To the Graduate Council:

I am submitting herewith a dissertation written by Dulcie Lynne Sybouts-Peccolo entitled "An Economic Analysis of Alternative Means of Family Support for Volunteer Activities." I have examined the final copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Home Economics.

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AN ECONOMIC ANALYSIS OF ALTERNATIVE MEANS OF FAMILY SUPPORT FOR VOLUNTEER ACTIVITIES

A Dissertation

Presented for the

Doctor of Philosophy

Degree

The University of Tennessee, Knoxville

Dulcie Lynne Sybouts-Peccolo

March 1983

3066005

This work is dedicated with love and

respect to my grandfather,

Arthur S. Michel

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ABSTRACT

An economic model was developed in this study for analyzing consumer support of volunteer activities. The analysis included the trade-offs between time and monetary contributions to volunteer causes. Data from the Time Use in Economic and Social Accounts Study were used to test the model of volunteer participation. The data used represented a national probability sample of United States households. Several variables were identified through the study's review of literature as influencing a consumer's choice of time or monetary contributions to voluntarism.

From the variables highlighted in the literature review, market wage rate, religious participation, education, occupation, gender, number of hours worked in the marketplace, consumption benefits, and number and ages of children were selected for study. Linear regressions were computed for the data using time spent in voluntarism and monetary contributions as the dependent variables. Various non-linear regression equations were also figured for the data. The best fit for the model of volunteer time allocations was found using market wage rate, religious practice, education, number of hours worked in the marketplace, and consumption benefits as common log predictors.

Using the above variables, 14 percent of the variation was accounted for with respect to volunteer time. Modeling monetary contributions was more difficult. Only three percent of the variation for monetary contributions was accounted for by running common log

regressions with market wage rate, religious practice, education, number of hours worked in the marketplace and consumption benefits as predictors.

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CHAPTER I

INTRODUCTION

I. PROBLEM STATEMENT

Voluntarism, support for nonprofit or philanthropic causes, plays an important role in the economy. Consumers' contributions to volunteer causes provide goods and services which augment those available through the marketplace. Historically, voluntarism has been given a high social value in the United States, beginning with the times of community barn raisings and continuing with contemporary efforts such as the United Way. However, throughout this transition, the principle of voluntarism has remained the same: to help individuals and families who could not function effectively in the marketplace and support institutions of value to society. In supporting voluntarism, individuals may contribute their time directly to volunteer work, give indirect monetary support to volunteer causes, or both. Although monetary contributions have been studied in the research on voluntarism, consumer time contributions have received much less attention. The purpose of this study was to develop and apply an economic model of consumer choice which was designed as a framework for analyzing consumer allocations to volunteer activities. The analysis included the trade-offs between time and monetary contributions to volunteer causes.

Consumers choosing to provide support for volunteer activities are faced with two basic questions. The first decision concerns

the amount of support, if any, which will be given. Consumers must then decide whether the support will be provided through time or monetary contributions.

The level of support selected by the consumer for voluntarism will be based on maximizing satisfaction, given utility maximization as the ultimate goal of any consumption activity. The consumer will make contributions to volunteer causes at the level which will yield the greatest amount of total utility subject to production, budget, and time constraints.

The manner in which voluntary support is to be provided is a complex question, but the household-production-function model provides a framework for analyzing the problem. This approach treats voluntarism like any other commodity in the household's utility function. The household will base its support on how voluntarism affects utility, with the pattern determined by the relative value of goods and time. The consumer may then maximize satisfaction either through purchasing the commodity (a monetary contribution) or through producing the commodity directly (a time commitment). Therefore, voluntarism may represent either a goods-intensive or a time-intensive commodity in the consumer's utility function. The major determinants in the choice between these two basis means of support will be the marginal productivity of time and the marginal utility of voluntarism. Ultimately, the consumer will choose to contribute to voluntarism in the manner which yields the highest levels of satisfaction, given the total resource constraint.

II. ECONOMIC ANALYSIS OF TIME

Time is the crucial element in a consumer's decision to contribute to voluntarism. Although the amount of time represents the one resource which is available equally to all consumers, time allocation patterns vary among individuals. One consumer may prefer to contribute time directly to voluntarism, while another decides to spend more time in the marketplace and make a monetary donation to volunteer causes. In both cases, the contribution to voluntarism represents the use of scarce time resources.

Recent developments in consumer theory have accounted for consumers' limited time resources by viewing consumption as a process through which time and market goods are combined to inputs to produce commodities (7). Satisfaction is provided for the consumer from the characteristics associated with these commodities (29). The economic value, opportunity cost, of time facing the consumer can be accounted for by using a time allocation model. Such an approach treats time as a limited resource and views the household as both a producing and a consuming unit. The consumer combines goods and time inputs in the manner which yields the highest level of satisfaction. The relevant cost of any consumption activity for the consumer becomes the sum of expenditures for the market goods involved and the foregone value of the time which was used.

A household time allocation model makes it possible to show time trade-offs facing the consumer with respect to contributions to voluntarism. First, the trade-offs among alternative uses of time

for the consumer become evident. Consumers may choose to allocate their time among work in the marketplace, home production, leisure, or volunteer work. Time spent in volunteer work reduces the total availability of time for any of the other activities.

Secondly, a time allocation model for the household shows the trade-offs, or substitution effect, between time and goods inputs in the household's production process. When time is included in the analysis of utility maximization, the household must face more than one constraint. Traditionally, consumer theory has only accounted for the budget, or goods constraint. With the inclusion of time the consumer must also deal with a time constraint and the production functions for each commodity. The problem facing the household becomes utility maximization subject to the time, goods, and production constraints. In the case of voluntarism, monetary contributions to volunteer organizations would logically be preferred when time has a high opportunity cost to the consumer. On the other hand, when time is relatively inexpensive for the consumer, time rather than money would be substituted into the production of volunteer work.

III. NEED FOR THE STUDY

Although the opportunity cost of time has received increased attention in consumer research, time contributions to voluntarism represent an area in need of additional research. Participation in volunteer activities has yet to be incorporated into a household time allocation model. Such research is needed to look beyond the

basic question of why individuals contribute to volunteer organizations and consider the factors which influence the means and method of volunteer support.

Studying volunteer participation from this perspective required the addition of a new component, volunteer time, into a household time allocation model. A model for volunteer participation was developed in this study which included the identification and testing of variables which were expected to influence either trade-offs between time and money support or the household's level of support for voluntarism. Variables used in the study include marketplace participation, market wage rate, gender, number and ages of children, education, occupation, religious participation, and consumption benefits.

The study of consumer contributions to voluntarism is particularly relevant today in light of recent trends in federal budget cuts for social programs, an upswing in female labor force participation, and an increased realization of the value of consumers' time. The reduction in governmental subsidies of social programs has placed an increased emphasis on consumer time commitments to volunteer work. A call for additional volunteer participation has resulted from efforts to meet the needs of low-income consumers who have previously been the beneficiaries of government support (42, p. 20).

Women have always been the primary producers of volunteer services (1,48), but their increased participation in the marketplace

has reduced the time available for volunteer work. Consequently, demographic changes in the labor force have important implications for the study of voluntarism. An increase in the number of women working outside of the home will have a bearing on time contributions to volunteer work, as well as other time allocation patterns within the household.

Finally, as the value of consumers' time increases with wage rates, it becomes more expensive in relative terms to contribute time to volunteer work. Opportunity cost considerations are important in the study of volunteer time contributions. Mincer related time opportunity costs to relative skills, efficiencies, and tastes of different individuals (37). Drawing from this research it can be inferred that consumers will take into account their relative skills and efficiencies at providing volunteer services before contributing their time to voluntarism. Similarly, individual tastes and preferences influence the type of volunteer involvement consumers pursue.

Other economists have correlated a market wage rate or potential income figure with the opportunity cost of time (7,23). The relationship between the potential earnings opportunity cost measure and time contributions to volunteer work is important. The higher an individual's potential earning power, the greater the opportunity cost of that consumer's volunteer time.

Although there is an opportunity cost associated with time commitments to voluntarism, time contributions may lead to economic and psychological returns for the consumer. Economic returns from

voluntarism include the federal income tax deduction available for monetary (but not time) contributions to charitable causes and the potential for investment in human capital. Human capital investments have been defined as "activities that influence future monetary and psychic income by increasing resources in people" (10, p. 1).

Psychological benefits from volunteer work which affect utility would include returns such as satisfying a desire to help others or an increased sense of self-worth, and can be considered consumption benefits for the consumer. Receiving satisfaction from volunteer involvement should bias the consumer toward time allocations to volunteer work rather than monetary contributions.

On the basis of the trends outlined here it was felt that the role and scope of volunteer activities will undergo important changes as the economic environment changes. It was suggested in this study that volunteer work would fit in with the other nonmarket activities which have been analyzed in a framework of time allocation for the household. Because both time and goods inputs are involved with the production of volunteer contributions, some measurement of the trade-offs between monetary and time contributions was seen as an important addition to the study of voluntarism and household time allocation models. Such research also has implications for the future role of volunteer organizations which have depended so heavily on time contributions from consumers.

CHAPTER II

REVIEW OF LITERATURE

I. INTRODUCTION AND BACKGROUND

As early as 1748, Benjamin Franklin wrote, "Remember that time is money" (19, p. 258). However, only more recently has this opportunity cost measure of individuals' time allocations been accounted for more fully in consumer research (7,23,37). Because time is a limited resource which has alternative uses and decisions about time allocation affect consumer well-being, the study of consumer time allocation patterns focuses on an important component of consumer behavior:

> On the face of it, the way time as a resource is used would seem to give the theorist a unique view of the intersection between the imperatives of the human condition and the range of individual choice. Much of the 24-hour day that contains all human experience is tightly constrained by the physiology of the species and the impress of the immediate economic environment. The details of these limits are of interest in themselves. Yet, in addition, the margins of discretionary time remain in the daily round for most men of most eras, and here the patterns of allocation can be taken to reflect the differentiation of individual tastes, values and life styles (11, p. 17).

Chapin has stated that the theoretical significance of studying time allocations with respect to consumer behavior focuses on time being a scarce resource (12, p. 3). Consequently, consumers are forced to make choices, based on their own individual tastes and preferences, among alternative uses of time. Unlike other limited

resources such as money, however, time cannot be saved for future allocation. Feldman and Hornik referred to this unique feature of the forced consumption of time when they wrote:

> The term 'saving time' really means the reallocation of time from one activity to another to achieve greater efficiency. The recognition of time as a scarce resource offers particular insights into the influence of the relative 'price of time' on the choice among activities (17, p. 407).

