

TABLE 1. Family Impacts From Social Policies

Age Groups	Subsidized Housing		Food Stamps		Elderly Housing Projects	
	Weaken	Strengthen	Weaken	Strengthen	Weaken	Strengthen
Under 60 (N=270)	28.1	71.9	30.2	68.9	49.8	50.2
60 and over (N=153)	26.1	73.9	43.5	56.5	61.5	38.5
	X ² n.s.		X ² significant ^{a)}		X ² significant	
<u>Elderly by Social Area Contexts</u>						
Neighborhood A (N=36)	47.6	52.4	75	25	58.9	41.2
Neighborhood C (N=55)	15.4	84.6	40	60	55.2	44.7
Neighborhood D (N=62)	14.3	85.7	19.4	80.6	90.0	9.1
	X ² significant		X ² significant		X ² significant	

a) Significance accepted at the .01 level or lower on the Chi Square.

themselves more than they differ from those who are younger. It would seem, even from this rather simple test, that social context areas tend to affect whether or not certain social programs are acceptable to the target population, as significant attitudinal differences exist.

Table 2 presents data regarding feelings of efficacy. Certainly the presence or absence of efficacy among the target population should affect the choice and determine the effectiveness of program delivery methods. Delivery methods can be quite diverse, but usually they fall into one of three categories. First, the service can be delivered to the client's home, or to a central place accessible to the clients. For the most part, the client is a passive recipient and can benefit from the service with very little active participation required. Second, a service delivery method can be designed which requires active cooperation from the client. In these cases, the provider and recipient act as equal team members in distributing the service. Third, self-help programs can be designed in which the initiative for both the production and distribution of benefits lies essentially with the clientele group. In these cases, the "professionals" may smooth the way for the beneficiaries, but it is the latter who are most responsible for the on-going operations and eventual success of the program. Certainly, for a self-help program to be successful, the target population should be efficacious; that is, they should at least believe that they have the ability to accomplish those things they wish to accomplish.

It would not be far-fetched to hypothesize that efficaciousness varies with certain socio-economic characteristics. Both the elderly and non-elderly in the Wilmington sample were asked if they felt that they could accomplish things they wanted, if they felt trapped by circumstances of their own making, and if they felt trapped by circumstances beyond their own control (see Table 2).

With the exception of feelings of accomplishment, there is no statistically significant difference in efficaciousness between those who are younger and those who are older. The expected power of age to explain differences in feelings of efficacy is not supported to any great degree. Both groups feel more trapped by circumstances over which they have no control, although the elderly are a little more willing to assume responsibility for their situation. Perhaps, however, they are simply more resigned since they feel less capable than the non-elderly of accomplishing certain goals.

When the elderly are placed within social area contexts, however, there are very definite statistically significant differences on all efficacy variables. Of particular interest is the response to the questions, "Do you feel trapped by circumstances of your own making?" Note that no one in Neighborhoods A and D responds affirmatively. The reason for that response may be quite different, however, if one examines the responses to the other two questions. Few people in A feel trapped at all, while almost 70% in D feel trapped, but by circumstances thought to be beyond their own control. Thus, it can be concluded that age, alone, is not a very reliable estimator of efficacy. An awareness of social area contexts would seem to make a positive difference in planning service delivery systems as significant efficacy differences within an aged group do exist.

Table 3 presents responses to questions regarding energy policies. More than that, the sample reveals their attitudes toward institutions that often find themselves in the role of program deliverers. Residents were asked whether or not they were aware of a government program to help those in need pay their home heating bills, and whether they trusted the federal government, utility companies, and/or people themselves to develop programs and policies which constructively deal with energy-related problems (see Table 3).

TABLE 2. Feelings of Efficacy

Age Groups	Can Accomplish Things?	Trapped by Circumstances of Own Making?	Trapped by Circumstances Beyond Own Control?
	No	No	No
Under 60	10.2	68.2	43.8
60 and over	18.8	74.5	47.6
	χ^2 significant a)	χ^2 n.s.	χ^2 n.s.
Elderly by Social Area Contexts			
Neighborhood A	0	100	86.4
Neighborhood C	11.6	76.7	61.9
Neighborhood D	31.6	100	31.4
	χ^2 significant	χ^2 significant	χ^2 significant

a) Significance accepted at the .01 level or lower on the Chi Square.

Again, with the exception of trust in utilities, those who were under 60 and those who were over 60 held remarkably similar views. Both tended to trust utility companies the least, (although the elderly were somewhat more willing to believe that utilities might be able to help) and had most faith in the power of people, themselves. The elderly, who probably need more help in meeting home heating costs, were also slightly more (but not statistically significantly) more aware of programs designed to give aid in that area.

Does social area context recognition seem to make a difference? The elderly, again, showed significantly different views on three out of the four variables. The elderly in Neighborhood A, who seem to feel the most efficacious, trust people the most, are at least twice as distrustful of the federal government as the elderly in the other neighborhoods, and are least aware of the government aid program. The elderly in Neighborhood D, who feel the least efficacious, place the most faith in the federal government and also are the most aware, by far, of the financial assistance program. Again, we find that there are far more differences in attitudes among the elderly themselves, than between the older and the younger.

Implications of the Data

A limited statistical test has now been made of the question of whether targeting programs by social area contexts may be more effective than targeting by some general characteristic, such as age. The results indicate that recognition of social area contexts, or neighborhoods, would help improve program performance. Out of the ten factors which could influence program design and effectiveness shown on Tables 2 through 3, the social area contexts of the elderly reflect statistically significant different attitudinal orientations in nine cases. Age, alone, was a

significant factor in only four cases. Programming for age, then, may be important, but it is not sufficient. The aged could probably be helped even more effectively by programs and policies designed for that purpose if their social area contexts, or neighborhoods, were taken into account.

To do this, policy and program designers must understand more than the "average" conditions of the "average" life of a particular group. They must also try and understand the particular social contexts which impact upon a person's life. For example, the data would indicate the following about the elderly in Wilmington: With the exception of elderly housing projects, they are very favorably disposed toward social aid programs; self-help programs are likely to be successful as 81% feel very efficacious; and local people should sponsor the programs as they are viewed as the most trustworthy. Programs designed along these lines, however, for delivery to the elderly in Wilmington would likely be very effective only for those elderly residing in certain areas such as Neighborhood A. There is a real possibility that they would either have neutral or negative impacts for the elderly in other parts of the city.

In order to predict the true effectiveness of a program, the social area contexts should be investigated. For example, acceptance of the Food Stamp program varies greatly in Wilmington, with the residents of Neighborhood A very much opposed. Why? Are there services operating either formally or informally in that neighborhood that lessen the need for food stamps? Are the attitudes of the merchants so disagreeable that this group feels there is a stigma attached? Although the elderly in Wilmington generally feel that housing projects are not a very desirable alternative, Neighborhood D is very much opposed. Why? Do they find strong supports existing in that neighborhood that make them feel they would be

TABLE 3. Energy Policy Responses

	Aware of Govt. Policies to help with heating bills	Can Trust Govt. to Come Up With Policies	Can Trust Utilities To Come Up With Policies	Can Trust People to Come Up With Policies
<u>Age Groups</u>	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>
Under 60	81.5	46.1	66.6	29.3
60 and over	74	45.7	56.4	33.7
	X ² n.s.	X ² n.s.	X ² significant ^a	X ² n.s.
<u>Elderly by Social Area Contexts</u>				
Neighborhood A	57.1	63.6	81.8	22.7
Neighborhood C	23.8	30.0	23.8	32.5
Neighborhood D	2.8	36.0	100.0	40.0
	X ² significant	X ² significant	X ² significant	X ² n.s.

a) Significance accepted at the .01 level or lower on the Chi Square.

worse off in a "segregated" housing unit? Are there similar types of housing for other people in that neighborhood that are very depressing or unacceptable for some other reason?

Significant differences in neighborhoods could lead us to some preliminary conclusions regarding successful program delivery methods. Neighborhood A is the most likely candidate for self-help programs requiring initiative. Why? Has this area been involved in other successful projects? Do they feel well-connected into the political and financial infrastructure? Neighborhood D is most likely to depend upon delivered, packaged services. Why? What things can be done in-area to help reduce their sense of powerlessness? Should social service programs have this as a secondary (or even primary) goal?

To whom do the elderly look for help? Neighborhood D trusts the federal government the most of the three. Neighborhood A feels that the responsibility for solving problems lies mostly with themselves. Neighborhood C is fairly indifferent. The source of the program will have an effect upon how likely it is to be accepted by the elderly in different sections of the city. Programs originating from a "distrusted" source may have to do a lot more public relations, publicity, or formation of coalitions in certain areas of the city than in others.

Certainly, learning about neighborhood conditions and tailoring programs to fit is far more difficult than simply designing one program for identical delivery to all persons of a particular characteristic. However, neighborhood sensitivity should enable both policy-makers and service deliverers to increase the cost-effectiveness of their programs, as there is a greater probability that the programs will have real, positive impacts

upon the clientele, as opposed to neutral or negative effects which result, in essence, in wasted resources. In times of reduced funding for all social programs, this recommendation becomes even more important as there are less resources to serve even more elderly. If the real goal of elderly-oriented care and services is to make life better for the elderly, it is important to realize that services designed and delivered for them as a group are likely to be less successful than those which take the social context of their lives into account.

REFERENCES

1. Andreasen, Alan. The Disadvantaged Consumer. New York: The Free Press, 1975.
2. Burton, John and Hennon, Charles. "Consumer Concerns of Senior Citizen Center Participants." Journal of Consumer Affairs, Winter, 1980.
3. Mason, Barry and Bearden, William. "A Comparative Analysis of Elderly Perceptions of Selected Business Practices." American Council on Consumer Interests Conference Proceedings, April 21-24, 1982.
4. Miller, Nancy. "Consumer Attitudes of the Elderly: Implications for Consumer Education." American Council on Consumer Interests Conference Proceedings, April 21-24, 1982.
5. Stein, Karen, Wang, Young Doo, and Tannian, Francis. "Towards an Analytical Base for Consumer Policies-Programs." American Council on Consumer Interests Conference Proceedings. Columbia, Mo: American Council on Consumer Interests, 1982.

6. Stein, Karen. "Explaining Ghetto Consumer Behavior: Hypotheses from Urban Sociology." Journal of Consumer Affairs, Summer, 1980.
7. Waddell, F. "Consumer Research and Programs for the Elderly - The Forgotten Dimension." Journal of Consumer Affairs, Winter, 1975.
8. Waddell, Fred (editor). The Elderly Consumer, Columbia, Maryland: The Human Ecology Center, 1976.

USING HOME EQUITY:
DOES THE LIFE CYCLE MODEL WORK?

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ABSTRACT

Life cycle theories of consumption predict households use home equity as any other asset. However, illiquidity restricts use of equity resources. Based on 1977 data, only 5 percent of homeowners used home equity to obtain resources. Borrowers and non-borrowers differ in life-cycle and income related variables, but not in liquidity.

INTRODUCTION

Homeownership and increasing home equity have become significant goals for American households, with the home, and increasing home equity important vehicles for accumulating assets. The rapid appreciation of house value during the 1970's served to remind many of the significance of their accumulated interest in the home value.

Today, there is increased awareness that home equity is an asset, available for use by households. Dennis Hess, of Merrill Lynch's real estate subsidiary estimated recently that nearly \$3 trillion was tied up in home equity [3]. In response to the growing awareness of available home equity and in part due to recent declines in interest rates and changes in regulations, new opportunities are being introduced to allow homeowners to more easily tap this home equity: Merrill Lynch has Equity Access; Citibank, Equity Source Account; and Crocker, National Equity Line. Each provides revolving credit, usually for a fee plus interest, for loans secured by the home equity. This modified second mortgage arrangement has become known as "home equity" loans. In many cases, only recent changes in state legislation have made these arrangements possible. In addition, in the fall of 1982, changes to truth-in-lending regulations altered the required three day cooling off period for borrowers from applying to each time the credit line was tapped, to only applying to the initial credit line agreement [16].

