needs of the family, especially when family demands are high, such as when young children are present. The degree to which these aspects of time contribute to the homebased worker's control over her environment will moderate satisfaction with the work and family situation and will influence the family's quality of life.

Therefore, the complex variable of time (T) itself is a function of the amount of time the homebased worker labors during a given period (t_a), the scheduling of the work (t_c), seasonal work variations (T_{se}), and the flexibility of the work time (t_f).

$$(4) \quad T = f(t_a, t_{sc}, t_{se}, t_f)$$

The dimension of space relates to using in the home for work activities. The allocation of space in the home specifically for work may reflect a separation of the spheres of work and family while the dual use of space may be indicative of high level of interpenetration between the two. The workspace may be a segment of a room, a separate room, a portion of the dwelling unit with its own entrance, or another building on the premises. Where the workspace is situated will determine to some extent the accessibility of the worker to other family members. Space that is in close proximity to other household activities may require either restricted access or barriers. The type of workspace required varies with the type of work and nature of the work, particularly its absorptiveness. Where little concentration is required, a segment of a room may be sufficient. Conversely, if the occupation is highly absorptive, it is essential that the workspace minimize interruptions by family members.

Economics refers to the financial gain from working in the home. The actual income generated and the proportion of total household income contributed by the homebased worker are part of this factor. The commitment to income generation, and therefore the actual amount generated, could be effected by the amount of time and energy the worker allocates to meet needs of family members. Furthermore, the worker's perception of the necessity of her income-generating efforts to the family's economic well being could also affect the effort put into labor. The apparent low economic compensation received by homebased workers has been one of the major sources of dissatisfaction with this work situation. Also affecting the economic rewards of at-home income generation is the amount of capital outlay required. Some homebased occupations require major investments in equipment, inventory, training, and possible