The ways in which consumers use time reflect both combinations of preferences and actual constraints built into the way life is organized (40, p. 2).

The model developed for this study posed alternative uses of time for consumers, with special emphasis on time contributions to voluntarism. The model treated time as a limited resource, accounting for the opportunity costs associated with time allocations. The remainder of this literature review will summarize past work on consumer time allocation models, provide a profile of volunteer workers, review consumer returns from voluntarism, highlight the economic importance of voluntarism, and show the need for additional research on the substitution possible between time and monetary contributions to voluntary causes.

II. A HOUSEHOLD TIME ALLOCATION MODEL

A Basic Time Allocation Model--Initial Work

Placing a value on consumers' time and including that value in the analysis of consumer choice represents a relatively recent

depature from the traditional consumer theory. Earlier, utility maximization had been subject only to the consumer's budget constraint, as determined by income and market prices. When the value of time was more fully recognized and quantified, the true cost of any consumption activity was more accurately viewed as the sum of the market prices involved and the foregone value of the time which was used.

Among the individuals involved with the initial study of consumer time allocations was Linder (32), who divided the use of time into five categories. Linder's time distinctions, which were not intended to be mutually exclusive, included:

1) working time--the time spent working in specialized production in the marketplace;

2) personal work time--home production time;

3) consumption time--the time spent consuming goods, or that time which is correlated with consumer utility;

4) cultural time--the time devoted to the mind and spirit, such as watching a play; and

5) free time--idle time that is not used for anything except passivity (32, p. 2).

Linder recognized that time, unlike other limited resources, cannot be accumulated.

Another economist who focused increased attention on the value of consumers' time was Becker. Becker recognized the importance of developing a broader perspective of time and looking at consumer behavior in light of additional time distinctions rather than the traditional emphasis on market time. In Becker's view the decline in

the number of hours spent working in the marketplace made the allocation and efficiency of non-working time potentially more important than that of working time (7, p. 493).

In 1965, Becker stressed the importance of time costs to the consumer by developing an economic model which accounted for a household's use and cost of time. The formulations in Becker's model are important in understanding that both goods and time inputs must be recognized as limited resources for the household. Becker viewed the household as both a consuming unit and a producing unit in which family members combined goods purchased in the marketplace and time inputs to produce basic commodities, Z_i, which in turn provided utility, U (7, p. 495).

Time inputs, in addition to goods inputs, are essential to both the production of commodities and to their consumption:

$$Z_i = f_i (x_i, T_i),$$

where x_i represents a vector of goods inputs used in the production of the basic commodity Z_i, and T_i represents a vector of time inputs in the production and consumption of Z_i (7, p. 495). The vectors show the combination of, and substitution between, the possible inputs. For example, if an individual were interested in producing a meal, goods and time inputs could be varied in the process. For the person with a high cost associated with time, convenience foods, representing a more goods intensive input, might be substituted into the production process. On the other hand, for the person with a

low opportunity cost associated with time, a more time consuming yet goods saving approach to food production might be preferred.

Becker set forth two constraints in his model to account for the full price associated with the production and consumption of basic commodities. The problem facing the consumer is utility maximization subject to both of these constraints. The first constraint is the budget, or goods, constraint:

$$\sum_{i}^{m} p_i x_i = I = V + T_w \bar{w},$$

where p_i is the unit price of the goods, x_i; I represents total income; V is unearned income; T_w is a vector giving the hours spent at work; and w is a vector giving the earnings per unit of T_w (7, p. 496).

The time constraint facing the household was written as:

$$\sum_{i}^{m} T_i = T_c = T - T_w,$$

where T_c is total time spent at consumption, T is a vector giving the total time available and T_w is again the time spent at work (7, p. 496).

From this the production functions were depicted by Becker as:

$$T_i \equiv t_i Z_i$$

$$x_i \equiv b_i Z_i$$

where t_i is a vector giving the input of time per unit of Z_i and b_i is a similar vector for market goods (7, p. 496).

Becker combined the goods and time contraints "because time can be converted into goods by using less time at consumption and more at work" (7, p. 497). Becker used $\bar{w}$, the market wage rate, to provide a single resource constraint:

$$\sum_{i}^{m} (p_i b_i + t_i \bar{w}) Z_i = V + T\bar{w},$$

where the full price of any commodity Z_i is the sum of the prices of both goods and time inputs used in its production. This accounts for both direct, market goods, and indirect, time, costs to the consumer.

Becker's model recognizes both the production and consumption features of the household and provides a theoretical base for studying many decisions facing household members:

> The production model not only emphasizes that the household is the appropriate basic unit of analysis in consumption theory, it also brings out the interdependence of several household decisions: decisions about family labor supply and time and goods expenditures in a single time-period analysis, and decisions about marriage, family size, labor force attachment and expenditures on goods and human capital investments in a life cycle analysis (36, p. 388).

Becker later expanded his initial work on a time allocation model in A Treatise on the Family (9).

Further Refinements and Extension of the Household Time Allocation Model

Since Becker set forth his initial theory on consumer time allocation, several economists have refined and applied Becker's basic model. Among these, Gronau extended Becker's model to look at time allocation among leisure, home production, and work in the marketplace, pointing out that while "a great deal is known about the household's labor force behavior, only a little is known about how the family allocates its time within the home" (23, p. 1100).

In his study on time allocations of Israeli women, Gronau showed that education was a major determinant of the labor force participation of Israeli married women (21, p. s218). He also found:

> Time withdrawn from the home sector comes primarily at the expense of work at home and does not affect the leisure of the more educated. Preschool children have a deterrent effect on their mother's participation and cut into her leisure . . . (21, p. s218).

Gronau drew the following distinction between home production and leisure in his work, "Leisure, Home Production and Work":

> An intuitive distinction between work at home and leisure is that work at home is something one would rather have somebody else do for one, while it would be almost impossible to enjoy leisure through a surrogate. Thus one regards work at home as a time use that generates services which have a close substitute in the market, while leisure has only poor market substitutes (23, p. 1104).

This distinction has important implications for voluntarism. Individuals viewing voluntarism as a form of leisure would be more likely to contribute to volunteer work. On the other hand, individuals who

feel that volunteer work is a type of production would more likely prefer monetary contributions.

Gramm applied Becker's model to study consumers' use of nonmarket time. Using data collected from 400 Chicago school teachers, Gramm was able to determine the effects of income, assets, and children on the wife's allocation of time. Gramm's study showed the following results:

> 1) When the wage rate of the wife is high, the woman spends less time cooking, cleaning and on other non-market activities and more time at market labor.
>
> 2) A higher husband's wage causes the wife to spend less time on market labor and more time in all other non-market activities.
>
> 3) Women with more children spend more time cooking, cleaning and doing laundry and less time at market labor, while time spent on all other non-market activities remains unchanged (20, pp. 32-33).

A critique of the household production function is provided by Pollack and Wachter in their work on the model's implications for time allocation. They argue:

> The application of the household production function approach requires strong assumptions about the structure of the household's technology, in particular, constant returns to scale and the absence of joint production. If these assumptions are not satisfied, commodity prices depend on the household's consumption pattern. Hence, price differences among households reflect differences in tastes as well as technology (41, p. 256).

According to their position, if constant returns to scale and the absence of joint production are not met, demand functions based on commodity prices are misleading.

Pollack and Wachter maintain that in the production process, joint production is the rule and not the exception because "the input of time into many household activities is itself a direct source of utility or disutility to members of the household engaged in the activity" (41, p. 266). Thus, the authors indicate household decisions about time allocation reflect direct household preferences as to the uses of time in addition to production considerations. In contrast to Pollack and Wachter's argument, Deaton and Muellbauer indicate that even if production occurs, meaningful shadow prices for household commodities can be estimated (14, p. 249).

In his work on an economic analysis of philanthropy, Sugan extended Becker's theory of social interactions (8) to study the public good theory of philanthropy. Sugan suggested the use of utility maximization to explain philanthropic behavior fails to answer the question of why people should value the act of contributing to a charity, rather than valuing the charity activity itself (58, p. 349). Sugan indicated that when utility is interpreted as a psychological experience of pleasure, it is not a matter of logical necessity that a person maximizes his or her own utility. Rather than utility maximization, a theory of philanthropy might be constructed on the assumption that some individuals act on moral principles rather than on pure self-interest (58, p. 349).

Application to Voluntarism

This study represents an extension and application of the past work done on household production functions. Such an approach takes into account the opportunity costs of contributions to voluntarism for the consumer. A further distinction between time and monetary contributions/inputs to voluntarism makes it possible to recognize the substitutions possible in the production of volunteer support. "Not only do consumers use time and money to acquire, produce, or consume goods and services, but they also use time as a substitute for money and vice versa" (27, p. 320).

Robinson identified four sets of factors which influence time use: personal, role, resource, and environmental (44, p. 28). Personal factors include such things as sex, age, and education. Role factors such as employment, marriage, and parenthood will influence how people use their time. Environmental factors such as day of the week, geographic location, and season may determine how time is spent. Resource factors, income, household appliances, and space, will also have an influence upon various aspects of time use. Many of these factors were tested in this study to look at their influence on the amount of time consumers spend in volunteer work.

III. FACTORS INFLUENCING TIME VS. MONETARY CONTRIBUTIONS TO VOLUNTARISM: PROFILE OF A VOLUNTEER WORKER

Introduction

A review of the literature on voluntarism provides a profile of characteristics for volunteer workers, posing several variables which would influence an individual's decision to provide voluntary support. Those factors which were thought to have a bearing on a consumer's choice between time and monetary contributions to voluntarism are summarized below. It should be noted that the research summarized here does not build upon a household production model. Though researchers have found certain variables to be important determinants of voluntarism there is no theory to explain why.

Marketplace Participation

Becker and Gronau have shown that time has a higher opportunity cost for individuals working in the marketplace than for those working in the home (7,23). Consequently, individuals working in the marketplace can be expected to seek ways to economize their time. Decreasing time allocated to volunteer and community work is one possible strategy for working wives trying to save time (57, p. 338). Schram and Dunsing reported the average female volunteer is not employed in the labor force (48, p. 372). Strober and Weinberg suggested that employment does not tend to diminish volunteer work among married women:

> The evidence on strategies used by working wives to cope with increased time pressures suggests that, holding income and life cycle constant, working wives devote less time to housework, leisure, and volunteer activity; sleep less; make more use of the time of others for child care; exhibit some tendency to use paid help more frequently; but do not purchase durables more frequently than non-working wives (57, p. 342).