For economists, however, the use of home equity is not a new phenomenon. Life cycle theories of consumption behavior are based on the assumption that households are able and willing to exchange resources among time periods [14]. The home, for most households, represents a major source of accumulated savings.

There has been a growing awareness among economists, though, that the illiquidity of some assets poses special problems for their use as a resource available to the household [2,11,15,17,18]. In addition, recent evidence shows that the elderly do not dissave as predicted by theory, or use accumulated home equity [5,13,15,19]. This paper analyzes the use of home equity in the life cycle framework and examines recent evidence on

households' willingness to use home equity as a source for obtaining current resources.

METHODS

Model

Consumption theories since Fisher have taken account of the household's ability to move income and assets from one period to another. Through the mechanisms of saving and dissaving, households meet current consumption plans. Recently, "life cycle" theories of consumption have dominated much of research on the intertemporal resource allocation within the household [14]. In general, the life cycle theory posits a household to take a multiperiod view of consumption and resources decisions. Consumption profiles are smoothed by the ability to use earnings from the high earning years to fund consumption during low earning years, both at the beginning of the earnings profile and in retirement. Indeed, debt need not make the household feel worse off [9].

The two-period model illustrates the consumer's opportunities as if the lifetime were only two periods. Consider the consumer's utility to be a function of consumption in the current period, q_1 , and future period, q_2 . Let r_t be the market interest rate for period t , $t=1,2$. Defining discount factors equal to ρ_t , (i.e., the rate of exchange between the two periods), then $\rho_1=1$ and $\rho_2 = \frac{1}{1+r_2}$. When labor supply is given and y_t equal to income earned in period t , wealth at the end of period 1 is:

$$W_1 = (1+r_1)A_0 + y_1 + \rho_2 y_2$$

with A_0 equal to initial assets. That is, the household can include the value of assets plus earned interest, $(1+r_1)A_0$, current earnings, y_1 , and the discounted value of future income, $\rho_2 y_2$, in current wealth, W_1 . An increase to A_0 , y_1 , or y_2 gives increased wealth.

We can make the simplifying assumption that the consumer chooses to consume a share, α , of wealth in period 1, and the rest, $(1-\alpha)$ in period 2.² That is, where $p_1 q_1$ are total expenditures in period 1,

$$\alpha W_1 = p_1 q_1 \tag{2}$$

If $\alpha W_1 > y_1 + (1+r_1)A_0$, i.e. desired consumption in period 1 is greater than assets and earned income in period 1, then borrowing will be required. On the other hand, if $(1-\alpha)W_1 > (1+r_2)A_1 + \rho_2 y_2$, i.e., desired consumption in period 2 is greater than

²This is based on the assumption of a simple Cobb Douglas utility function, specified as $U = q_1^\alpha q_2^{1-\alpha}$

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assets and income earned in period 2, then savings from period 1 must be used to fund consumption in period 2.

Several authors have questioned the assumption of the ability of the household to meet its optimal consumption plan. The criticism has taken several tacks. Many question the ability of households to use all assets equally in determining wealth, instead suggesting that assets are differently liquid and the household's access to assets depends on the liquidity of its portfolio [2,15,17, 18]. The illiquid assets, less able to be converted into current resources, do not contribute to the household's current consumption in a manner equal to that of more liquid assets. In terms of the model above, all or part of $(1+r_1)A_0$ may not be available to the household for consumption in period 1. Increases in illiquid assets, then, may not affect current consumption plans.

Following Deaton and Muellbauer, the liquidity constraint can be viewed as a constraint on drawing down wealth below a minimum value \bar{A}_1 . At the end of period 1,

$$A_1 \geq \bar{A}_1.$$

or

$$(1+r_1)A_0 + y_1 - p_1q_1 \geq \bar{A}_1 \quad (3)$$

Rearranging terms:

$$p_1q_1 \leq y_1 + (1+r_1)A_0 - \bar{A}_1 \quad (4)$$

That is, the household cannot consume more than current income plus the value of unrestricted assets in period 1.

A two period indifference map shows the consumer choice, as in Figure 1. The kink and vertical segment to the budget constraint represent the constrained q_1 , which is $(y_1 + (1+r_1)A_0 - \bar{A}_1)/p_1$.

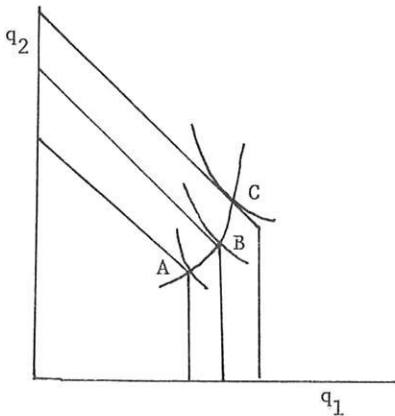


FIGURE 1. Consumer Tradeoffs with a Resource Liquidity Constraint

At both point A and B, the constraint \bar{A}_1 limits consumption in period 1. At point A, a corner

solution, the household is forced to consume less than preferred in period 1. At C, the household is unconstrained. If borrowing from period 2 were possible, the vertical segment of the budget line would have a slope equal to -1 divided by the borrowing rate.

Evaluating the consumption plan under the constraint, borrowing would be required if:

$$\alpha_1 W_1 > y_1 + (1+r_1)A_0 - \bar{A}_1 \quad (5)$$

That is, desired consumption in period 1 would be greater than current income plus the value of unrestricted, or "liquid" assets. Substituting from Eq. 1 into Eq. 5, with the constraint, we find the condition for the constraint to be binding where:

$$\rho_2 y_2 > \frac{(1-\alpha)}{\alpha} [y_1 + (1+r_1)A_0 - \bar{A}_1] \quad (6)$$

When the constraint is binding, consumption in period 1 is restricted because of the illiquid nature of some of the household assets and an inability (or restricted ability) to transfer consumption from period 2 to period 1.

Using equation 6 as a guide, this two period model shows that when liquidity of assets is taken into account in the life cycle model, liquidity of assets should affect consumption. In general the life cycle model, taking into account liquidity, predicts that:

- Liquidity effects may be age dependent. The greater household consumption needs (α), the more likely current consumption is constrained.
- Higher expected income affects lifetime consumption. The higher expected income relative to current income, i.e., y_2 to y_1 , the more likely current income is constrained.
- The composition of assets affects lifetime consumption. The higher the illiquid portion of assets, i.e., the lower $(1+r_1)A_0 - \bar{A}_1$, the more likely current consumption is constrained.

It is hypothesized that those households facing a constraint on current consumption are more likely than others to reevaluate the existing liquidity of their housing asset and borrow against home equity. This is especially true when borrowing against future income is restricted, somewhat less true when borrowing against future income is available but at higher rates.

The second major challenge to the life cycle theory of saving and consumption comes with increased evidence on the consumption and savings behavior of the elderly [5,12,13]. In contrast to the predictions of the life cycle models which suggest that those who are retired will begin to draw upon accumulated savings in order to fund current consumption, evidence from several studies shows the elderly funding current consumption out of current income. While some do

draw down assets during this period, most, either by reducing consumption or relying on current income, do not dissave.

Both the illiquid nature of assets and the reluctance of elderly to draw upon assets are not independent, however. While the elderly do hold liquid assets, the home represents a major form of asset for homeowners 65 and over, and growing in importance for all elderly [8]. Because of home equity's illiquid nature, the elderly, independent of other motivations like bequest would be constrained from using it.

EVIDENCE ON WILLINGNESS TO USE HOME EQUITY

Faced with a changing institutional framework in financial markets and growing awareness that savings and dissaving over the life cycle is not as well-balanced as initially proposed, we would like some evidence on how households use assets. The estimation of a consumption function, when data are available to incorporate assets into the measure of permanent income or present value of lifetime wealth, allows estimation of the marginal propensity to consume from assets [1]. This study, however, focuses on examining the household behavior of using home equity to obtain current resources, i.e., obtaining resources secured by equity.

Traditionally, homeowners have liquidated all or some of their home equity via the sale of the home, the refinancing of the original mortgage, or obtaining a second (or junior) mortgage. The latter two options enable the household to take advantage of the accumulated equity savings without losing the consumption benefits associated with home ownership. However, households have been reluctant to use these options due, seemingly, to both psychic and monetary costs associated with the exchange.

In this and in a related study [4], a sample was drawn from the 1977 Consumer Finance Survey to identify factors associated with a household's willingness to use the asset tied up in home equity to fund current consumption. This nationwide survey of 2563 households was conducted under the auspices of the Federal Reserve Board to collect data focused on consumers' use and understanding of credit. For the purposes of this analysis, all households who owned their homes were selected for analysis. In sum, 1761 homeowners were selected. Fifty-nine percent held a first mortgage, while 41 percent owned their homes free and clear of any mortgage debt. The study period was defined as behavior over the 1976-77 period.

Users of home equity were categorized as homeowners who fulfilled at least one of the following conditions during the 1976-1977 study period:

- (1) the home was used as security for a consumer loan
- (2) the cost of an addition or repair expense was amortized with the first or second mortgage

(3) a second mortgage was taken out

(4) the original mortgage was refinanced.

These criteria represent a wide range of options for taking advantage of home equity. In the majority of cases the equity provided the basis for consumption expenditures. They do not all involve an immediate liquidation of home equity but they all do represent a means to increase a homeowner's purchasing power without releasing occupancy. Among users of home equity, 51 percent used their home as security for a consumer loan, 22 percent amortized the cost of an addition or repair through a first or second mortgage, and 44 percent took out a second mortgage. Households could be in more than one category. There were no homeowners in the sample who refinanced their mortgage during the study period (due probably to the high interest rate which characterized the period). In sum, there were 77 users of home equity.

From equation 6 we hypothesized that those facing a constraint on current consumption and hence wanting to use home equity to secure a loan include:

- a) those with higher current needs (larger household size, new owners)
- b) those with higher expected future income (younger households) and
- c) those with a smaller share of total assets which are liquid.

Table 1 shows the characteristics of borrowers and non-borrowers against home equity. The mean value of variables related to sociodemographic characteristics are shown for all homeowners, as well as those who are borrowers and those non-borrowers against home equity.

Table 1: Borrowing Against Home Equity: Descriptors of Borrowers and Non-Borrowers

Socioeconomic Characteristics	All Households (std. error)	Borrowers (Std. error)	Non-Borrowers (std. error)
Age of Household Head	50.1 (.38)	43.1 (1.45)	50.5 (.40)
Joint Life Expectancy	34.0 (.33)	40.1 (1.26)	33.6 (.35)
Household Size	3.0 (.04)	3.7 (.21)	3.0 (.04)
Years Lived in the Unit	13.8 (.36)	9.2 (1.15)	14.1 (.38)
Family Income	\$18,660 (326)	\$18,778 (1349)	\$18,665 (342)
Total Assets	\$48,512 (1646)	\$25,875 (4517)	\$50,076 (1745)
Liquid to Total Assets Ratio	.27 (.008)	.29 (.004)	.27 (.008)
Net Worth	\$36,621 (1,579)	\$15,584 (4,733)	\$37,515 (1,673)
Home Equity	\$32,388 (943)	\$25,150 (4688)	\$32,958 (985)
Sample Size ^a	1706	77	1629

^a The sample size was 1706 except for Home Equity (n=1411) where missing values reduced the number of valid observations.

As predicted by the constrained life-cycle model, younger households, those with greater combined life expectancy, and those greater current needs (as measured by household size and length of ownership) were more likely to be borrowers. Life expectancy is measured for individuals equal to the expected life; for married couples, equal to the shorter of the two individual's plus two-thirds of the difference [13]. These differences were all significant at the .01 level when using a t-test.

Borrowers had less equity in their homes--though that would be expected with younger, newer homeowners.

The income/wealth variables show a pattern of borrowers having fewer assets, and less net worth than other households. However, most importantly, there is no significant difference between borrowers and non-borrowers in the share of total assets which is liquid. In addition, differences are insignificant, taking into account age and liquidity interaction. Borrowers have fewer assets, but there is no evidence to support their being more likely to borrow due to a large share of illiquid assets. These results were supported by later analysis using logit analysis with the same data [4].

The distributions of sociodemographic (i.e., life cycle) and income characteristics in Table 2 show the same pattern as above. Age, marital status, and retirement show significantly different distributions between borrowers and non-borrowers: borrowers against home equity are younger, more likely to be single, and less likely to be retired. There are significant differences in the distribution of income and assets as well, but not in the liquidity to total asset ratio.

CONCLUSIONS AND POLICY IMPLICATIONS

There has been little research on the use of home equity, separate from other assets, as a source of current resources. The evidence on the use of home equity as an asset provides an interesting insight into the use of these resources.

Less than 5 percent of the sample were users of home equity to fund current consumption during the study period. Hence, in 1976-77, home equity was not a major source of current funds. Yet within the sample of those who did convert equity into current resources, borrowing against home equity is consistent with the predictions of the life cycle model. Borrowers are younger, having higher expected future income. However, borrowers did not differ significantly from non-borrowers in liquidity related composition of assets. This is not consistent with the predictions of life cycle models which incorporate liquidity constraints. It may be that liquidity effects are not important determinants of using assets and do not, by themselves, affect the use of assets tied up in home equity.

Why might this be the case? As with many studies of financial behavior, income and assets are no

Table 2: Borrowing Against Home Equity:
Distribution of Borrowers and Non-Borrowers

Variables	Total	Borrowers	Non-Borrowers
		- - - percent - - -	
Sociodemographic Characteristics			
Age: $\chi^2 = 21.11^{***}$			
Less than 30	11.5	22.1	10.9
30-44 years	27.8	31.2	27.7
45-64 years	39.2	42.9	39.1
65 and above	21.2	3.9	22.0
Not reported	.2	0	.2
Marital Status: $\chi^2 = 7.83^*$			
Single	22.0	10.4	22.3
Couple	78.0	89.6	77.7
Retirement: $\chi^2 = 8.26^*$			
Retired	18.7	6.5	19.2
Not Retired	81.2	93.5	80.7
Income and House Characteristics			
Family Income: $\chi^2 = 15.60^*$			
Less than \$5,000	8.6	5.2	8.7
\$5,000-9,999	13.7	10.4	13.8
\$10,000-14,999	17.4	29.9	16.9
\$15,000-24,999	26.9	22.1	26.9
\$25,000 and above	19.6	26.0	19.5
Not Reported	13.7	6.3	14.2
Total Assets: $\chi^2 = 12.17^{**}$			
Less than \$5,000	18.8	27.3	18.1
\$5,000-9,999	3.8	6.5	5.8
\$10,000-24,999	20.0	24.7	19.6
\$25,000 and above	55.4	41.6	56.5
Current House Value: $\chi^2 = 6.95$			
Less than \$25,000	23.1	24.7	22.5
\$25,000-49,999	40.8	44.2	40.9
\$50,000-74,999	16.8	15.6	16.9
\$75,000 and above	19.4	15.6	19.6
Liquidity to Total Asset Ratio: $\chi^2 = 12.14$			
0 or less	18.2	15.6	18.3
.01-.10	27.5	33.8	27.1
.11-.50	32.4	31.2	32.7
.51-.75	8.9	5.9	9.3
.76-.99	2.6	1.5	2.6
1.00	10.4	14.3	9.9

* Significant at the 10 percent level
 ** Significant at the 5 percent level
 *** Significant at the 1 percent level

doubt reported with error. Underreporting of liquid assets relative to illiquid assets, or underreporting in general, may lead to insignificance. Alternatively, home equity may be related to important determining attitude effects and the liquidity effects, per se, are insignificant. Also, the sale of the home to liquidate assets was not reported in the data. This may be important for some households, particularly those much older. Borrowers against home equity do appear to be similar to other borrowers.

Even in 1976 and 1977 there was a willingness among young, single, and new homeowners to borrow against home equity. This group would include those most ready to use the new "home equity" loans today. On the other hand, the data show little willingness on the part of older homeowners to use home equity to obtain resources for current consumption. Hence, older consumers would be reluctant to use home equity access opportunities. These findings are consistent with earlier studies showing a lack of dissaving among the elderly [e.g., 5]. These findings would suggest that research involving asset-related variables should pay particular attention to controlling for life cycle effects. Even willingness to use home equity appears to be much more related to life cycle effects than portfolio composition.

REFERENCES

1. Ando, A., and F. Modigliani, "The 'Life-cycle' Hypothesis of Saving: Aggregate Implications and Tests," American Economic Review, 53, March 1963, pp. 55-84.
2. Artle and P. Varaiya, "Life Cycle Consumption and Ownership," Journal of Economic Theory, 18, June 1978, pp. 38-58.
3. Banford, Janet, "A Piece of the Roof," Forbes, September 26, 1983.
4. Chen, Alexander and Helen H. Jensen, "Home Equity Use and the Life Cycle Hypothesis," unpublished manuscript.
5. Danziger, Sheldon, et. al., "The Life Cycle Hypothesis and the Consumption Behavior of the Elderly," Journal of Post Keynesian Economics, 5:2, Winter 1982-83, pp. 208-27.
6. Deaton, Angus and John Muellbauer, Economics and Behavior, Cambridge: Cambridge University Press, 1980.
7. Fisher, Irving, The Theory of Interest, New York, Macmillan Co., 1930.
8. Friedman, Joseph and Jane Sjogren, "Assets of the Elderly as They Retire," Social Security Bulletin, 44:1, January 1981, pp. 16-31.
9. Kinsey, Jean and Sylvia Lane, "The Effect of Debt on the Perceived Household Welfare," Journal of Consumer Affairs, 12:1, Summer 1978, pp. 48-62.
10. Kotlikoff, L., "Testing the Theory of Social Security and Life Cycle Accumulation," American Economic Review, 69:3, 1979, pp. 396-410.
11. Laumas, G. S. and Rati Ram, "The Role of Wealth in Consumption: An Empirical Investigation," The Review of Economics and Statistics, LXIV, May 1982, pp. 204-210.
12. McConnel, Charles E. and F. Deljavan, "Consumption Patterns of the Retired Household," Journal of Gerontology, Vol. 38:4, 1983, pp. 480-490.
13. Mirer, Thad W., "The Dissaving Behavior of the Retired Aged," Southern Economic Journal, 46:4, April 1980.
14. Modigliani, F. and R. Brumberg, "Utility Analysis and the Consumption Function: An Interpretation of Cross-Section Data," in Kenneth Kurihara, ed., Post-Keynesian Economics, New Brunswick, 1954.
15. Nagatani, K., "Life Cycle Saving: Theory and Fact," American Economic Review, 62, 1972, pp. 344-353.
16. "New Way to Tap the Equity in Your Home," Changing Times, 3, March 1984, pp. 27-30.
17. Pissarides, "Liquidity Considerations in the Theory of Consumption," Quarterly Journal of Economics, 42, 1978, pp. 279-96.
18. Tobin, J., Wealth, Liquidity, and the Propensity to Consume," in Human Behavior in Economic Affairs: Essays in Honor of George Katona, B. Strumpel, J. Morgan, and E. Zahn, (eds.), New York: Elsevier, 1972.
19. Upp, Melinda, "Relative Importance of Various Income Sources of the Aged, 1980," Social Security Bulletin, 46:1, 1983, pp. 3-10.

THE SHIFTING MAKE-UP OF CONSUMERISM

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ABSTRACT

The essential make-up of consumerism is changing, in the author's opinion, because of several significant shifts in our society. The implications for consumerism of seven key political, social, and economic developments are analyzed.

Thinking back about how consumerism evolved in the 1960s and early 1970s reminds me a little of a football rivalry. You had the little "consumerists" on one side -- scratching, clawing, and sometimes scrounging for yardage in the media, legislative, and judicial arenas. They won their share of victories through persistence, clever strategizing, and a strong desire to please their adoring "fans" on the sidelines who were calling for more consumer protection. On the other side you had the "Big Business" team, who employed what might be called a "George Steinbrenner" approach to playing the game. They hired the best legal, lobbying, and PR talent money could buy and let them loose on the field to do their respective things. For a long time, they had trouble playing as a team and incurred some disappointing losses. But as their teamwork improved, and as they were able to cultivate some fan support to inspire them, they were able to pile up some victories.

But gradually over the last decade the football-like nature of the relationship between consumerists and business dissipated. Instead of trying to beat each other's brains out, they learned that cooperation tends, in most (but definitely not all) cases, to create more benefits for both sides. Moreover, the fan appeal of the game clearly declined. Many consumers grew weary of sitting on the "sidelines" rooting for their side to obtain some type of marketplace reform. These consumers decided that they wanted to become "players" themselves and began complaining, filing lawsuits, joining cooperatives, and taking other self-help actions with great frequency. In a sense, consumer protection became more of an individual, participative sport and less of a team, spectator sport.

So today the football model doesn't fit very well as a description of what is happening to consumerism. However, there is another model that is probably equally familiar to most of you that I believe does provide a valid description of the consumer movement. It is the model from my home discipline of marketing known as the "Product Life Cycle." As many of you know, Steve Greyser and I proposed a few years ago [1] that consumerism has gone through such a life cycle and entered a lengthy mature stage that should last for the indefinite future. I would like to take a few moments to review some of our ideas with you and then turn

for the bulk of my talk to some of my new thoughts about how consumerism's life cycle is evolving and shifting at the present time.

CONSUMERISM'S LIFE CYCLE

The basic thesis Steve Greyser and I offered was that the consumer movement has gone through a life cycle not unlike that of a consumer or industrial product, and that the movement now stands and can be expected to remain in a mature stage of this cycle. From an introductory stage, when the Procter and Gamble of consumerism, Ralph Nader, began to stimulate demand for consumerism with the help of a few other charismatic leaders like Betty Furness and Esther Peterson; through a growth stage, when Nader added some raiders and began successfully selling a wide variety of consumerist "products" (like new laws, new forms of representation, and new educational programs) in the emerging consumerism "industry"; into a mature stage, when the movement became more fragmented and diverse and countless numbers of public and private consumer affairs and consumer protection offices came on the scene to serve the public's demand for consumerism -- the movement has followed a life cycle pattern similar to what we have seen with instant coffees, running shoes, or fast-food outlets.

So like other mature, fragmented industries, the consumerism industry now has all different types of organizations selling all different types of products in all different types of ways to different types of customers. A form of competition has evolved among these organizations for money, volunteers, media coverage, and, most importantly, public opinion. Some of the competition, like in any industry, is quite friendly, while some of it is downright hostile. The latter form of competition arises especially when different organizations try to sell differing ideas about remedies for consumer problems. Your liberal consumer organizations want one thing, while your more conservative trade association or industry groups -- who also compete in this industry -- want something else.

How long can industries stay in a mature, fragmented stage? As long as consumer demand remains strong enough, industries can stay in this condition for quite some time before they enter a decline stage of the life cycle. I believe that the demand for consumerism -- or, more precisely, the demand for a better overall deal from the marketplace -- remains and will remain strong in the United States. Public opinion polls I have seen [3] consistently indicate considerable dissatisfaction among consumers with their situation in the marketplace and sustained support for consumer protection initiatives. The American Public has been telling pollsters, at least, that they want

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consumer protection and that they are even willing to pay good tax dollars to get more of it.

But although I believe the underlying demand for consumerism remains strong and steady, I do not mean to suggest that the consumerism industry will remain stagnant and unchanging. Like in any industry, shifts in the tastes and desires of consumers and shifts in the mission, strategies, and make-up of sellers will alter the character of competition that takes place. I would like to now review with you some of the significant shifts I see occurring on both the demand and supply sides of the consumerism industry that could make the industry look very different over the coming years.