Income

In Productive Americans, the authors' findings showed a positive relationship between family income and contributions to volunteer work. "People with higher incomes do not substitute money contributions completely for time devoted to volunteer work . . . they reported doing more of both than low income individuals" (39, p. 141). Trade-offs between time and monetary contributions were evident in the study as well. High-income families were reported to give more money than they did time to voluntarism to compensate for the high cost of their time resources. Lower-income families reported giving more time than they did money to compensate for their relatively small contributions of money (39, p. 141).

Income was found to be the most important predictor of a household's monetary contributions to charities and church in a study on philanthropy conducted through the Survey Research Center Institute at the University of Michigan (38, p. 266). The mean amounts contributed by each of the study's income groups ranged between four and six percent of gross disposable income (38, p. 264).

Hausknecht's study on voluntary association membership showed a positive relationship between income and voluntarism. Hausknecht

used data from two surveys; one undertaken by the American Institute of Public Opinion (AIPO) with a sample size of 2,000 and the other by the National Opinion Research Center (NORC) with a sample of 2,379 respondents. When contrasting the lowest and the highest income groups studied, both surveys showed that as income increased so did the rate of membership in volunteer associations. In the AIPO survey, 46 percent of the lowest income group were members while 69 percent in the highest income group held memberships (25, p. 24). Of those in the lowest income group in the NORC sample, only 24 percent were members as compared to 52 percent of the highest income group who were members (25, p. 25).

Gender

Women tend to contribute more time to volunteer work than do men. Volunteer workers typically have been married women who are not employed in the labor force (48, p. 372; 61, p. 3).

In her research, Walker found that children and employment status affected the time women allocated to home production, but not men's home production time allocations (64). For married women with children this would mean less time would be available for voluntarism.

Children

In his study on the influences of children upon social participation, Harry found that family "is not an institution which facilitates involvement in voluntary associations, except for those associations in which participation is based upon family interests,

for example, Boy Scouts" (24, p. 827). Robinson's work showed that children had a greater influence upon time allocation than marital status alone (44). With respect to voluntarism this could also support the premise that parents would be more likely to participate in volunteer work which was related to their children.

The presence of children has been shown to cause the mother to spend more time at home production and less time at leisure and market work (22). Leibowitz found that more educated individuals spend more time in child care, both overall and per child (31, p. 244). This could mean less time overall would be available for voluntarism when children are present in the household.

Volunteer work participation did not increase with the number of children in Scott's research (50, p. 315). Finally, volunteer participation has been shown to increase for the homemaker with school-age children rather than preschoolers (3,51).

Education

In a 1969 U.S. Department of Labor survey the typical volunteer worker was said to be a female with a high school education (61, p. 3). A more recent study indicated the average volunteer worker was a female with a college degree (1, p. 4).

Individuals with more education were reported to do more volunteer work in Productive Americans (39, p. 144). Reasons given for this higher participation by individuals with additional education were greater demands for their services and the fact education was

thought to affect people's motives for doing volunteer work. In their research, Schram and Dunsing found:

> The more highly educated the homemaker and the more negative the husband's attitude about wives working outside the home, the most likely the homemaker was to do volunteer work (48, p. 377).

One unexplained finding of the Morgan et al. study was the tendency for more education to be associated with less voluntary giving among the young, white, nonfarm population, but to be associated with more giving among the older, white, nonfarm people (38, p. 287). Possible reasons given for this finding were that younger heads of households with higher education who contributed less had greater demands on their income for household goods and support of young children, and that their higher educations gave them a target living standard above that provided by their present incomes.

Hausknecht also showed educational levels to make a difference in volunteer participation. As the educational level increased in the surveys used by Hausknecht so did membership in voluntary associations. In the AIPO survey, 39 percent of the least educated participants were members of associations, while among college graduates over 78 percent were affiliated with associations. Similarly, the NORC survey found 17 percent of the least educated to be members, as contrasted to 61 percent of the college educated (25, p. 17).

Age

A positive relationship between volunteer work participation and age has been shown in the literature. Participation in volunteer activities is low in early and late adulthood and highest during the middle years (1,25,61). Schram and Dunsing indicated the typical volunteer was between the ages of 25 and 44 (48, p. 372).

In their study related to voluntarism, Morgan et al. found that monetary contributions to church and charities were the greatest for households in which the head was between 45 and 64 years old (38, p. 264). The researchers pointed out, in line with this finding, that these are also the years of greatest income for most individuals.

Perception of Leisure Time

Given the greater time pressures faced by individuals working in the marketplace as contrasted to those working in the home, the literature shows that leisure time will be viewed as a more limited resource by employed individuals. In their study on the strategies used to reduce time pressures by working vs. nonworking wives, Strober and Weinburg found working wives were much less likely to report having "excess spare time." Sixty-four percent of working wives in the study disagreed with the statement, "I have more spare time than I need," while only 35 percent of the nonworking wives disagreed with the statement. "At all income levels and life-cycle stages, working wives appear to face greater time pressures than do non-working wives" (57, p. 338). When individuals feel greater time

pressures they should be inclined to reduce time commitments to voluntarism.

Place of Residence

Hausknecht's study, The Joiners, showed the largest percentage of voluntary memberships is in small urban communities. Hausknecht offered several reasons for this even though as he indicated, "the most fertile ground for the proliferation of voluntary association is in large urban communities":

> One involves the problem of the available opportunities for leisure time 'investments.' A metropolis offers many opportunities for the pursuit of leisure time interests which do not entail association membership. These same interests may exist in small communities, but there are fewer resources for satisfying them. Thus, the voluntary associations of the metropolis must compete with the museum, the concert hall, the theatre, etc. Second, the sheer number of people in a metropolis makes it easier to satisfy needs which in a small community can be satisfied only within the framework of an association. Finally, voluntary associations may induce in the individual living in a small town a greater sense that, as it were, 'his vote counts.' The resident of megalopolis is apt to feel that both he and his association are ultimately impotent--'you can't fight City Hall' (25, pp. 18-19).

Wright and Hyman's work indicated membership in voluntary associations was more characteristics of urban and rural nonfarm residents than of rural farm residents (68, p. 294). Azzi and Ehrenberg suggested that rural religious participation could in fact be higher than urban because market consumption alternatives were relatively limited in rural as opposed to urban areas (4, p. 38).

Race

In 1958, Wright and Hyman's research on voluntary association membership showed that "membership was more characteristic of the white than the Negro population" (68, p. 284). In contrast, Babchuk and Thompson found that Blacks of all classes in Lincoln, Nebraska, belonged to more voluntary associations than whites of the corresponding class level. They indicated:

> Voluntary associations for Blacks of all classes function in much the same way as the church to provide the Negro with not only an opportunity for self expression and status recognition, but also with an avenue to compete for prestige, to hold an office, to exercise power and control, and to win applause and acclaim (5, p. 654).

Azzi and Ehrenberg suggest this higher participation by nonwhites may indeed be the case because "racial discrimination may take the form of limiting market consumption alternatives of nonwhites relative to whites" (4, p. 38).

Marital Status

Sirageldin found the value of volunteer work was greater for married people than for single people (52, p. 77). In his work on "Family Localism and School Participation," Harry found that marriage gave rise to higher participation in voluntary associations (24). However, Gronau found that married individuals had less leisure time than single individuals due to their marital status and the presence of children (23). This would mean less total time was available for voluntarism for married individuals.

Religious Participation

Individuals have been shown to contribute to both religious and charitable causes for similar psychological returns, for example, feeling good about one's self or societal pressures (2,54,62). More frequent church attendance has been found to relate to greater monetary contributions to the church and other charities (38, p. 262). The positive relationship between formal religion and voluntary giving to charitable causes has been traced to religious doctrines:

> American philanthropy owes much to the ancient Jewish doctrine which taught rules about the duty of giving and the right of those in need to receive. It is hardly too much to say that Jewish, Catholic and Protestant doctrines and practices have been central in the development of philanthropy in America (38, p. 269).

Azzi and Ehrenberg suggested that religiousity can be analyzed in a household-allocation-of-time framework similar to the model developed for voluntarism in this study (4). They indicated in their work that market goods, monetary donations to the church, could be substituted for time commitments, church attendance, as an individual's earnings increase. Their model also predicted that, if an individual faces an upward-sloping age-earnings profile, he or she should decrease the time intensity of his or her religious activities over the life cycle:

> This could be accomplished either through interdenominational mobility toward less time-intensive denominations or through the substitution of market goods for household time within a given denomination (4, p. 52).

Social Class

More studies of voluntary associations have focused on social class than on any other variable (53, p. 154). Most of the research concerned with the relationship between social class and voluntarism has had similar conclusions:

> Low socio-economic status, whether measured by education, income, occupation, a subjective judgment by an individual of his own status or by some combination of these factors, is highly correlated in a positive direction with low rates of participation and even lower rates of holding leadership positions in organizations (53, p. 154).

Smith and Freedman indicated this lower volunteer participation by low-income individuals may be due to "psychological effects of low status which result in differential expectations of behavior and avoidance of certain activities such as voluntary association participation" (53, p. 155).

Schram and Dunsing's research on influences of volunteer work participation for married women showed that women in a higher social class may volunteer time just because it was expected of anyone in their social position and because volunteer work may be more prestigious than market work (48, p. 374). Smith and Freedman conclude that the evidence correlating voluntarism and higher social status is overwhelming:

> Several investigators have been led to conclude that advantages 'cumulate' for the advantaged, that is, those with more education and income and higher occupational status are also psychologically more confident, have greater feelings of efficiacy, and participate more in both informal and formal social activities including

> voluntary associations; on the other hand, disadvantages 'cumulate' for the disadvantaged (53, p. 154).

IV. THE INFLUENCE OF INCREASED FEMALE LABOR FORCE PARTICIPATION ON VOLUNTARISM

Level of Participation

In addition to meeting domestic responsibilities women have always contributed to the nation's economy and the economic well-being of their families. Since World War II, there has been a marked increased in the proportion of women working in the marketplace. Feinstein (16) highlighted this trend in her book, Working Women and Families:

> In 1920, 20 percent of all women 16 years and over were in the labor force. Their labor force participation has risen steadily since then, accelerating during the 1960's and reaching 43 percent in 1970. By the end of 1976, nearly half of all women were working or looking for work, making up approximately 41 percent of the labor force (p. 14).