DEMAND SIDE SHIFTS

There are an enormous number of shifts and trends in the American population that could impact on consumerism, and I cannot hope to cite all of the most important ones. I will cover four today in my talk and maybe during the discussion some of you can point out others. I have labeled the four demand side shifts I will cover as:

1. The Emergence of the Rich/Poor Consumer
2. More Politicized Blacks and Women
3. Shorter Attention and Interest Time Spans
4. Hungrier Lawyers

I will talk about each shift individually.

The Emergence of the Rich/Poor Consumer

My colleague at Maryland, Lee Preston, and I recently co-authored an article that appeared in last Fall's California Management Review titled "The Concerns of the Rich/Poor Consumer" [5]. In this article we argue that a continuous struggle between the conditions of scarcity and abundance has come to characterize the condition of many American consumers. We believe the people engaged in this struggle -- the Rich/Poor consumers -- have become perhaps the dominant subgroup of American consumers, and that the concerns of these people will determine more than anything else what is demanded from the consumerism industry over the coming years. Who are these people and what exactly are they concerned about? Let me elaborate.

The consumer movement and consumerism industry in this country grew by catering to the needs of the great middle class of American consumers. These people clearly needed and wanted the safer products, increased consumer information, and greater consumer representation made available to them. But today the great middle class is vanishing [7]. Recent research suggests that many of them have either moved up into fancier executive or professional suites or have moved down into lower-paying jobs, most typically in service industries (in places like McDonald's, your local Savings and Loan, or Universities). The former group consists in large part of what the Press have been calling the "YUMPIES" -- Young Upwardly Mobile Professionals -- while the latter group has joined what I might label the "DUMPEES" -- the Downhearted Un-

happy Money-starved People.

The Dumpees truly feel dumped on by our economic system. Even if they are able to stay above the poverty line most of the time, chances are that it is a struggle and that they may dip below it from time to time. This statement is supported by a recent University of Michigan study which found that approximately one out of four Americans lived in poverty at some time during the 1970s [4]. The Dumpees -- along with more than a few over-extended Yuppies who probably shouldn't have gotten a new house, a Porsche with a cellular telephone, a jacuzzi, and a divorce all in the same year -- find themselves locked in a struggle to allocate their incomes to increasingly more expensive necessities. Finding the money to pay the rent or mortgage, the car payment, taxes, the utility bills, the doctor, taxes, the insurance companies, the grocery store, taxes, and so on has become an aggravating experience for huge numbers of people, including, I suspect, many of you.

Yet although many of us feel poor and dumped on a good part of the time, we still must concede that it has become easier to sample "richness" on an occasional basis. Except for those of us in the direst of financial circumstances, we find it relatively easy and inexpensive to do things we never dreamed of being able to do a decade ago. We can:

1. Walk around town listening to great high-fidelity music on our own personal headphone stereo sets.
2. Hop on a bus in any major Northeastern city and for a few dollars enjoy a party-filled trip and an exciting day of entertainment at a glamorous beachfront casino in Atlantic City.
3. Enjoy a private screening in our own homes of a major motion picture.

Thus, many of us are experiencing the raised expectations and high hopes that can come from sampling richness, but find it hard to consistently fulfill those expectations and hopes. The frustration that emerges from this rich/poor situation is something that should keep the demand for certain types of consumerism high. In brief, I see this situation helping to fuel demand for legislation and programs that will help people buy and pay for necessities in a less costly manner. In other words, I think ventures like Ralph Nader's heating oil cooperatives should "sell" well, as should citizen utility boards and health care cost-containment legislation.

Let me stress that I see a consumer movement that caters to the needs of the Rich/Poor consumers as being fundamentally different than the one that catered to the needs of the late, great, massive middle class. The middle class wanted achievement of President Kennedy's four rights (to safety, to be informed, to be heard, and to choose). The Rich/Poor consumers will still want these rights, but will be even more concerned with getting a better deal on necessities.

More Politicized Blacks and Women

All signs from the current primary season indicate that blacks and women are becoming considerably more involved in the political process than ever before [8]. Since blacks and women tend to fit in the rich/poor category in disproportionate numbers, their politicization should reinforce the shift of consumerism toward more emphasis on helping people get a better deal on necessities. Moreover, public opinion polls I have seen suggest that blacks and women have a much more positive attitude toward government consumer protection initiatives than the average citizen [3,6]. So these politicized people should help to increase the demand for consumerism products of all types.

The widely publicized Harris study, Consumerism in the Eighties, provides support for what I am saying. They concluded:

The overall picture of the black consumer ... is one of a group that seems particularly vulnerable to and concerned about consumer protection, that is an ally of those who press for more government regulation but that does not feel quite so well served by the movement as it might be [3, p. 67].

As for women, they concluded:

Women appear to be more sensitive to consumer problems and less satisfied that these problems are being solved, (and) ... think that government should be doing more to protect consumers [3, p. 68].

Thus, I foresee many blacks and women running for office under a consumerism banner. I see these -- and other non-minority, male candidates who want to tap into the same sentiments -- calling for reforms in areas like:

1. Day care and child care assistance.
2. The provision of food subsidies and free food.
3. Health insurance and health education.
4. Social security benefits.
5. Credit provision.
6. The marketing techniques used by American firms to sell products like alcohol, tobacco, junk foods, and drugs in Third World countries.

Shorter Attention and Interest Time Spans

Companies that sell consumer products have long recognized that the life cycles for brands of products -- but not necessarily for entire industries -- have been getting shorter. Intense public attention and interest for new soft drinks, breakfast cereals, perfumes, video games, and dolls passes rather quickly, and the need to fight off a decline stage of the life cycle materializes before one can blink an eye. The life cycles for new television series and politicians also seem to be getting shorter. Thus, if a program like "a.k.a. Pablo" or a candidate like John Glenn can-

not win big from the very start, they have to be scrapped. The same notion holds for new social reform ideas. How long have ideas like the flat-rate income tax or the use of school voucher systems remained high on the agenda of public debate?

I can only speculate about why all this has happened. My inclination is to blame most of it on what many see as the root of all evil in our society -- television. Perhaps we have gotten so used to the TV networks constantly dazzling us with new forms of entertainment and news that we have come to seek newness and novelty in all aspects of our lives -- whether it be in terms of new purchases, new heroes, new ideas, or new marital partners. But I suspect there is plenty of blame to go around elsewhere. For example, I believe credit cards have not helped this situation very much. They allow us to obtain instant "newness" and avoid spending long periods of time thinking about and saving for things that might make our lives better.

Regardless of who or what is to blame for the shorter attention and interest spans of the American public, it is a phenomenon that will, in my opinion, influence the future of consumerism in a major way. Consumer groups, consumer protection agencies, corporate consumer affairs offices, and others competing in the consumerism industry will have to develop new "products" that capture the imagination of numerous people quickly. Slow build-ups of interest in proposed legislation, education programs, cooperative ventures, or lawsuits will be less likely to be effective. Virtual tidal waves of interest will need to be created rapidly, and most of the "selling" of a consumerist offering will have to be done successfully within a short time or it might not get done at all. I believe the organizations which develop the marketing and public relations capabilities to orchestrate tidal-wave type campaigns will be the ones which will determine the essential make-up of consumerism in the coming years.

Hungrier Lawyers

Picking on lawyers has become one of our favorite national pastimes, and I cannot resist the temptation to pick on them a little myself. The number of lawyers in this country is growing rapidly, making it hard for many law school graduates to find jobs in the profession or for those who have jobs to build their practices [2]. A hunger for work has developed in the profession that has stimulated more nuisance suits, more protracted litigation, and more marketing. It is the "more marketing" development that I would like to focus on here, since I believe it has the greatest implications for consumerism.

As lawyers embrace marketing and not just advertising -- and there is a difference -- I foresee several things happening. First, I believe many lawyers will perceive a business growth opportunity to exist in the dissatisfaction consumers have with their marketplace experiences. Moreover, they will perceive the wave of new state and local consumer protection laws as buttressing this opportunity. Therefore, more law firms will choose

to specialize in consumer law and will try to stimulate demand for their services by conducting advertising and public relations campaigns designed to encourage people to seek legal help for consumer problems. Even more product liability and consumer fraud suits should result. As alluded to earlier, this will tend to make consumerism more of an individual than a team sport -- with the lawyers serving sort of as private coaches.

Let me emphasize that I feel this is basically a healthy development for the American public. This kind of legal activity will, in my opinion, serve to take up some of the slack in the fight against safety hazards and deception that in the past served as the focal point of the efforts of the organized consumer movement (including the regulatory agencies). If this legal activity grows as much as I think it might, then the need for a very activist Federal Trade Commission and Consumer Product Safety Commission could be reduced. In addition, consumer organizations will be free to concentrate more efforts on the necessity needs of the rich/poor consumers.

SUPPLY SIDE SHIFTS

Changes are also occurring among the organizations and institutions which are "selling" consumerist offerings. Naturally, some of the shifts here are in response to the shifts on the demand side of the industry. Although I cannot cover all the important supply side shifts, three that I will cover are:

1. The Growth of Grass Roots Activism
2. The Realignment of Big Business
3. Increased Sophistication in Corporate Communications

I will treat each of these shifts rather quickly.

The Growth of Grass Roots Activism

Although it is hard to document this development, what little data I have seen [6] -- plus reports in the press and discussions with trustworthy experts -- indicate that consumerism and other forms of activism are doing better at the local, grass-roots level than at the national level. If this is true, it should not be surprising, since grass-roots organizations are better able to overcome "free-rider" problems by providing excitement, solidarity, and financial benefits (e.g., cheaper, cooperative-bought goods and services).

I believe much of the vitality of consumerism will remain at the grass roots level, even if the Democrats manage to recapture the White House and both houses of Congress next November. Grass roots organizations are closer to the needs of rich/poor consumers and are often better able to serve these needs. They can frequently fight the local utilities, hospitals, supermarket chains, landlords, and City Halls much better than any national organization could.

The Realignment of Big Business

The competitors in the consumerism industry which represent Big Business do not look the same as they used to. Many have merged, entered new industries, become Japanese (or Japanese look-alikes), or otherwise been reconstituted. Fear of a Japanese takeover, deregulation, and softer antitrust enforcement have changed the landscape of Corporate America.

What does all this mean for consumerism? To the extent that it means that more industries will consist primarily of large, efficiently-managed, quality-conscious, consumer-oriented firms with well-run consumer programs, it could mean less for consumer activist organizations to fight for in areas of traditional consumer concern. These firms may not need to be prodded very much to provide safe, high-quality products or ample consumer information and education to go along with those products. Any price competition that is stimulated by having giants like AT&T, Sears, American Express, Citicorp, or General Mills enter new industries could also help to improve consumer satisfaction levels.

However, while traditional consumer concerns may even be mitigated by the realignment of Big Business, the kinds of rich/poor concerns I have been discussing could be aggravated by this development. People struggling to pay for necessities may not look very favorably at "golden parachutes," billion-dollar oil mergers, or multi-national manufacturing arrangements. They may see the William Agees, Mary Cunninghams, and others involved with these high-stakes takeovers and shake-outs as representing little more than real-life embodiments of distasteful fictional characters like J.R. Ewing. The stark contrast between how the corporate wheeler-dealers live (at places like South Fork and Martha's Vineyard) and how they themselves must live could intensify the dissatisfaction levels of rich/poor consumers and lead them to pressure more aggressively for reforms that will provide them with much bigger slices of Corporate America's pie. More frequent use of tactics such as those employed by Jesse Jackson and Operation PUSH to get economic concessions from Coca-Cola could materialize.