Factors Encouraging Increased Labor Force Participation by Women

Economic considerations have played a central role in the trend of increased labor force participation by women. These economic factors include the effects of inflation, the increased need for women to be self-supporting due to higher divorce rates and the increase in families maintained by women, and changing notions of what constitutes a decent standard of living (16,28,56).

Other factors have also contributed to the increased number of women working in the marketplace. Changes in patterns of childbearing and family size have influenced this trend (56, p. 2; 67, p. 4). Higher educational attainment of women and increased opportunities for post-secondary education have improved women's qualifications for employment (56, p. 2; 67, p. 4). Kreps and Clark suggest that investments in human capital, through education and training, make women more productive in the marketplace, in relative terms, than in the home (28, p. 20).

Finally, there has been a change in attitude on the part of women themselves about work in the marketplace. Increasingly, women are acknowledging the possible need to be self-supporting (16, p. 16). Women are also recognizing the sense of achievement and satisfaction possible from employment, causing women to look beyond economic motivations for work in the marketplace.

The Effect on Voluntarism

An economic theory of decision making provides a conceptual framework for exploring the increased number of women working outside the home. Smith outlined this framework in his work on increased female labor force participation:

> An individual decides whether to participate in the labor force based on the perceived rewards to seeking paid employment relative to the rewards of spending this time outside the labor force. The latter may include going to school full time, homemaking, volunteer work, and leisure. As we have seen, an increasing proportion of women have opted to participate. This fact suggests that the perceived benefits of being in the labor force have been increasing, the benefits of not participating have been decreasing (56, p. 4).

Smith contends the rewards for working in the home have not increased in proportion to the rise in real wages, adjusted for inflation, during the past century. This makes the opportunity cost of working in the home too great for an increasing number of women. Smith suggests one consequence of an increase in female labor force participation will be a potential reduction of the many community services that are now performed primarily by homemakers as volunteers. Though the impact on voluntarism is not explored in his work on the movement of women into the labor force, Smith indicates this is an area where additional research is needed (56, p. 29).

Kreps and Clark used a utility function to study consumers' allocations of resources between marketwork and home production. They explain a woman's decision to work outside the home may be because she is adding more to the family's utility by participation in market work than by specializing in home production (28, p. 50).

The same analysis can be applied to volunteer work. Women will choose between voluntarism and other time uses depending upon the utility derived from the various time allocations. In studying time allocation patterns, an increase in female labor force participation cannot be ignored because this increase will ultimately reduce the total time available for voluntarism.

V. CONSUMER RETURNS FROM VOLUNTARISM

Consumption Returns--Motivation for Voluntarism

According to Anderson and Moore in their study on motivations behind individuals' volunteer participation:

> The most frequently asked, and most perplexing question in the field of voluntary action--Why do people volunteer?--concerns the needs, motives and desires of individuals who decide to give freely of time, energy, and skills to work in the country's social service agencies (2, p. 120).

Researchers exploring the question of why people volunteer have frequently looked at such factors as social background, education, age, gender, employment, social status, etc. (25, 54, 61). While these studies have been helpful in developing profiles for volunteer workers they have done little to clarify or explain the motivational dynamics beyond voluntarism.

More recently individuals have begun to look at the possible returns from voluntarism to the volunteer workers themselves. In a study carried out by the Institute of Community Studies, the motives mentioned most frequently by volunteers were classified as resulting from three major influences:

1) Altruism--wanting to do something for others;
2) Self-interest--seeking personal benefit such as experience, interest, knowledge or occupation;
3) Sociability--wanting to meet people, to make friends (62, p. 42).

Service to society, self-actualization, need for power, emotional associations, and the need for mutual support are further reasons given as possible motivations for undertaking volunteer work (46, p. 51).

Reissman stated that, in many instances, it is the volunteer who benefits most from the helping relationships, indicating self-development and social interaction were reasons for voluntarism (43).

Smith also feels the potential for personal development is a basis for volunteer work:

> Voluntary action potentially offers unique opportunities for personal growth and realization of personal potentials not only for those people whom society otherwise deprives, but also for all the members of society in certain directions. No matter how free, open, equalitarian, and highly developed the society, there are always limitations of some sort placed on the development of each person by his particular social environment. Any major decision to follow a certain line of personal occupational or educational development, for instance, automatically forecloses a number of other alternatives, or at least makes them highly unlikely. Voluntary associations, however, exist in such profusion and variety that they can provide otherwise missed personal development opportunities to almost any person at almost any stage in life (55, p. 393).

Anderson and Moore's study on motivations behind voluntarism dealt with the frequency with which various motives, or reasons, for volunteering were identified among their study's participants (2). A large proportion of the respondents in Anderson and Moore's study volunteered either to help others (75.1 percent), or to feel useful and needed in today's society (50.6 percent). Conversely, few persons entered the voluntary field for companionship (6.4 percent), or because their friends were also volunteers (12.6 percent). Self-fulfillment was the motive given for volunteering by 39.9 percent of the sample and personal development was the reason indicated by 34.0 percent of the respondents. "To occupy spare time" was an important motivating factor for 32 percent of the sample (2, p. 122).

It appears from the previously mentioned studies that individuals do volunteer for a variety of utility-related returns. However, humanitarian motives, wanting to help others, and the desire to feel useful consistently stood out as motivations for contributing time to volunteer causes. As Vroom suggests, while individuals may volunteer for personal reasons, they tend to perceive their activity as "contributing to the happiness and well-being of their fellow man" (63, p. 39).

Economic Returns--Tax Considerations and Voluntarism

Some consideration of the federal income tax structure is necessary when looking at the trade-offs between time and monetary contributions to voluntarism. "Because charitable contributions are deductible in defining taxable income, the 'price' of such gifts is less than the price of other consumption" (18, p. 81). Just as personal consumption returns, such as satisfying a desire to help others or an increased sense of self-worth, will favor time commitments to voluntarism, the income tax deductibility feature should encourage monetary contributions.

The true price of consumers of monetary contributions to charitable causes is actually tax determined:

> Because income given to recognized charities is not subject to the federal income tax, disposable income is reduced by less than the full amount of the gift. The actual cost of the gift is the gross amount given minus the tax savings. Tax saved is determined by the marginal tax bracket the donor is in (49, p. 1270).

Due to the progressive nature of the federal income tax this tax consideration is especially relevant for consumers in higher income brackets.

Long's work, "Income Tax Effects on Donor Choice of Money and Time Contributions," also shows that under the tax deductibility provision, "the price--or cost to the individual--of money donations is reduced" (33, p. 208). Long indicates that when the marginal utility between time and monetary contributions to voluntarism is equal for the consumer, the tax deductibility provision reduces the cost of monetary donations in relative terms (33, p. 207).

Taussig studied the influence of the deductibility provision as an incentive on monetary giving for philanthropic causes. Taussig found "the deductibility of charitable gifts can be expected to increase the level of giving for two reasons; deductibility lowers the relative price of a gift and it increases the level of private disposable income" (60, p. 3).

When faced with a decision between time and monetary contributions, influences of consumption returns and tax deductions will vary according to the consumer's income level. At lower income levels the consumption effect should dominate because of fewer opportunities for such benefits. At higher income levels the income tax deduction feature should be more dominant since "the charitable deduction provisions as they exist with the federal income tax operate to reduce the net cost of giving as the ability to give, measured by income and wealth, increases" (45, p. 25).

VI. ECONOMIC IMPORTANCE OF VOLUNTARISM IN THE UNITED STATES

It is difficult to provide more than estimates for the total role voluntarism plays in the economy. Obvious problems contribute to the difficulty in deriving a set dollar figure for the value of all voluntarism which takes place in the United States. For example, what constitutes a charitable contribution--the donation of a rare painting to a museum or the time a volunteer spends reading to a blind, elderly individual? What kind of dollar figure can be assigned to the time spent as a volunteer Girl Scout leader by an individual who is not gainfully employed in the marketplace? Though difficult to calculate accurately, there is little doubt that the volunteer sector has an important impact on this nation's economy, bridging gaps where the marketplace fails to meet individual consumer needs.

Statistics and figures reported for the voluntary sector of the economy vary considerably depending upon the definition given to voluntarism. Cull and Hardy suggest five types of voluntary action which they feel comprise the voluntary sector in the economy:

1) Service-oriented voluntarism such as Red Cross volunteers;
2) Issue-oriented or cause-oriented voluntarism such as consumer or environmental concerns;
3) Consummatory or self-expressive voluntarism including theatre groups and garden clubs;
4) Occupational/economic self-interest voluntarism including trade unions and professional associations; and
5) Philanthropic funding voluntarism such as the United Way and the March of Dimes (13, p. 111).

Smith provides the following definition of the voluntary sector which can be used in examining its impact on the economy:

> The voluntary sector refers to all those persons, groups, roles, organizations and institutions in society whose goals involve primarily voluntary action . . . it includes what one is neither made nor paid to do, but rather what one does out of some kind of expectation of psychic benefits, or commitment to some value, ideal or common interest (55, p. 387).

Smith's definition extends the scope of voluntarism beyond "philanthropic giving" as determined by the regulations of the Commission of the Internal Revenue. When the definition of philanthropy is determined by tax regulations, income tax data show the current philanthropic giving equals two to three percent of the nation's total income (15, p. 2).

Figures based on the Internal Revenue's definition of philanthropy have obvious limitations in that they do not include the time contributions of volunteers:

> We tend to forget that to forego income also is to give. Thus, the tax code permits the deduction, on tax returns, of contributions in cash or property, but not of contributions in the form of personal services or (in large part) of the services of property. Nobody keeps books on housewives' or even corporate officials' time spent in philanthropic activities, but such contributions must make up a substantial sum (15, p. 2).

Weisbrod stressed the importance of collecting data on consumer time allocations to voluntarism when he stated:

> Few organizations keep records on the hours worked by volunteers, the kind of work done, and the social opportunity cost of the donor's time. This is a data gap that should be closed. Surveys of individual donors depend upon accurate estimates of donated hours, but in contrast to money donations, which may be tax deductible, volunteered labor hours are not. The individual donor therefore has no apparent reason to record them precisely (65, p. 17).

Szalai attempted to survey the extent of volunteer time commitments in his study on time use which surveyed respondents from 44 cities. In

generalizing to the entire United States population, the study's findings showed the average total time per person per week spent in organizational activity was only three-quarters of an hour (59, p. 623).