Increased Sophistication in Corporate Communications

American corporations have come a long way since the days when the best response they could come up with to Ralph Nader was to tail him. Today, when a major corporation does not like the press it is getting or wants to influence the public's views on certain issues, it can turn to its corporate communications experts to orchestrate a multi-faceted, multi-media, multi-bucks campaign designed to sway the public in the direction it wants. Corporate advertising, press releases, speeches, slide-shows, lobbying, conferences, and other tools are put to work all the way down to the grass-roots level.

Do they get results? That is a tough question to answer. But several signs suggest that they do.

First, corporate executives from places like Dupont, Mobil, and GTE have been regularly extolling the accomplishments of their corporate communications campaigns in public speeches and written articles. Second, these executives seem to be putting their money where their mouths are and have been increasing their spending on both the corporate communications themselves and studies to document their effectiveness.

I am citing this development without trying to pass judgment on it. Besides, the First Amendment probably makes it impossible to do anything to stop it. I believe the increased sophistication in corporate communications is a reality that everyone who competes in the consumerism industry must learn to cope with. More careful planning of the type of tidal-wave campaigns I discussed earlier will therefore be required.

CONCLUSION

To summarize, let me say that I foresee the basic demand for consumerism -- for getting a better deal from the marketplace -- remaining strong. However, the kinds of consumers who will be providing this demand will no longer come from the great middle class but will come instead from the ranks of those who can be labeled rich/poor consumers. These people, many of whom will be highly politicized blacks and women, will be more concerned about getting a better deal on necessities than they are about getting safer, high-quality products or more honest consumer information. Many of these latter, more traditional, consumerist concerns will be alleviated anyway through the actions of enlightened corporations or through the efforts of work-hungry lawyers.

A major portion of the "action" in the consumerism industry will, in my opinion, consist of grass-roots organizations representing the interests of rich/poor consumers competing with very large corporations and trade associations in selling to the public and legislatures various offerings designed to make it easier for people to obtain necessities from the marketplace. The successful competitors will be the ones who create well-planned, sophisticated programs or campaigns that capture the public's attention and interest very rapidly and very massively. Since many large corporations are geared up to conduct highly sophisticated communications efforts, grass-roots consumer groups will have to develop a similar capability or see some of their ideas and offerings lose out. It should be interesting to see if they can do it. I think they probably can.

Thank you very much for being such an attentive audience. I welcome your reactions about what I have just said and your ideas about other trends and developments that could impact on the make-up of consumerism.

REFERENCES

1. Bloom, Paul N. and Greyser, Stephen A. "The Maturing of Consumerism." Harvard Business Review, November-December 1981, pp. 130-139.
2. Gest, Ted. "A Glut of Lawyers--Impact on U.S." U. S. News and World Report, December 19, 1983, pp. 59-61.
3. Harris, Louis and Associates, Inc. Consumerism in the Eighties, Study No. 822047, 1983.
4. Hilts, Philip J. "One in Four Americans Poor at Times in 1970s." The Washington Post, March 8, 1984, p. A2.
5. Preston, Lee E. and Bloom, Paul N. "The Concerns of the Rich/Poor Consumer." California Management Review, Fall 1983, pp. 100-119.
6. Smith, Darlene B. and Bloom, Paul N. "Is Consumerism Dead or Alive? Some New Evidence." Advances in Consumer Research: Volume 11, Provo, UT: Association for Consumer Research, 1984, pp. 369-373.
7. Thurow, Lester C. "The Disappearance of the Middle Class." The New York Times, February 5, 1984, p. F3.
8. White, Theodore H. "New Powers, New Politics." The New York Times Magazine, February 5, 1984, pp. 22+.

POST-DIVESTITURE CONSUMER ISSUES IN TELEPHONE: A FORECAST THROUGH MARKETING ANALYSIS

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ABSTRACT

The paper examines the predivestiture Bell System and its relationship to the two entities resulting from divestiture: AT+T and the seven Bell Operating companies. A marketing strategy approach stressing each entity's external opportunities threats and internal strengths and weaknesses is used to forecast future prospects for success and implications for consumers.

"One aspect of AT+T control is certain: I was appointed to this position by 195 Broadway, and so are all the other operating-company presidents. Election by our own boards of directors is just a formality. Our board gives advice, but seldom initiates action. An operating-company president is in the Bell System corporate hierarchy as much as if the whole system were one integrated company. The reasons it isn't an integrated company are mainly political and psychological, having to do with community and government relations; but if it were, Pennsylvania Bell's relationship with 195 Broadway would be exactly the same as it is now"

-William S. Cashel, Jr., President of Pennsylvania Bell in 1974. Quoted in John Brooks, Telephone, the First Hundred Years, p. 341. New York: Harper and Row, 1976. This book was the centennial history of the Bell System, commissioned by AT+T.

On January 1, 1984, following by almost ten years, the Cashel quote above and the initiation of an anti-trust suit by the U.S Department of Justice, the corporation was divided into eight independent companies. Mr. Cashel's company was made part of Bell Atlantic, a new regional company created primarily to operate local telephone exchanges in six states and the District of Columbia. Six companies similar to Bell Atlantic operated former Bell System local exchanges in the rest of the continental U.S. AT+T, the world's largest corporation in assets, profits, and employees in 1983, remained as a shadow of its former self, divested of all local exchange service in the U.S.

The highly centralized Bell System is asunder. Divided along lines that satisfied the Federal District Court that heard the anti-trust case and accepted, with some modifications, an AT+T and Department of Justice proposal to divest the local operating companies, AT+T's former units are forced to reorganize and initiate separate planning processes that have no precedents. This paper attempts to forecast actions of AT+T and the seven Bell Operating companies (BOC) in 1984 and beyond. The BOC's will be evaluated

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together and AT+T will be the subject of a separate analysis. The BOC's and AT+T both inherit the history and organizational culture of the Bell System which will be the subject of Part I of the analysis. Carrying with them the legacy of the common corporate tradition, the BOC's and AT+T have been handed radically different resources and environments for their future operations. Each is analyzed in terms of the traditional marketing management model, an appropriate method of identifying the likely intermediate and long term strategies of the two types of firms. An analysis of the consistencies and inconsistencies of the future predicted strategies and the inherited corporate culture reveals some problems in those predictions based solely on the marketing model. An analysis of several major issues of importance to consumer welfare that can be predicted through this methodology completes the attempts at forecasting in the paper.

The Common Traditions

The most celebrated corporate figure in AT+T history was the man who brought it through a unique growth period characterized by fiercely competitive financial battles for control of local phone service into its modern era as the primary long distance and local company. In the 1907 to 1919 period, Theodore N. Vail, who had been also company president in the 1880's, developed the monopoly Bell system in reality as well as through long philosophical statements in company annual reports (5).

Aware of the importance of a long term strategy to consolidate the Bell System into a government regulated unified system with emphasis on service and technical quality, Vail sacrificed short term profits.

There was a vision in Vail's writings which became incorporated not only in the company's organizational goals, but which served to shape law and regulatory policy. In the 1910 annual report, Vail wrote of what is now usually cited as the concept of universal service:

"It is believed that some sort of a connection with the telephone system should be within reach for all"

-Merrill Brown, "End of an Era",
Washington Post, January 1, 1984.

It was the first of several major U.S. anti-trust actions that was the legal basis for the new Bell System. In the 1913 Kingsbury Commitment, AT+T agreed to divest holdings in Western Union, to

³ Brooks notes that per share earnings were \$10.05 in 1919, down \$.62 from 1907 and that dividends stayed at exactly \$8.00.

stop buying competitors without federal approval, and to allow non-Bell companies to link into its system. In effect, however, this agreement sanctioned the central reality of the AT+T monopoly: its long distance link. Vail had established the radical new policy of allowing competitors to connect to AT+T as well as to lure customers of competitors back to AT+T and the Kingsbury Commitment effectively made this national policy (4, 7).

The key elements of AT+T's corporate culture remained essentially unchanged until 1984. They included:

1. Low prices for basic service (universal service) to expand the market.
2. High quality service in the technical or engineering sense.
3. A full range of services that are reliable and complete.
4. Long term profitability and stability with reliable dividends instead of short term profit.
5. Control over the entire nation's telephone system structure, pricing policy, and engineering through long distance.

It was useful to AT+T that in spite of what appeared to be the limitations of the Kingsbury Commitment that its market share growth continued and gave it power to carry out its philosophy. Market share trends were (percentage of telephones):

- 1907 - 51%
- 1912 - 58%
- 1917 - 63%
- 1922 - 66% (10, p459-460.)

AT+T was not unswerving nor altruistic in its dedication to these principles since Vail. It fought the concept of sharing long distance revenue to partly cover the costs of access to local service facilities which were used to complete long distance calls. It lost this issue in court (Smith vs. Illinois Bell Telephone Company, 1930), but in turn it became the effective manager of the entire process of sharing the long distance revenues, a process called separations and settlements. In this process, utilizing complex formulas to divide monies with Bell and non-Bell companies, telephone companies annually redistribute several billion dollars of their revenues.

In its eagerness to maintain its ability to control service, quality, and prices at a profit, AT+T has had many major conflicts with the federal government. Among them:

1. A massive five year effort from the date of the very creation of the Federal Communications Commission in 1934 to investigate AT+T. FCC was very critical of rate practices, overall rates, and inter-company contracting and financing among many things, but its report was effectively stymied (17, p 47-49).

2. A 1949 Department of Justice anti-trust suit resulted in a 1956 consent decree which preserved AT+T, but barred it from participating in any non-telephone businesses⁴ (10).

Such interactions are a logical result of an

organization pursuing a strategy which has become successful. Over time, success becomes both an effect and a cause of company actions. The figure below is a model of the strategy creation process and illustrates the factors involved in the process. The model consists of five parts: environmental analysis, internal analysis, strategy formulation, structural choice or change, and implementation. In general, before firms formulate strategy, they access two major areas: (a) their own organizational strengths and weaknesses; and (b) the environment in which they compete. After assessing the internal and external environments, firms create a strategy by matching their strengths

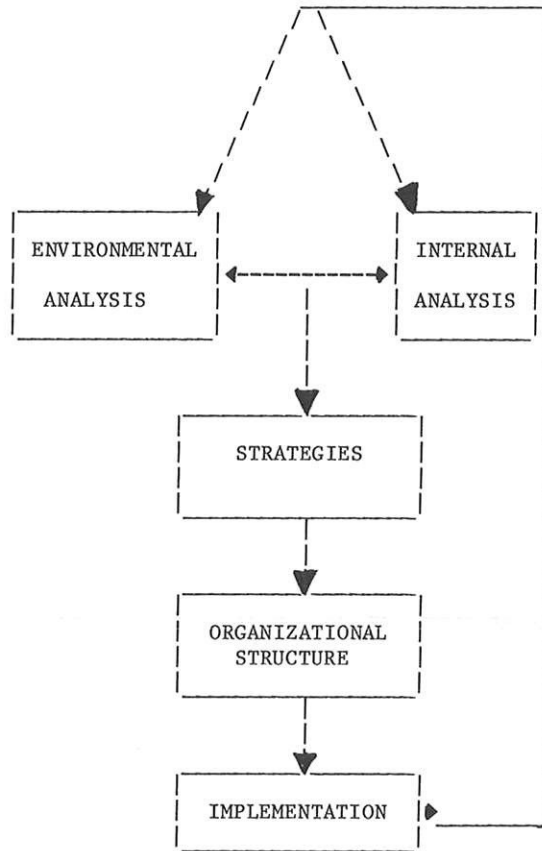


FIGURE ONE

THE STRATEGY FORMULATION PROCESS (12)

with environmental opportunities. In order to carry out their strategies, companies must choose the appropriate organizational structure, which serves as the vehicle for executing strategies. An inappropriate choice of structure can doom strategic plans to failure. Lastly, after a strategy

⁴ The authors point out that some critics felt that AT+T's manufacturing arm, Western Electric, should have been divorced from the parent.

has been devised and an appropriate structure chosen, firms must put their plans in motion and see if they work. Whatever the outcome, the organization and its environment will change. If the strategies succeed, firms may be more financially stable and attract more competitors; if they fail, the company may be poorer and competitors may stay away. In any case, the process of strategy formulation tends to repeat itself, success brings changes which can affect the chances for future success.