Even with obvious gaps in the data related to voluntarism, researchers are beginning to have a new appreciation for the value of consumers' contributions. In his article, "The New Voluntarism," Langton indicated the 1970's marked a new interest in the scope of the voluntary sector in America:

> During the decade, we discovered how extensive the so-called 'voluntary sector' had become. For example, we learned: voluntary associations account for more than 80 billion dollars of our annual economy; 84 percent of the adult population donate to voluntary associations; there may be as many as six or seven million voluntary groups in the United States; the gross annual receipts of United Way agencies would place them within the top 200 of the Fortune 500 companies; and one voluntary group (the YMCA) would be ranked as the eighth largest hotel chain in the nation (30, p. 7).

Sirageldin included volunteer work with other productive activites which are not included in national income figures:

> Estimates of the United States National income published by the Department of Commerce have at least the following deficiencies. The first is that they do not include the value of unpaid productive activities done by the family, such as the value of housework, of home production, or the value of time spent by heads of families and their wives on doing or receiving volunteer work or taking further education (52, p. 1).

Based on the assertion that time is a scarce resource, Sirageldin figured the value of these unpaid productive activities using an opportunity cost measure of foregone earnings. Sirageldin's analysis of data collected in 1965 by the Survey Research Center of the University of Michican provided the following figures with respect to volunteer

work. The average value of volunteer work, per person, on an annual basis was estimated to be $204 (52, p. 77). The value of volunteer work for married people, $227, was greater than for single people, especially single women, $139 (52, p. 77). Sirageldin also pointed out that estimates had previously been done on volunteer monetary contributions, but not the value of volunteer work, "though only the latter [time] could be considered as net value to the society, while the former [money donation] is a transfer deduction which does not add to the flow of real goods and services" (52, p. 19).

In Productive Americans the authors indicated "the United States is affluent today because its people are hard working . . . many of them do economically productive work for purposes other than monetary rewards" (39, p. 1). In their research they estimated that in 1964, such unpaid work, including voluntary work, would have increased the country's Gross National Product by 38 percent (39, p. 1).

Based on the study's national sample, in 1964, American families spent an annual average of 87 hours of their time on volunteer work, with 57 percent of all families doing some volunteer work (39, p. 140). The full distribution of hours of volunteer work from the study was as follows:

1) No volunteer work----------	43%
2) 1 to 40 hours per year------	24%
3) 41 to 120 hours per year----	14%
4) 121 to 240 hours per year---	9%
5) 241 to 1000 hours per year--	8%
6) 1001 or more hours per year-	2%

When valued at the average hourly earnings of family heads who worked in

1964, the average family's volunteer work was figured to be worth more than $260 in Productive Americans (39, p. 140).

Also using the data from Productive Americans, Smith (1974) figured the total monetary worth of such time contributions to voluntarism. "Based on the number of families in the United States at that time (about 60,000,000), this means that about $15.6 billion worth of time was contributed by volunteers" (55, p. 278).

VII. TIME VS. MONETARY CONTRIBUTIONS TO VOLUNTARISM: THE NEED FOR ADDITIONAL RESEARCH

The study of voluntarism has yet to provide a theory or model to analyze the determinants of both a household's level and means of support for volunteer activities.

> There is no grand, all encompassing, and generally accepted theory of voluntarism, or even a respectable middle-range theory. For the most part, one finds a series of largely unrelated hypotheses dealing with various aspects of voluntary associations and with participation in them (53, p. 1).

Similarly, time allocation and home production studies have not dealt specifically with the time-intensive nature of much volunteer work. Given the importance of the voluntary sector in the economy, this lack of theoretical research and empirical analysis of consumer time and monetary contributions to voluntarism is surprising.

With the current trend of reduced social welfare programs and the present state of the economy, voluntarism will continue to play a vital role in this country. Research which accounts for and recognizes the changing influences on voluntarism will have important implications

for making the best of limited volunteer resources. Schindler-Rainman and Lippit's work on the volunteer community highlights eight trends which will influence the future course of voluntarism:

1) The increasing rate and complexity of social and technological change;
2) Separation and polarization of social, economic and political groups;
3) Search for personal meaning, identify, self-renewal and inter-personal connection;
4) The changing nature and meaning of work, achievement, leisure and consumption;
5) The postindustrial economy;
6) Changes in the institutions and programs for the socialization of the young;
7) Our natural environment and human resources; and
8) Involvement in a world society (47, pp. 20-31).

Voluntary agencies will need to recognize these trends as they continue to look toward volunteers for important time contributions. The call for increased voluntarism in light of the present reductions in social programs will have a special meaning given the true opportunity cost associated with consumers' volunteer time. Research which studies consumers' contribution to voluntarism will be timely and helpful to agencies which have depended so heavily on time commitments from volunteers.

The literature review for this study found profiles (1,25,61) and motivations (2,54,62) for volunteer workers available from past studies, but failed to discover a model which identified and explained the influences of trade-offs between time and monetary contributions to voluntarism. In general, the literature review highlighted an important void overlapping both consumer time allocation research and studies on voluntarism.

The opportunity costs of voluntarism were consistently overlooked, or not fully explained in the research reviewed for this study. Research has not specifically addressed variables which will influence the household's decision between time and monetary contributions to voluntarism. As shown in the literature review, factors such as marketplace participation, market wage rate, the influence of children, gender, education, occupation, and level of religious participation will have a bearing on a consumer's choice between contributing money or time to voluntarism. Consequently, this research was designed to study these variables by incorporating voluntarism into a time allocation model and exploring the opportunity costs, or trade-offs, between time and monetary contributions.

CHAPTER III

METHODOLOGY

I. A MODEL OF VOLUNTEER PARTICIPATION

A model of consumers' volunteer participation was developed for this study to provide a basis for analyzing the economic forces affecting a family's allocation of time and money to voluntarism. Because voluntary activities are largely discretionary, such activities must be included in the consumer's utility maximizing process. Within the model, utility is a function of three basic commodities, Z_1, Z_2, Z_3, and leisure, L.

$$(1)\quad U = u\ (Z_1,\ Z_2,\ Z_3,\ L)$$

The commodities, Z_1 and Z_2, are produced by the household using market goods, x_i, as inputs, and home production time, t_h, in the production process. The model assumes no joint production is taking place.

$$(2.1)\quad Z_1 = f_1\ (x_1,\ x_2,\ t_h)$$

$$(2.2)\quad Z_2 = f_2\ (x_1,\ x_2,\ t_h)$$

The volunteer commodity, Z_3, is produced through goods inputs and time spent in volunteer activities, t_v.

$$(3)\quad Z_3 = g\ (x_3,\ t_v)$$

Utility maximization for the household is subject to a budget and a time constraint. The budget constraint is represented as:

$$(4)\quad Wt_m + V = p_1x_1 + p_2x_2 + p_3x_3$$

where W is the market wage rate, t_m is time spent working in the market, V is unearned income, and p is the unit price of each good input.

The time constraint is written as:

$$(5)\quad T = t_m = t_h = t_v + L,$$

where T is total time available to the consumer.

Utility for the household is then maximized subject to the budget and time constraints, and to the production relations:

$$(6)\quad \text{Maximize } u\,[f_1(x_1, x_2, t_h),\ f_2(x_1, x_2, t_h),\ g(x_3, t_v),\ L]$$

The optimal condition for the household is found by maximizing equation (6) subject to the constraints set forth in equations (4) and (5). This is accomplished by the creation of the Lagrangian expression:

$$\begin{aligned}(7)\quad \phi = {} & u\,[f_1(x_1, x_2, t_h),\ f_2(x_1, x_2, t_h),\ g(x_3, t_v),\ L] \\ & + \lambda\,(Wt_m + V - p_1x_1 - p_2x_2 - p_3x_3) \\ & + \eta\,(T - t_m - t_h - t_v - L),\end{aligned}$$

where λ represents the marginal utility of wealth, and η is the marginal utility of time.

The first order conditions for a maximum are found by setting the first partial derivatives equal to zero (equations (8.1) through (8.9)). Second order conditions for utility maximization are assumed to hold.

$$(8.1)\quad \frac{\partial \phi}{\partial x_1} = \left[\frac{\partial u}{\partial z_1}\ \frac{\partial f_1}{\partial x_1} + \frac{\partial u}{z_2}\ \frac{\partial f_2}{\partial x_1}\right] - p_1\ \lambda = 0$$

$$(8.2)\quad \frac{\partial \phi}{\partial x_2} = \left[\frac{\partial u}{\partial z_2}\ \frac{\partial f_1}{\partial x_2} + \frac{\partial u}{\partial z_2}\ \frac{\partial f_2}{\partial x_2}\right] - p_2\ \lambda = 0$$

$$(8.3)\quad \frac{\partial \phi}{\partial x_3} = \left[\frac{\partial u}{\partial z_3}\ \frac{\partial f_3}{\partial x_3}\right] - p_3\ \lambda = 0$$

$$(8.4)\quad \frac{\partial \phi}{\partial L} = \left[\frac{\partial u}{\partial L}\right] - \eta = 0$$

$$(8.5)\quad \frac{\partial \phi}{\partial t_n} = \left[\frac{\partial u}{\partial z_1}\ \frac{\partial f_1}{\partial t_n}\ \ \frac{\partial u}{\partial z_2}\ \frac{\partial f_1}{\partial t_n}\right] - \eta = 0$$

$$(8.6)\quad \frac{\partial \phi}{\partial t_v} = \left[\frac{\partial u}{\partial z_3}\ \frac{\partial f_3}{\partial t_v}\right] - \eta = 0$$

$$(8.7)\quad \frac{\partial \phi}{\partial t_m} = W\lambda - \eta = 0$$

$$(8.8)\quad \frac{\partial \phi}{\partial \lambda} = Wt_m + v - p_1x_1 - p_2x_2 - p_3x_3 = 0$$

$$(8.9)\quad \frac{\partial \phi}{\partial \eta} = T - t_m - t_h - t_v - L = 0$$

The household's production decision among z_1, z_2, and z_3 is based on the opportunity costs of goods and time inputs and preference patterns. Production costs depend on market prices, the wage rate, and the price of time. The price of time can be measured in terms of opportunity cost by the market wage rate or earnings potential of the consumer. Therefore, time costs for the consumer will vary according to market wage rate, employment status, time of the week, and alternative

demands and uses for that time.

Equations (9.1) through (9.7) can be rewritten as follows where $MU_{zi} = \frac{\partial u}{\partial z_i}$ and $MP_{zixj} = \frac{\partial z_i}{\partial x_j}$:

(9.1) $MU_{z_1} MP_{z_1x_1} + MU_{z_2} MP_{z_2x_2} = \lambda P_i$ or $\frac{\partial \bar{u}}{\partial x_1} = \lambda P_1$

(9.2) $MU_{z_2} MP_{z_2x_2} + MU_{z_2} MP_{z_2x_1} = \lambda P_2$ or $\frac{\partial \bar{u}}{\partial x_2} = \lambda P_2$

(9.3) $MU_{z3} MP_{z3x3} = \lambda P_3$ or $\frac{\partial \bar{u}}{\partial x_3} = \lambda P_3$

(9.4) $MU_L = \eta$ or $\frac{\partial \bar{u}}{\partial L} = \eta$

(9.5) $MU_{z_1} MP_{z_1t_h} + MU_{z_2} MP_{z_2t_h} = \eta$ or $\frac{\partial \bar{u}}{\partial t_h} = \eta$

(9.6) $MU_{z_3} MP_{z_3t_v} = \eta$ or $\frac{\partial \bar{u}}{\partial t_v} = \eta$

(9.7) $W\lambda = \eta$

Combining conditions (9.1), (9.2), and (9.3), the solution for λ^* becomes:

(10) $\lambda^* \geq$ maximum $[\frac{\partial \bar{u}}{\partial x_1} / P_1, \frac{\partial \bar{u}}{\partial x_2} / P_2, \frac{\partial \bar{u}}{\partial x_3} / P_3]$

Combining conditions (9.4), (9.5), (9.6), and (9.7), the solution for η^* becomes:

$$(11) \quad \eta^* \geq \text{maximum} \left[\frac{\partial \bar{u}}{\partial L}, \frac{\partial \bar{u}}{\partial t_h}, \frac{\partial \bar{u}}{\partial t_v}, W\lambda^*\right]$$

The following equations illustrate the trade-offs, or substitution, between time and market goods inputs in the production of voluntarism. Substitution among market goods inputs can be shown with the following equation:

$$(12.1) \quad \frac{MU_{z_1} MP_{z_1x_1} + MU_{z_2} MP_{z_2x_1}}{MU_{z_1} MP_{z_1x_2} + MU_{z_2} MP_{z_2x_2}} = \frac{P_1}{P_2} \quad \text{or}$$

$$\frac{MU_{z_1} MP_{z_1x_1} + NU_{z_2} MP_{z_2x_1}}{P_1} = \frac{MU_{z_1} MP_{z_1x_2} + MU_{z_2} MP_{z_2x_2}}{P_2}$$

$$\text{or more generally,} \quad \frac{\partial \bar{u}/\partial x_i}{P_i} = \frac{\partial \bar{u}/\partial x_j}{P_j}$$

Each ratio is the value of the last dollar spent. When an equality exists, the first order conditions hold, and the household is maximizing utility.

Substitution among time inputs is illustrated in (12.2):

$$(12.2) \quad \frac{MU_{z_1} MP_{z_1t_h} + MU_{z_2} MP_{z_2t_h}}{MU_{z_3} MP_{z_3t_v}} = \frac{\eta}{\eta} = 1, \text{ or}$$

$$\partial \bar{u}/\partial t_h = \partial \bar{u}/\partial t_v$$

With time substitutions among household production alternatives, the marginal utilities multiplied by the marginal products are equated because the opportunity costs, market wage rate, are the same. The important considerations in time decisions between t_h and t_v would then be how productive time uses are and how the output is valued.

Substitution among L, t_h, and t_v are shown in (12.3):

$$(12.3)\quad \frac{\partial \bar{u}/\partial t_1}{\partial \bar{u}/\partial L} = \frac{\eta}{\eta} = 1 \text{ or } \partial \bar{u}/\partial t_i = \partial \bar{u}/\partial L \quad \text{where } i = h \text{ or } v$$

Again, the marginal utilities multiplied by marginal products are equated, because the opportunity cost of time is the same regardless of nonmarket uses.

The decision to substitute between x_i, market goods, and t_j, time inputs where j = v, h, or L, is based on equation (12.4):

$$(12.4)\quad \frac{\frac{\partial \bar{u}}{\partial x_i}}{\partial \bar{u}/\partial t_j} = \frac{\lambda P_i}{\eta} = \frac{\lambda P_i}{W\lambda}, \text{ or } \frac{\partial \bar{u}/\partial x_i}{P_i} = \frac{\partial \bar{u}/\partial t_j}{W}$$

In this situation the consumer would equate marginal utilities multiplied by marginal products relative to their market costs. This process allows for the substitution between time and goods inputs for the same output.

II. HYPOTHESES

Overview

The hypotheses for this study were derived from the time allocation model in the previous section. In generating the hypotheses, consumer preferences and production technologies were assumed to remain fixed for any given time period. The equilibrium conditions set forth in the study were also used in generating hypotheses about family behavior. All first-order equalities were assumed to hold for a representative family in an optimal situation. Changes in the economic environment were then analyzed for their potential impact on the hypothetical family. The hypotheses for the study are given below.

Marketplace Participation

Hypothesis 1:

A) Anything that causes a change in the number of hours worked will cause time spent in voluntarism to change in the opposite direction.

B) As the market wage rate increases, time spent in voluntarism will decrease because time spent working increases.

C) Women spend less time in the marketplace than do men; consequently, women will have more time for voluntarism.

Given the time constraint, equation (5), facing the consumer it was expected that less time would be allocated to volunteer activities among subjects working outside of the home. As market time, t_m, increases less time will be available for other activities, t_h, t_v, and L. With no possible change in T, equation (5) shows that

t_m can increase only if other time uses decrease. Consequently, individuals will seek ways to economize time, including reductions in time contributed to voluntarism.

Equation (12.4) shows that as wages increase, goods inputs or monetary contributions will be substituted for time inputs to voluntarism; when $\frac{\partial \bar{u}/\partial x_i}{P_i} > \frac{\partial \bar{u}/\partial t_j}{W}$. The opportunity cost of consumers' time increases with income, making contributions to voluntarism more expensive in relative terms.

However, both an income and a substitution effect are involved in the complex, interrelating forces which shape the relationship between market wages and voluntarism. With the income effect, the consumer can maintain the same income by working less as the market wage, W, increases. (Equations (4) and (5) show that if wages increase, t_m can decrease with no change in the product Wt_m.) With the substitution effect, the cost of not working increases, so the consumer substitutes more work.

In addition to these two basic economic effects, the literature suggests that cultural and social factors may also influence consumers' contributions to voluntarism. The literature review shows that middle income individuals are the primary producers of volunteer services. As the income for a family falls, the relative importance of household production contributions can be expected to influence time commitments to voluntarism. The equality shown in (12.2) becomes:

$\frac{\partial \bar{u}}{\partial t_h} > \frac{\partial \bar{u}}{\partial t_v}$ at low income levels. Home production is typically more necessary and more time-intensive given limited goods inputs for the low-income. This would leave less time available for voluntarism among these individuals.

Finally, individuals in upper income levels can be expected to substitute monetary contributions for time commitments to voluntarism because of the higher time opportunity costs and the progressive nature of the federal income tax. In other words, as shown through the model, $\frac{\partial \bar{u}}{\partial x_i} > \partial \bar{u} / \partial t_j$. To test Hypothesis 1-B, it was assumed that as the wage rate increased, time spent in voluntarism would decrease, and consumers would prefer to support voluntarism through monetary contributions.

Profiles of volunteer workers have shown consistently that women participate in volunteer activities more frequently than do men. Two possible explanations can be given for women's higher participation in voluntarism. First, fewer women than men work in the marketplace. As a group, women will have more time available to contribute to all other activities, including t_v. Secondly, women tend to earn less income in the marketplace than men. Thus, the opportunity costs associated with time contributions to voluntarism would be lower for women than for men. To test Hypothesis 1-C it was assumed that as a whole women would contribute less time to voluntarism than would men.

Number and Ages of Children

Hypothesis 2: A) As the number of children in the household increases less time will be spent in voluntarism.

B) Children under the age of five will cause less time to be spent in voluntarism because of increased demands on home production. Children over the age of five will be associated with increased time allocations in conjunction with voluntarism which involves parent/child interaction.

The presence of children in the household was expected to have an important influence on the amount of time contributed to volunteer activities. First, as the number of children increases, more demands are placed on t_h, household production time. Equation (12.2) shows that when household activities become more productive, $\partial\bar{u}/\partial t_h > \partial\bar{u}/\partial t_v$, less time will be spent in t_v, volunteer time. This would also have the effect of increasing the opportunity cost of time spent in volunteer activities versus monetary allocations. As the number of children increases equation (12.4) becomes $\frac{\partial\bar{u}/\partial x_i}{P_i} > \frac{\partial\bar{u}/\partial t_v}{W}$. However, the mother is less likely to work outside the home when the number of children increases because of associated costs such as child care; as a result, volunteer participation could increase. In other words, if wages, W, approach 0, $\frac{\partial\bar{u}/\partial x_i}{P_i} < \frac{\partial\bar{u}/\partial t_v}{W}$

The age of children in the household was expected to influence the level and type of the parents' involvement in volunteer activities.

The presence of preschool children in the household should reduce the amount of time spent in voluntarism given greater demands on household production time. In contrast, having school-age children could increase time contributions to volunteer activities which specifically involve one's own children, such as Girl Scouts or church youth choirs. Though not specified in the study's model, this relationship implies the marginal utility of Z_3 increases when doing volunteer work involving one's own children.

Education

Hypothesis 3: A positive relationship exists between education and time commitments to volunteer work.

Profiles of volunteer workers have shown them to be the more highly educated individuals. Volunteer workers have often been housewives with formal education who prefer to drop out of the labor force while caring for children in the home. These individuals could be expected to have lower opportunity costs associated with time commitments to volunteer work than individuals with a similar education who work in the marketplace rather than in the home. More highly educated individuals might also take part in volunteer work because of social pressures or cultural expectations. And, education could have the effect of increasing not only an individual's wage rate potential, but that person's efficiency with respect to volunteer work and home production as well. If the levels of Z_1 and Z_2 which a family needs are assumed constant, then higher levels of education could lead to increases in MP_{Z_1} and MP_{Z_2}. This in turn could lead to decreases in

t_h, leaving the levels of Z_1 and Z_2 unchanged. This would permit increases in t_v and L.