The Bell System

External environment. As mentioned above, whatever success an organization achieves impacts on its own strengths and weaknesses, as well as on its environment. In most cases, successful strategies increase profits or sales and frequently spawn competition. Profits usually translate into a healthier company which might grow larger and more complacent and, in effect, become fat, dumb and happy. The consequence of that kind of success is usually an increase in the number of new competitors striving for a piece of the action. In the case of the Bell System, success in the form of achieving profit and increasing regulatory protection increased its internal strengths at the expense of some opportunities for future growth and profits. Pursuing a strategy in this fashion made the Bell System a citadel - a place of competitive refuge protected by regulatory stone walls and at the same time a prison, whose inmates were forbidden to compete beyond those walls.

Internal strengths and weaknesses. But Bell's prison was a comfortable place: profits were good, growth was excellent and the annoyances of upstart competitors were nonexistent. The organization had enough stability to concentrate on matters such as service quality and technology. At the same time, the lack of competition caused marketing skills to gradually atrophy. While not an acute situation, a basic weakness with the Bell System centered on its abilities to satisfy customer needs, if competition ever arose which expanded ways to satisfy consumer needs.

Organizational structure. A major problem with a citadel is the effects of the stability which makes it so attractive in the first place. Stable companies evolve organizational structures as well as communication and reward systems which foster organizational goals. In the case of the Bell System, the company strengthened its hierarchical structure. Such a structure is excellent for achieving efficiency, and in an unchanging environment, helped the Bell System to concentrate on its goals of service quality, reasonable pricing and profits. However, as a consequence of such hierarchical structure, the company sacrificed corporate flexibility, the ability to react quickly to changing conditions. Certainly such flexibility was unnecessary in the predivestiture period, and the corporation only benefitted from its structure.

The effects of strategy. The Bell System's success in the pursuit of its strategy and some implications of that success were noted above. Another important consequence of the strategy,

perhaps the most important, deals with the changes in the Bell System's organizational culture. In general, organizational culture refers to the set of internalized values and expectancies which members of, or subgroups within, organizations hold regarding themselves and the organization. Organizational culture influences 1) how individuals perceive and interpret their environment, 2) defines what the organization and individuals value, 3) defines accepted rules of behavior that individuals in organizations, and the organizations, are expected to follow, and 4) creates and maintains technologies which are needed to pursue goals. Culture tends to limit how firms view the environment, in that culture may cause managers to focus on some while ignoring other potentially valuable opportunities. For example the Bell System valued service quality, protection from competition, profit, and achievement of goals other than profit.

In order to predict what AT+T and the BOC's will do in the future, it is useful to classify the culture of the old undivided organization, then to consider what the new companies' cultures are or should be.

As mentioned above, the Bell System was faced with little environmental uncertainty, (11) due to its regulated monopoly status. Competitors for local service are nonexistent, competitors for equipment and long distance service were only recently a reality. Also since Bell had no real competition, it essentially could control the technology applied to telephone service. Firms with such environments tend to concentrate on efficiency and coordination. Risk and innovation are avoided since, at best, they reduce efficiency, at least in the short run. While Bell innovated, technologically, its innovation was in service and not marketing. Therefore, it seems safe to typify Bell as a firm with a culture which values:

- (a) service and equipment quality to reduce repair time and thereby increase efficiency
- (b) stability to increase efficiency
- (c) coordination and control (exemplified by well articulated, extensively documented procedures)
- (d) technical innovations to enhance efficiency
- (e) customer satisfaction- but just satisfaction. Without the goad of competition to spur attention to customer satisfaction as a defensive competitive strategy, satisfaction means fewer customer problems which, again, means more efficiency.
- (f) nothing connected with price competition

While corporate culture is a vague concept in practice (9) in the view of some the corporate philosophy of AT+T has been generally agreed to exist and to the extent it is stated above, it appears to have consciously driven the key management decisions of the entire Bell System for decades.

The New Companies

AT+T Corporation is more than just its initial organization units which are as follows:

- AT+T Corporation - the holding company
- AT+T Communications - a subsidiary which has all of the regulated long distance business, the

producer of a vast majority of AT+T's revenues for 1984. This subsidiary has 94% of the long distance market.

AT+T Technologies - a subsidiary with a wide variety of products and services which are unregulated. It includes a number of lines of business.

The company has been released from the 1956 consent decree which restricted it to telephone related businesses. AT+T Technologies, thus unfettered, could become much more than the remains of Western Electric and Bell Laboratories as the company sets new priorities, enters new businesses, and even becomes increasingly unlike a utility. In addition to entering the computer equipment business, it could manufacture lawn furniture or sell insurance.

The seven newly created Bell operating companies are much more restricted utility businesses. Among the major features of these companies are:

1. Their assets, revenues, and employees in operating divisions are in the short run overwhelmingly involved in operating local telephone businesses.

2. These companies have lost much of their intrastate long distance business because under the divestiture order, they must not offer telephone service that crosses local calling areas known as LATA's (Local Access and Transport Areas). Most states have several LATA's and thus the BOC's are restricted to relatively short distance toll calling within these LATA's. Inter-LATA calling operations formerly conducted by Bell local companies is now handled by AT+T Communications (ATTCOM).

3. Among the unique businesses of BOC's are directory (yellow pages) and mobile car services. In the future the BOC's are permitted to sell, but not manufacture, telephone equipment to customers, but their entire telephone sales and rental businesses were transferred to AT+T Technologies on January 1.

4. The holding companies have few immediate employees and many of these are in the financial area. Planning staffs are found at corporate level, operating company level (typically for one state), and in an amorphous central organization that is owned by all of the holding companies together.

AT+T: A Marketing Strategy Analysis of the Issues

At AT+T the clash of old corporate culture, forged by regulatory stability, and the new environment of opportunities is very real. One immediate indication of a transitional problem is that the company has hinted to stockholders, long accustomed to reliable and gradually increasing dividends, that it may not be able to maintain the current rate without short term profit improvements (19). Such an utterance would have been unthinkable by a chairman of the old Bell System with its many regulated units contributing to its overall profit stability.

External environment. Thus AT+T, a riskier business subject to more dependence on long distance as well as uncertain fates from entering new and newly competitive business fields, is wrestling with its new realities. The old order and stabi-

lity which produced dividends for "widows and orphans" through the 1930's Depression (13) is threatened even before the first calendar quarter of its existence is completed.

Internal strengths and weaknesses. Certainly, AT+T possesses a number of assets, listed above in the divestiture agreement which seem to assure its place as a competitor in the newly opened areas. There are potential weaknesses, however, which focus on the area of organizational structure and culture.

Organizational structure. It is clear to some that AT+T must depart from the hierarchical organizational structure to achieve greater flexibility (16). Without the ability to react to changing conditions, AT+T will be hamstrung and eventually see its market position erode. Moreover, it is vital that AT+T strive to overcome its inherited corporate culture. As strategic choices exploit the new dynamic market opportunities, the staid culture which fosters stability will become more of a liability. Since the Bell System's organizational culture has taken years to form, changes in culture will take some time. As long as the old culture dominates the firm's actions, AT+T may not be able to satisfy its consumers as well as its competitors. The risk is that giant AT+T may react to new product and market opportunities so slowly that smaller leaner competitors may become larger, more than serious threats. Competitors may dominate the markets.

Strategic choices. In the short run, AT+T may be able to afford its traditional financial policies while increasingly evolving towards a firm with more characteristics of a competitive industrial company. The long run strategy decisions might include some designed to enhance the stability of market share and long run profitability of long distance. Future circumstances caused by actual operations results, regulatory decisions, or demands of the stock market may foreclose certain opportunities in the final analysis.

There are two areas of strategic decisions which must be made and that will in turn directly affect residential customers that are selected for marketing analysis:

1. long distance pricing - rate design
2. telephone rental.

Long distance pricing - rate design

The universal service concept applied to the new AT+T long distance service would mean making long distance affordable and available. "Availability" of long distance service would in turn be affected by the degree to which local exchange service is available as it is through local exchange networks that long distance is conducted (aside from certain specialized long distance services (e.g. WATS)).

5. The company made such a statement partly to pressure the Federal Communications Commission in a regulatory dispute. The New York Times, March 22, 1984 said that stock analysts viewed the dividend statement as a "political maneuver" by AT+T.

Presumably, the "new AT+T" would find universal service, as originally applied to local exchange service, less compelling a priority except to the extent that less local access to home telephone service would reduce long distance calling by those customers without a home phone. On balance, AT+T would probably conclude, in the absence of any future market analysis which would contradict it, that it would benefit from less payments to local telephone companies for use of their facilities. In other words, its reduced costs of providing long distance service would stimulate demand more and generally enhance profits and thus more than offset any AT+T losses due to the more costly local service rates necessarily imposed to make up for the lost AT+T long distance contributions to local exchange companies (so-called customer access charges).

In addition to what would appear to be a drive for locally imposed access charges to displace AT+T's payment losses incurred by the local companies, the company would review its current pricing policies. The short and long term profits will have to balance five major factors:

1. Competitive threats from much smaller companies with about 6% of the current market for some segments of its business. Some of these companies or new companies have the potential to increase market share under new post-divestiture rules going into effect in the next few years that will guarantee equal opportunity in connections to customers of local telephone companies.

2. Regulator policies that may block any attempts to raise rates (relatively) of small customers of AT+T Communications. An analysis may show AT+T that some or many of its occasional customers are relatively unprofitable. Current cost accounting and rate design practice is so primitive that such a cost study finding can only be guessed.

3. Its desire to segment the market and pursue the most profitable opportunities only.

4. Its desire to maintain an overwhelming market share including very small customers and to provide ubiquitous and convenient service as a major element of its strategy.

5. Its desire to generate short term profits to please stockholders and/or finance new ventures.

Given the lack of cost studies, access to proprietary data, and a realistic way to foretell future events this paper can only identify the factors influencing past corporate culture, as well as conflicting goals and strategies - not measure them.

The company has proposed in fact to seek significant deregulation of interstate long distance rates. In its recent April 2, 1984, proposal to the Federal Communications Commission, AT+T seeks release from a number of procedural restraints that would enable it to respond quickly to competitors. The company defines the market broadly and indicates its shares of intercity communications revenues and network capacity are much below "monopoly" levels .

With regard to the major toll service which includes all calls besides special packages (WATS)

or services such as private line, two extreme outcomes can be posited as the best and worst case scenarios for small residential customers - a majority of American households.

The best possible outcome for residential customers would appear to be do nothing to change the essentials of current regulated pricing practice. Essentially today all callers are priced the same with identical charges applying anywhere to all business and residential customers according to the time of day, distance, length of call, and an initial set-up (frequency) charge. There are some opportunities for changing usage charges to benefit residential callers because their usage patterns, for example, by time of day, do vary from business callers in particular. Also as better cost analyses are made or if AT+T payments to local companies drop greatly (access charges, for customers increase), usage prices may change .

Rental Telephones

The Federal Communications Commission has authorized a nationwide pricing formula for AT+T's rental phone business. These phones were formerly on the books of local Bell companies, but were transferred to AT+T on January 1, 1984. Millions of rental phones will be continued as rentals at customers' options for three years.

As a marketing proposition, AT+T is interested in the long run in establishing its position in the sale of residential telephones. The current rental customers are likely to discover that rental is largely uneconomic given the low sale prices of telephones by AT+T and its competitors. AT+T is watching its business in telephone equipment seriously erode now that customers can buy and easily plug in competitors' phones to the telephone network.

AT+T needs to develop marketing strategies that can help make decisions about the rental customers with whom it is already doing business. While these customers are being reduced in number, many will not feel compelled to stop renting at relatively

6 "The Dominant Carrier Myth", undated AT+T memorandum provided April 3, 1984, by the company. The company points out it is 1/5 its predivestiture size in terms of assets, it has 400 competitors with \$3.7 billion in revenues, and that 50% of all interstate customers who spend \$50 or more per month in markets whose competition exists are served by those competitors. The document does not mention a 94% (or any other figure) interstate regular long distance market share of AT+T presumably (in our view) because it does not define regular long distance as a separate market.

7 Under current payment formulas in the separations and settlements process, the "cost" per minute is calculated and AT+T pays this amount to local companies for minutes of usage. Off-peak times of day of long distance calling thus may be overpriced, a reflection of the payment formulas' inability to differentially price or distinguish time-of-day as a factor in causing costs.

inconsequential monthly rates until forced to do so.

Under its former Vail-inspired corporate philosophy, the company would perhaps concentrate on communicating and providing sale options to satisfy these customers in the next three years. They would presumably be future prospects for purchasing AT+T phones as well. The company would possibly argue to extend the three year option period if necessary to avoid millions of last minute panicked buying decisions and negative public relations associated with it. The company might provide special lease-buy options, extend its low-priced product line, provide credit terms that resemble the size of rental payments to please its procrastinating customers, provide convenient sale/exchange facilities, etc.

The short term worst case would be to maximize profits at the expense of the procrastinators who insist on waiting three years. These customers may include many with a special reluctance to buy and it is difficult to conceive that many won't simply refuse to buy. If they are large in number, special actions to collect the sale price through the local telephone company bills or other "forced" sales may reduce large temporary increases in sales for AT+T. These are sales revenues where voluntary customers actions to stop renting often result in massive purchases of competitor equipment. If AT+T is unable to sell its existing rented phones in place to its rental customers, it will have little market opportunity for their resale. Lest rental customers discover AT+T is selling used phones below in-place prices being offered to those rental customers, AT+T will have to hold them off the market to keep prices high.

AT+T's philosophy may influence its strategy in this area, but until rental consumer actions become more predictable, the size of the problem is very uncertain. Regulatory intervention may occur if AT+T's plans eventually are perceived to be questionable or inadequate for public policy purposes, but regulators may be less competent to design adequate policies based on consumer behavior analyses than the company. This conversion is unprecedented in telephone industry or regulatory history.

Bell Operating Companies: A Marketing Strategy Analysis of the Issues

Bell operating companies' (BOC) public relations and stockholder relations strategies dictate communication practices that serve to confuse the major issues and possible strategies that these new firms may pursue. The stockholders are widespread and thus general media are often used to convey messages from these firms about their destinies and capabilities. The BOC's portray themselves heavily as highly competent and skilled organizations about to enter the future of high tech telecommunications with a veritable grip on success (6).

However, current public statements can be a hazard to the proper evaluation of the BOC's strategic options. Even employee's may not be aware of these

realities in view of the pervasive institutional advertising and its emphasis on technology.

External environment. Universal service is largely achieved in the U.S. so that the potential for expanding the number of residential or business customers of local exchanges is almost nil. There is no competition so that horizontal monopoly service is currently quite secure. The opportunities for add-on services and products is also limited. The companies may enter customer equipment businesses, but not manufacturing. They may not provide interstate or intrastate, inter LATA long distance. They may continue yellow pages and enter certain new businesses. Largely these are mature companies in the product life cycles of their main business: local telephone service.

Internal strengths and weaknesses. The BOC's do have assets which make them more viable. The Bell brand name, retained in the divestiture settlement is, in the short run, a great strength, which has high consumer awareness and favorable consumer response. The Bell brand is associated with high quality and reliability for which consumers are willing to pay a premium (16). In addition, the inherited hierarchical organizational structure was and is ideal for competition in stable markets.

Implications of Strategy

The long term negative prospects for local companies are that their current monopoly may erode, their costs rise, and thus they may lose customers to new technologies or due to unaffordable local rates.

The methods of improving profits appear to be, for example, by cutting costs, particularly in areas which may have been part of the overall package of services and not properly priced. Installation of services is thought to have been underpriced historically. A second area is to develop new businesses such as mobile service, but these new market possibilities are distinctly limited compared to those of newly unchained AT+T. A third area is to sell "usage" and price such usage, accordingly, at profitable levels.

In general, Theodore N. Vail's philosophy has been so successfully implemented through past strategies employed at the local exchange level that these companies have little they must do in a strategic sense except preserve these achievements. They may choose to do otherwise, of course.

Local Measured Service (LMS)

LMS offers a change in pricing and at least several strategic improvements. This pricing system applies long distance usage elements (frequency, timing, time-of-day, distance) to each local call. The system, if it worked well, offers the hope of

⁸ The Bell companies ads are similar to AT+T's emphasis on high tech. See six such advertisements in the December 26, 1983, January 2, 1984 combined issue of Business Week (13 full pages of advertising).

enhancing total revenues while also lowering some (not many if total revenues rise significantly) customers' bills in the interest of universal service. If such pricing is at least roughly consistent with costs of providing local usage, then the pricing system is more likely to withstand competitors inroads. New entrants presumably would skim the cream of revenues of overpriced usage first.

Even without the universal service potential or that of preventative pricing against the vague possibilities of eventual competitor's inroads, revenue enhancement would make LMS attractive for BOC's.

The commitment of larger telephone companies to LMS is well documented (3). The revenue enhancement is noted in the only report published by a federal agency on the topic (18).

Opposition of the residential public to LMS is quite strong and regulators have been inclined in some instances to agree with the critics⁹.

The universal service benefits have been extensively argued by the companies, but evidence is mixed (15).

The principles of cost-based pricing have been argued more because of the equity of cost burdens among customers based on cost-based pricing rather than because of the eventual impact on competitive entry. The equity of cost-based pricing is not disputed in principle, but is questioned as an exclusive criterion of pricing. If costs set prices, then logically there will be no opportunity to set prices below costs for social (e.g. universal service) policy reasons¹⁰.

Given that companies will not give up their LMS priority for rate design in residential service, successful LMS implementation is still uncertain. Customers will not elect it rapidly.

Telephone companies do not keep uniform records on market penetration of LMS (as a percentage of all local exchange services offered) partly because of varying local regulatory requirements. In all areas, the relative prices of local services will influence market share. In local measured service areas where the service is introduced at substan-

⁹ Telephone companies in the following states have been denied in full one or more local measured service proposals since 1980: Maryland, Wisconsin, Florida, Georgia, Texas, Indiana, Washington, District of Columbia. Many others have succeeded in other states.

¹⁰ The telephone industry is scheduled to propose an entirely new cost accounting system to the Federal Communications Commission in 1985. A preliminary draft (USOA, Part 32 of the Federal Communications Commissions Rules and Regulations, draft dated April 1, 1984) does not specifically mention L.M.S. nor in our view does it provide the necessary account distinctions to enable this service to be priced in relation to cost.

tially lower prices than the existing flat rate services, the customers do not elect L.M.S. in significant numbers. In Tennessee, North Carolina, Missouri, and Maryland, market shares are all below 10%. Marketing efforts by companies to promote conversion to L.M.S. have varied greatly, but have had some impact on market share. In some instances, L.M.S. market shares (penetration) have declined substantially after promotion efforts or initial introductions had caused some customers to try the service. Many then return to flat rate or some other local exchange service.

If a substantial portion of customers eventually elect LMS service (or if it is mandated), then the marketing opportunities for local exchange are greatly improved by the pricing of usage elements. Among the market development strategies to be expected include:

1. New services such as inward WATS (800 type service) for local service for sellers and service providers who wish to offer it as a competitive tool
2. General promotion of usage (similar to long distance campaigns by AT+T)
3. Provision of services such as time and weather or anything that will generate calls at low cost
4. Working with telephone using organizations to encourage telephone communication (similar to the efforts to sell the telephone as a sales tool, etc.)
5. Development of technologies or service packages to enhance special services such as burglar and fire alarm connections, computer interface, or data bank accessibility.

In spite of industry commitment to the usage sensitive pricing of local exchange service, the debate is far from resolved on LMS. No company in modern history has voluntarily converted a major telephone exchange from predominantly flat rate pricing (priced per month rather than by usage) to one of LMS. The rapid rise in flat rates may yet change this very slow conversion to LMS even though critics argue that there are superior options to LMS to deal with the universal service problems of the poor or of those on fixed incomes.

Summary and Conclusion

The marketing approach to strategic analysis provides a useful basis for predicting intermediate and long term consumer issues likely to arise in an industry. The telecommunications industry is a case where eight newly created large companies must make key strategic choices immediately.

In the case of AT+T, the national company with service and equipment markets to serve, there are two illustrative strategic choices examined. Faced with competitive pressures and regulatory restrictions, AT+T may seek repricing of services that

⁹ Involuntary isolated cases exist where customers were forced to change. Some major cities with L.M.S. type rates have never been primarily flat rate territories.

could have adverse impacts on the majority of small residential customers. A second area of decisions - telephone rentals - may result in serious transitional problems as the rental is likely to be phased out rather rapidly.

The seven regional companies created to serve local exchange customers have few immediate prospects for major shifts in their business strategies. Faced with limited opportunities and probable high costs of entering new fields, these companies are likely to seek additional revenues by entirely different methods of pricing their major business line: local exchange service.

References

1. Anderson, Kevin. "New AT+T: A trim giant ready to run", USA Today, December 30, 1983.
2. AT+T. "The Dominant Carrier Myth", undated memorandum.
3. Baude, Joseph A., et al., Perspectives on Local Measured Service. Telecommunications Industry Workshop - Organizing Committee. Kansas City, Missouri, 1979.
4. Brown, Merrill. "End of an Era", Washington Post, January 1, 1984.
5. Brooks, John. Telephone, the First Hundred Years, p. 341. New York: Harper and Row, 1976.
6. Business Week. December 26, 1983 - January 2, 1984.
7. Clarke, Lindley H. "Where was Theodore Vail when we (and AT+T) needed him?" Wall Street Journal, January 31, 1984.
8. Derian, Pat. "What Have We Done to the Phone Company?" Washington Post, February 28, 1984.
9. Fowler, Elizabeth M. "Exploring 'Corporate Culture'", New York Times, February 8, 1984.
10. Garfield, Paul J. and Wallace F. Lovejoy. Public Utility Economics, Englewood Cliffs, NJ: Prentice-Hall, Inc., 1964, p. 459-60.
11. Lawrence, P. R. and Lorsch, J. W. Organization and Environment: Managing Differentiation and Integration. Boston, Graduate School of Business, Harvard University, 1967.
12. Newman, W., and Logan, J. P., Strategy, Policy, and Central Management. Cincinnati, Ohio, South-Western, 1971.
13. New York Times. March 22, 1984.
14. Pollack, Andrew. "AT+T May Trim Future Payouts", New York Times, March 22, 1984.
15. Richardson, Lee. Testimony before the Public Utilities Commission of the State of California in the matter of the application of General Telephone Company, Exhibit 107, January 9, 1984.
16. Shaver, David. Speech before the American Academy of Advertising Agencies; Denver, CO; March 30, 1984
17. Telecommunications Reports, Volume 50, No. 5, February 6, 1984, p. 47-49.
18. The Pricing of Local Telephone Service. U.S. Department of Commerce OT Special Publication 77-14. Washington, D.C., 1977.
19. Washington Post, March 23, 1984.

BINOMIAL LOGIT ANALYSIS

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ABSTRACT

A description of binomial logit analysis, a technique used to estimate models containing binary dependent variables, is presented. The development of the logit model is explained and several tests are described, including the calculation of probabilities, and a goodness of fit statistic. An example is presented to illustrate the use of binomial logit analysis.

INTRODUCTION

Occasionally economic models contain discrete dependent variables which cannot be estimated using regression analysis, a traditional tool of the economist. In this case an estimation technique which can accommodate qualitative dependent variables is required. Binomial logit analysis is an example of such a technique. It is used to estimate choice models in which the dependent variable may take on one of two alternative values. For example, an individual may choose to vote, or not to vote in an election, or he may choose to buy a small or large car. Advantages of logit analysis, as well as problems with the use of regression analysis with discrete dependent variables are discussed in the following section.