All this implies a larger world view on the part of individuals with more education, where doing good for others becomes a high priority even at the expense of greater time opportunity costs. In other words, MU_{Z_3} increases with education. As outlined in Hypothesis 2 for market wage rate, there is a complex relationship between voluntarism and education. Market wage rates generally increase with increases in educational attainment. This would make time contributions to voluntarism more expensive in relative terms for more highly educated individuals. However, in line with the literature review it was expected that time contributions to voluntarism would actually increase with education due to a larger world view and social expectations.

Occupation

Hypothesis 4: A positive relationship exists between socially prestigious occupations and time contributions to volunteer organizations.

The literature review for this study showed a strong relationship between social class and voluntarism. Because of difficulties in measuring social class and the fact a socioeconomic index was not available with the data, the issue of social class was addressed by looking at variables related to income and occupation. Individuals in higher social classes are often expected to contribute more time and money to volunteer causes because it is socially important, and because

they have more resources available to contribute. Women in higher social classes have, in fact, been shown to volunteer time just because it is expected of people in their social position and because volunteer work was more prestigious than the market work available to them. Individuals in more socially prestigious occupations are also frequently expected to contribute time to voluntarism. The university professor who contributes time to public service is a prime example of this. If professional workers are expected to contribute more time to volunteer work than nonprofessionals, the following relationships from equations (12.1), (12.2), and (12.4) would hold for a hypothetical family, when other things are equal, that had an increase in occupational status:

$$(12.1) \quad \partial\bar{u}/\partial x_3 > \partial\bar{u}/\partial x_i$$

$$(12.2) \quad \partial\bar{u}/\partial t_v > \partial\bar{u}/\partial t_h$$

$$(12.4) \quad \partial\bar{u}/\partial t_v > \partial\bar{u}/\partial x_i$$

Religious Participation

Hypothesis 5: Individuals who take part in formal religious practice will be more actively involved in voluntarism than individuals with no religious involvement.

Past studies have demonstrated that consumers contribute to both religious and charitable causes for similar psychological returns (e.g., feeling good about one's self or societal pressure). Consequently, a positive relstionship was expected between participation

in formal religion and allocations to voluntarism. The form of these allocations, monetary or time, to voluntarism was expected to vary with the individual's market wage rate and motivation for the contribution. Again, the following relationships would be suggested from equations (12.1), (12.2), and (12.4) for a hypothetical family which participated actively in a formal religion:

$$(12.1) \quad \partial\bar{u}/\partial x_3 > \partial\bar{u}/\partial x_i$$

$$(12.2) \quad \partial\bar{u}/\partial t_v > \partial\bar{u}/\partial t_h$$

$$(12.4) \quad \partial\bar{u}/\partial t_v > \partial\bar{u}/\partial x_i$$

Time vs. Monetary Contributions

Hypothesis 6: The opportunity cost of time for the consumer will determine the means, time vs. money, of the consumer's support for voluntarism.

The consumer's value of time will be the central factor in the decision between means of support, monetary or time, for voluntarism. For consumers with high priorities on t_m, t_h, or L, monetary donations will be preferred over time contributions. On the other hand, for individuals with fewer monetary resources, W or V, time commitments for voluntarism should logically be selected rather than monetary contributions. Because volunteer work is typically time-intensive, the model implies a substitution effect in favor of goods inputs (or monetary contributions) for employed individuals because of higher opportunity costs, W, associated with their time. This relationship, implied in

equation (12.4) becomes $\frac{\partial \bar{u}/\partial t_v}{W} > \frac{\partial \bar{u}/\partial x_i}{P_i}$. Though this relationship is implicit in earlier hypotheses it is being stated formally here because it is a major focus of this study. In deciding between time and goods inputs for voluntarism the marginal utility and marginal product of Z_3, with respect to X_3 and t_v, will be the deciding factors.

Consumption Benefits

Hypothesis 7: A positive relationship exists between consumption benefits from voluntarism and time contributions to volunteer activities.

It is assumed within the model that consumers will make their decisions between financial and time contributions to voluntarism according to relative costs only; that is, no consumption benefits are included. However, it is logical to speculate upon the possibilities of such benefits, given that individuals may well enjoy participation in voluntarism. Within the literature, that possibility is noted specifically.

Because the ultimate goal of any consumption activity is utility maximization, a preference for time allocations when consumption returns are involved is logically consistent with the study's model. Profiles of volunteer workers support the premise that consumers are more actively involved with volunteer work when they perceive an increased return from consumption benefits such as helping others, or an improved feeling of self-worth. As implied by the study's model, then, when the marginal utility of Z_3 increases consumers will spend more time in voluntarism.

III. TESTING OF THE MODEL

Sample and Data Collection

Data from the Time Use in Economic and Social Accounts Study of the Survey Research Center, Institute for Social Research, Ann Arbor, Michigan were used to test the model of volunteer participation. The time use study represented a national probability sample of United States households from 37 states and the District of Columbia, including 74 primary areas for the sample. Four major geographical regions from the United States were represented in the sample: Northeast, North Central, South, and West. The study was designed to obtain measures of household output from participants in order to study the relationship between inputs of time and money to output.

The sample consisted of 1519 respondents and 887 spouses, all American adults, 18 years and older. Both males and females were selected as respondents for the study. Each respondent was interviewed four times. The first interview consisted of personal contacts in the respondents' homes and the remaining interviews were done over the telephone. The data for the study were collected in four time waves from October-November of 1975, to September 1976. (Wave 1--October through November 1975; Wave 2--February 1976; Wave 3--May through June 1976; and Wave 4--September 1976.)

Basic demographic information and responses to questions related to life satisfaction were collected for each respondent. In addition to this information, each respondent completed a diary of time use by

the "yesterday approach" for the day preceding the day of the interview. This method was tested for validity by the Survey Research Center. Eighty-seven activity categories were included for respondents and spouses on each interview wave.

In an effort to provide a representative sample of time use, data were collected from one Saturday, one Sunday, and two weekdays. Also, a synthetic week which summarized activity times on a yearly basis was included in the data for each respondent and spouse who provided complete interviews for each of the four time waves.

Data Analysis

A decision was made to use the respondent synthetic week data for this study. This was done to get a representative picture of the household's involvement with voluntarism on an annual basis. A filter variable was used to select only those respondents who had completed all four time wave interviews and were included in the synthetic week sample.

Three weight factors were used to arrive at a sample which would have characteristics of the population as a whole, use the synthetic week sample, and weight respondents without spouses. These weights were the census weight, the panel loss weight, and the synthetic week supplemental respondent weight.

The first of these weights, the census weight, was designed to account for discrepancies between the study's sample characteristics and the 1975 census parameters for age, sex, education, and urbanicity.

The second weight, panel loss weight, was devised to account for panel loss from the Wave 1 sample to the retained synthetic week sample. Finally, the third synthetic week supplemental respondent weight was designed to double the weight of respondents whose corresponding spouses were not in the synthetic week. The weights for this study were normalized such that their sum equaled one.

Variables for the study were selected from the total data set of 7984 variables to test the model of volunteer participation. The dependent variables identified for the study were (1) t_v, time spent in volunteer/helping organizations and religious groups, not including religious practice, as represented by the synthetic week, and (2) monetary contributions to non-profit organizations on an annual basis.

The Time Use Study provided the following types of data with which to test the hypotheses. Marketplace participation, t_m, was reported as a summation of hours worked per week. Respondents' market wage rates, W, were reported as total annual wages for 1975.

The gender variable was simply determined by separating respondents into male and female categories since it was expected that time use and household production would vary between males and females. Males were coded as 0, and females were coded as 1 in the 0-1 dummy variable.

Number of children was based on the total number of children under the age of eighteen living in the household. Ages of children living in the household were coded into three categories: children under the age of five, male children ages 5 through 18, and female children

ages 5 through 18. The education variable was based on the total number of school years respondents had completed.

A 0-1 dummy variable was created for occupational status. Professional individuals were grouped together and contrasted to nonprofessional workers. Individuals in professional occupations such as lawyers, doctors, and teachers were coded as 1, and nonprofessionals such as secretaries, construction workers, and sales clerks were coded as 0. Religious participation was designed as the amount of time spent in formal religious practice by the respondents.

Consumption benefits were analyzed on the basis of responses to questions related to respondents' enjoyment of church and club/social organization activities in which they took part. The questions were coded from 0 to 10, where 0 was "dislike a great deal," and 10 was "enjoy a great deal." A 0-1 dummy variable was created which divided respondents' answers according to two basic distinctions; responses which showed participants enjoyed the activity were coded as 1 and contrasted to responses which were coded as 0 and indicated subjects did not enjoy participation in the activity.

CHAPTER IV

FINDINGS

I. FINDINGS FROM STATISTICAL ANALYSES

Introduction

Data from the synthetic week sample were used to test the model of voluntarism in the regression analyses. Weight factors were used to adjust for the use of the synthetic week sample. In order to approximate the hypothesis testing conditions for ordinary least squares regression analysis, the weights were normalized such that their sum equaled one. Because of the normalization of weighting, the following statistical tests are only approximations.

Descriptive statistics for the sample are provided in Table I. Data for respondents who completed all four time waves of the study, and contributed time and money to voluntarism, are contrasted to data for respondents who did not report any time allocations to voluntarism.

Respondents who contributed time to voluntarism earned slightly less money in the marketplace, an average difference of $469.30 a year. However, respondents who did not report time contributions to voluntarism showed a slightly higher degree of marketplace participation which could account for the differences in income for the two groups. Individuals who contributed time to voluntarism had a slightly lower amount of formal education and smaller family size.

TABLE I

DESCRIPTIVE STATISTICS FOR SYNTHETIC WEEK RESPONDENTS FROM THE 1975-76 TIME USE IN ECONOMIC AND SOCIAL ACCOUNTS STUDY

Variable	A		B	
	Mean	Standard Deviation	Mean	Standard Deviation
1. 1975 Market Wages	$10,356.62	9,574.98	$10,825.92	10,236.62
2. Education--number of years schooling	11.77	3.02	12.25	2.98
3. Marketplace Participation--number of hours worked/week	40.05	13.44	40.89	13.26
4. Number of Children in the Household	0.90	1.34	1.04	1.39
5. Average Volunteer Time--number of minutes/week	29.95	116.29	N/A	N/A
6. Average Monetary Contributions to Volunteer Causes in 1975	$60.23	345.55	N/A	N/A

A = Synthetic week respondents who did contribute time to voluntarism.
B = Synthetic week respondents who did not contribute time to voluntarism.

N = 1293 for total number of synthetic week respondents; N varied for individual variables due to missing values.