BINOMIAL LOGIT ANALYSIS

The development of logit analysis is reflected in a series of alterations made to the regression model to accommodate a binary dependent variable. By specifying the discrete dependent variable as a dummy variable, zero if one event occurs and one if the alternative occurs, a regression model can be estimated. The two alternative outcomes are represented by Y in the model:

$$Y = B_0 + BX + E, \text{ where} \quad (1)$$

X = explanatory variables and
E = error term.

The probability of an individual making a given choice is then assumed to be a linear function of the characteristics of that individual. A monotonic transformation, the most basic of which is the linear probability model, is applied to the regression equation so that the results may be interpreted as probabilities. In the binomial case, the probability of one choice being made equals P, and the probability of the alternative choice is 1 - P. Then,

$$P = \text{Prob} (Y = 1) \quad (2)$$

$$1 - P = \text{Prob} (Y = 0). \quad (3)$$

By taking the expected value of the regression model the linear probability model is obtained, and the results may be interpreted as probabilities. Then,

$$\begin{aligned} E(Y) &= 1(P) + 0(1 - P) \\ E(Y) &= P = B_0 + BX. \end{aligned} \quad (4)$$

Unfortunately, estimation of the linear probability model using OLS leads to problems. The variance of the error term remains heteroskedastic, and has a non-normal distribution. In addition, values predicted for Y may fall outside the meaningful 0 - 1 range [3, 5, 9].

To solve some of the problems, a transformation is applied to the basic linear probability function. This transformation, known as the cumulative logistic probability function, takes the form of a non-linear sigmoid curve. The logit transformation converts previously unbounded probabilities into a range between zero and one. The slope of the cumulative logistic function is greatest when the probability equals 0.5. This implies that when the model is uncertain about which alternative will be chosen, small changes in the value of the function lead to large changes in the predicted probability. Conversely, when the predicted probabilities lie in the tails, small changes in the function value have little effect on the predicted probabilities.

The logit model is based on a monotonic transformation of the probability function. P represents the probability that an individual will make a certain choice when the values of the independent variables are known. By taking the natural logarithm of the transformation, the estimated parameters may be regarded as linear, although the probabilities themselves are not linear [3, 8]. The derivation is given below.

$$P = (1 / (1 + \exp^{-(B_0 + BX)})) \quad (5)$$

$$1/P = 1 + \exp^{-(B_0 + BX)} \quad (6)$$

$$(1/P) - 1 = \exp^{-(B_0 + BX)} \quad (7)$$

$$(P/(1 - P)) = \exp^{(B_0 + BX)} \quad (8)$$

$$\log (P/(1 - P)) = B_0 + BX. \quad (9)$$

The logit procedure transforms the equation and eliminates problems present with regression estimation. The value of the logit is constrained between 1 and 0 as the function value goes from plus to minus infinity. Binary logit is a qualitative choice model in which individuals are faced with two alternatives. The choice they make depends on the characteristics of the individual. The outcome of logit analysis is the probability that an individual with a given set of characteristics will choose one alternative over the other. However, the dependent variable is now defined as the log of the odds of an individual making a certain choice; it is no longer simply the "probability".

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Estimation of the logit model cannot be done with ordinary least squares because probability values of zero or one will result in undefined log odds when $P/(1 - P)$ is calculated [9]. Instead, maximum likelihood (ML) estimation is used since it ensures that a unique maximum will be calculated. The ML procedure estimates a distinct probability for each observation and defines a pattern for values of the independent variables when each of the alternative dependent variables is known. The ML estimators determine what parameter values are most likely to produce the observed set of data. In addition, maximum likelihood estimators possess several desirable characteristics, they are consistent, asymptotically efficient and normally distributed [3, 9].

Several procedures are used to evaluate the results of binomial logit analysis. To test the explanatory value of the entire model a likelihood ratio test is employed. This statistic has a chi-square distribution and is analogous to the F-test in regression. It tests the null hypothesis that the coefficients of the entire set of variables equals zero. The alternative conclusion, that at least one explanatory variable has an impact on choice probabilities, is accepted when the calculated test statistic is greater than the chi-square table value. The statistic is:

$$X^2 = -2 (\text{Log Likelihood}_R - \text{Log Likelihood}_F) \quad (10)$$

The reduced model is represented by R, and is estimated by a single variable, the constant. The full model, F, includes all variables. The degrees of freedom are equal to the number of parameters set equal to zero. For example, if the full model includes 11 parameters, a constant and 10 independent variables, and the reduced model includes only the constant, then the number of parameters set equal to zero in the reduced model is 10. Thus, the number of degrees of freedom is $11 - 1 = 10$.

The same statistic is used to test the explanatory value of sets of variables. The reduced model in this instance includes all variables except those in the set under investigation. The null hypothesis, that the set of variables has no impact on choice probabilities, is rejected when the likelihood ratio statistic is greater than the table value.

The logit model has a test analogous to the R^2 goodness-of-fit statistic reported in regression analysis. This statistic is called the likelihood ratio index (also called rho-squared or pseudo- R^2) and is a measure of how well the model approximates the observed data [5]. It is calculated by subtracting the log likelihood of the full model divided by the log likelihood of the reduced model from one [4, 10]. The formula is given below:

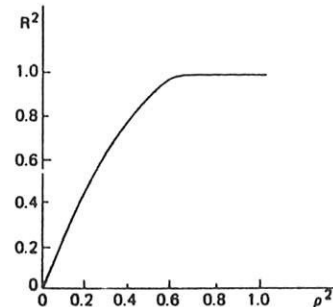
$$e^2 = 1 - \frac{\text{Log Likelihood F}}{\text{Log Likelihood R}}, \text{ where} \quad (11)$$

e^2 = likelihood ratio index

The relationship between R^2 and the likelihood ratio statistic is shown in Figure 1. Note that low values of the likelihood statistic correspond to higher R^2 values throughout the meaningful

range [1, 10]. It is unlikely that a rho-squared value would approach one because that could only happen if all individual predicted probabilities were exactly zero or one. Generally, likelihood ratio statistics have an upper bound of about 0.3 [6, 9, 10]. Values above 0.2 are considered a good fit [4].

FIGURE 1. Comparison of Rho-Squared and R-Squared



Asymptotic t-tests are used to determine the significance of individual coefficients. The value of a coefficient divided by its asymptotic standard error has a t distribution. The number of degrees of freedom is equal to the number of observations in the sample minus the number of parameters estimated in the logit model. If the calculated t is greater than the table value with the appropriate degrees of freedom, the variable is significant [7].

The relationship between the probability of choosing the alternative $Y = 1$ and changes in the independent variables may also be investigated by examining the signs of the coefficients. An increase in the value of a positive (negative) coefficient will increase (decrease) the probability of choosing the alternative in which $Y = 1$. In the case of dummy variables the omitted category is the reference group and its coefficient value equals zero by definition. Results for dummy variables must be interpreted by comparing the coefficient values to that of the reference group.

Unlike regression estimates, logit coefficients do not reveal magnitude. They cannot provide a quantitative measure of the effect of one parameter compared to another. However, the relative order of coefficients is meaningful. It is possible to rank coefficients from the lowest to the highest value and to interpret a coefficient as having a greater effect on the dependent variable than those ranked below it. For example, if parameter A has a coefficient of 0.2 and parameter B a coefficient of 0.4, then parameter B may be interpreted as having a larger effect on the choice probability than parameter A. However, one cannot assert that B has twice the effect on the dependent variable as A.

The probability of choosing an alternative can be calculated for the entire sample. This probability is obtained by reversing the logistic transformation. The probability of choice (P) is derived as follows:

$$\text{Log } (P/(1 - P)) = B_0 + BX \quad (12)$$

$$P/(1 - P) = \exp^{(B_0 + BX)} \quad (13)$$

$$P = (1/(1 + \exp^{-(B_0 + BX)})) \quad (14)$$

When computing the mean probability of the entire sample, the average value of each variable is substituted in the above equation. For example, if a continuous measure of income is used as an explanatory variable the average value of income over the entire sample is multiplied by the coefficient of income and summed with remaining variable values. When an independent variable is categorical, an average value can not be calculated. Instead, the category which contains the most responses may be designated as the "average value" and is multiplied by its coefficient value.

The choice probabilities may also be calculated for various values of the explanatory variables. A subsample of observations with specific characteristics may be designated as a "representative unit". Characteristics of this unit are pre-selected and only those observations which contain the specified characteristics are used to obtain choice probabilities. This sample then becomes the reference group. A good choice for the representative sample are households or individuals with mean values of continuous variables and those who fall in the most frequently observed category for dummy variables. Once the reference group has been defined the choice probability for that sample is calculated. Then values of individual variables are altered and the choice probabilities are recalculated. By comparing the altered choice probabilities to the reference group choice probability, the magnitude of the effect of changes in independent variables on choice probabilities may be observed.

APPLICATION OF BINOMIAL LOGIT ANALYSIS

The binomial logit model was used to determine the purchase probability of buying an imported or domestic automobile for households that had decided to buy a new small car. The source of the data was the 1972-1973 Consumer Expenditure Survey, collected by the Bureau of Labor Statistics. Data were analyzed for 334 households that purchased new small cars in 1972. The dichotomous dependent variable was coded one if the household purchased an imported small car, and zero if the purchase was a domestic small car. The non-linear maximum-likelihood technique was used to estimate coefficient values. A partial list of the results are presented in Table 1. Education and origin of stock disposed of by the household in the survey year were coded as dummy variables. The omitted categories appear in parentheses next to the variable name. All other variables were included as continuous measures.

TABLE 1. Selected Coefficients of Automobile Origin Choice Logit.

Independent Variable	Coefficient	A.S.E. ^a
Number of adults	.449*	.225
Education (high school graduate)		
Not a high school graduate	-.747**	.428
Educ. beyond high school	.472	.353
Origin of disposed-of stock (domestic)		
Did not dispose of stock	.722*	.326
Disposed of foreign	2.988*	.544
Disposed of mixed	1.635*	.741
Disposed of unknown	1.364*	.667
Likelihood Ratio Statistic	117.518*	
Likelihood Ratio Index	.262	

^a Asymptotic Standard Error

* Statistically significant at the 5% level

** Statistically significant at the 10% level

The explanatory value of the entire model is determined using the likelihood ratio test. The statistic is equal to the difference between the log likelihood of the reduced model (-224.121) and the log likelihood of the full model (-165.362) multiplied by -2. The likelihood ratio statistic is 117.518, which is greater than the chi-square table value with (30 - 1) degrees of freedom. This result indicates that at least one of the independent variables has a coefficient significantly different from zero.

The explanatory value of the set of variables describing the origin of vehicles disposed of by the household in the survey year is also tested with the likelihood ratio test. In this case, the reduced logit model is estimated without the set of variables describing disposed of stock, and the log likelihood equals -187.513. From this value the log likelihood of the full model (-165.362) is subtracted, and the difference is multiplied by -2, resulting in a test statistic of 44.302. This value is greater than the chi-square table value with the appropriate degrees of freedom (31 - 27), indicating that this set of variables provides a significant contribution to the explanatory power of the model.

The overall goodness of fit value, rho-squared, is equal to one minus the log likelihood of the full model (-165.362) divided by the log likelihood of the reduced model (-224.121). The resulting rho-squared value of .262 is considered a good fit since the upper bound of this ratio is approximately one third.

To test the significance of individual variables, an asymptotic t-test is employed. The statistic is calculated by dividing the coefficients by their asymptotic standard errors. For example, the statistic for households disposing of foreign automobiles is 5.49, indicating this variable is statistically significant at the 5% level. All disposed of stock dummy variables are significant at the 5% level, as is the number of adult family members.