Regression Analyses

Several regressions were run to find the best fit for the study's model of voluntarism. Significance was set at the $p < 0.05$ level. Hypothesis testing conditions did not hold strictly because of the weighting process used for the study. Consequently, independent variables were considered significant whenever their regression coefficients exceeded their respective standard error by a factor of at least two.

Simple linear regressions were first computed for the data with time spent in voluntarism and monetary contributions as the two dependent variables. Each independent variable was run separately in these initial regressions. Tables which summarize the regression results for the independent variables run separately are found in Appendix A. For volunteer time, Table A-I, the best fit for the model was found using religious practice as the independent variable. The equation using religious practice accounted for four percent of the variation in the model. Number of hours worked per week in the marketplace was the best fit for monetary contributions, as shown in Table A-II. However, this equation accounted for less than two percent of the variation in the model.

Because the initial regressions did not explain a great deal of variation in the model, the independent variables were next used in combinations for the regression equations. The results for these regressions are found in Tables II and III which show the combinations of the independent variables. The greatest variation accounted for

TABLE II

REGRESSION RESULTS FOR VOLUNTEER TIME--INDEPENDENT VARIABLES RUN IN COMBINATION: RESPONDENTS FROM THE 1975-76 TIME USE IN ECONOMIC AND SOCIAL ACCOUNTS STUDY

Constant	Wages	β Religious Practice	β Education	β Number of Hours Worked	β Occupation	β Consumption Benefit A	β Consumption Benefit B	β Gender	β Number of Children	β Children < 5 Yrs. of Age	β Children > 5 Yrs. of Age	β Wages X No. of Hours Worked	R^2 ($\bar{R}^2$)	SEE	F
15.67	.382* (.000)	.156* (.028)	--	--	--	--	--	--	--	--	--	--	.043 (.040)	113.897	15.27
0.55	.283* (.000)	.158* (.028)	1.400 (1.503)	--	--	--	--	--	--	--	--	--	.044 (.040)	113.908	10.44
22.53	.680* (.000)	.157* (.030)	1.443 (1.590)	-.675 (.382)	--	--	--	--	--	--	--	--	.049 (.043)	113.737	7.78
22.19	.682* (.000)	.157* (.030)	1.480 (1.734)	-.674 (.382)	-.674 (12.612)	--	--	--	--	--	--	--	.049 (.041)	113.832	6.22
11.81	.689* (.000)	.151* (.031)	1.172 (1.780)	-.694 (.391)	-.258 (12.884)	.678 (13.045)	23.129* (10.254)	--	--	--	--	--	.059 (.047)	113.499	5.05
7.67	.804* (.000)	.150* (.031)	1.126 (1.783)	-.666 (.394)	-.497 (12.900)	-.304 (13.182)	23.104* (10.260)	5.838 (10.945)	--	--	--	--	.059 (.046)	113.571	4.45
7.77	.823* (.000)	.151* (.031)	1.157 (1.786)	-.649 (.396)	-.807 (12.922)	.111 (13.216)	23.137* (10.267)	5.931 (10.954)	-1.844 (3.588)	--	--	--	.060 (.045)	113.646	3.98
8.02	.846* (.000)	.151* (.031)	1.159 (1.788)	-.643 (.396)	-1.174 (12.942)	.978 (13.236)	23.011* (10.281)	6.183 (10.984)	--	-.733 (8.982)	-3.303 (4.089)	--	.060 (.044)	113.706	3.62
24.91	--	.148* (.029)	--	-.464 (.334)	--	-1.666 (12.211)	24.291* (9.620)	--	--	--	--	--	.055 (.049)	113.397	9.26
23.69	--	.147* (.028)	--	-.461 (.333)	--	--	23.945* (9.270)	--	--	--	--	--	.055 (.050)	113.305	12.36
-10.45	.278* (.000)	.152* (.030)	1.113 (1.629)	--	--	--	22.910* (9.873)	--	--	--	--	--	.053 (.047)	113.515	8.05
12.50	.685* (.000)	.151* (.030)	1.152 (1.626)	-.694 (.390)	--	--	23.275* (9.856)	--	--	--	--	--	.059 (.050)	113.298	7.09
1.66	.355* (.000)	.150* (.030)	--	--	--	--	23.422* (9.840)	--	--	--	--	--	.053 (.048)	113.461	10.58
24.90	.763* (.000)	.149* (.030)	--	-.690 (.389)	--	--	23.803* (9.824)	--	--	--	--	--	.058 (.051)	113.248	8.75
-9.57	--	.151* (.022)	1.511 (1.176)	--	--	--	23.175* (7.279)	--	--	--	--	-.546* (.000)	.056 (.052)	113.184	15.50
7.77	--	.148* (.022)	--	--	--	--	23.893* (7.249)	--	--	--	--	-.504*) (.000)	.054 (.052)	113.219	20.16

*Denotes an approximate t value of greater than 2.
SEE = Standard Error of the Estimate.
Standard errors are in parentheses.

TABLE III

REGRESSION RESULTS FOR MONETARY CONTRIBUTIONS TO VOLUNTARISM--INDEPENDENT VARIABLES RUN IN COMBINATION: RESPONDENTS FROM THE 1975-76 TIME USE IN ECONOMIC AND SOCIAL ACCOUNTS STUDY

Constant	β Wages	β Religious Practice	β Education	β Number of Hours Worked	β Occupation	β Consumption Benefit A	β Consumption Benefit B	β Gender	β Number of Children	β Children <5 Yrs. of Age	β Children >5 Yrs. of Age	β Wages X No. of Hours Worked	R^2 ($\bar{R}^2$)	SEE	F
20.30	.347* (.001)	.587* (.087)	--	--	--	--	--	--	--	--	--	--	.009 (.006)	344.415	3.13
-68.42	.292* (.001)	.719* (.087)	7.957 (4.634)	--	--	--	--	--	--	--	--	--	.014 (.009)	343.892	3.07
-164.84	.122* (.001)	.747* (.090)	7.775 (4.785)	2.896* (1.150)	--	--	--	--	--	--	--	--	.024 (.018)	342.419	3.74
-153.05	.114* (.001)	.738* (.090)	6.477 (5.220)	2.877* (1.151)	23.692 (37.960)	--	--	--	--	--	--	--	.025 (.017)	342.595	3.07
-207.34	.129* (.001)	.461* (.094)	6.165 (5.366)	2.857* (1.178)	24.002 (38.832)	39.973 (39.317)	42.265 (30.906)	--		--	--	--	.032 (.020)	342.079	2.66
-238.44	.216* (.001)	.400* (.094)	5.818 (5.369)	3.064* (1.187)	22.212 (38.829)	32.604 (39.679)	42.105 (30.885)	43.781 (32.946)	--	--	--	--	.035 (.021)	341.846	2.55
-237.64	.231* (.001)	.425* (.094)	6.060 (5.368)	3.190* (1.190)	19.791 (38.844)	35.848 (39.726)	42.337 (30.864)	44.513 (32.927)	-14.406 (10.786)	--	--	--	.038 (.022)	341.608	2.47
-239.52	.221* (.001)	.424* (.094)	6.261 (5.376)	3.200* (1.191)	20.141 (38.898)	37.980 (39.840)	43.116 (30.901)	43.041 (33.011)	--	-33.012 (26.995)	-10.325 (12.290)	--	.039 (.022)	341.734	2.28
-204.33	.128* (.001)	--	5.950 (5.341)	2.855* (1.172)	24.262 (38.803)	43.105 (38.766)	42.704 (30.875)	--	--	--	--	--	.031 (.021)	341.841	3.06
-186.59	.123* (.001)	--	7.145 (4.902)	2.854* (1.175)	--	--	50.461 (29.749)	--	--	--	--	--	.029 (.027)	341.905	3.44
-92.24	.290* (.001)	.596* (.093)	7.306 (4.929)	--	--	--	51.967 (29.867)	--	--	--	--	--	.019 (.012)	343.381	2.80
-186.59	.123* (.001)	.627* (.092)	7.145 (4.909)	2.854* (1.177)	--	--	50.466 (29.745)	--	--	--	--	--	.029 (.021)	341.908	3.44
-12.78	.341* (.001)	.467* (.092)	--	--	--	--	55.328 (29.812)	--	--	--	--	--	.015 (.010)	343.741	3.00
-109.66	.171* (.001)	.502* (.092)	--	2.877* (1.178)	--	--	53.740 (29.689)	--	--	--	--	--	.025 (.019)	342.246	3.76
-164.84	.122* (.001)	.747* (.090)	7.775 (4.785)	2.896* (1.150)	--	--	--	--	--	--	--	--	.024 (.018)	342.419	3.74
-87.61	--	.572* (.070)	8.253 (3.627)	--	--	--	50.882* (22.439)	--	--	--	--	.301* (.000)	.023 (.019)	342.126	6.04
7.11	--	.410* (.069)	--	--	--	--	54.802* (22.419)	--	--	--	--	.321* (.000)	.018 (.015)	342.842	6.30

*Denotes an approximate t value greater than 2
SEE = Standard Error of the Estimate.
Standard errors are in parentheses.

with respect to volunteer time was six percent in these regressions. In testing the model for monetary contributions less than four percent was accounted for in the regressions run.

Regressions were also run with income squared and its reciprocal. Again, these regression results failed to explain a significant percentage of variation in the model. Using this approach, not even one percent of the variation for volunteer time was accounted for in the regressions. The same held true for monetary contributions.

The tests reported thus far showed only weak support for the relationships identified in the model. In some cases approximated t values showed relationships between various independent variables and volunteer time or monetary contributions, but R^2 values were consistently low. Because the study was concerned with functional relationships among the independent variables and voluntarism, log transformations were also analyzed. Log transformations were included in the regression analyses because it was thought the data might not conform to simple linear relationships which assume linearity and additive independent variables.

Regressions were run using independent variables as natural logs. Results from the natural log regressions are found in Tables B-I and B-II which are located in Appendix B. Five percent of the variation for volunteer time was accounted for by using wage rate, religious practice, education, number of hours worked, and number of children as natural logs. Less than one percent of the variation was accounted for with respect to monetary contributions with any of the

natural log predictors.

Finally, regression equations were run using the varaiables as common logs. The common log equations produced the best results for explaining variation in the study's model. Tables IV and V summarize the results for the regressions run with common logs. Equation 9, in Table IV, produced the best fit for modeling volunteer time. Almost 14 percent of the variation was accounted for when using market wage rate, religious practice, education, number of hours worked in the marketplace, and consumption benefit B. Modeling monetary contributions proved to be more difficult. Only slightly more than three percent of the variation in monetary contributions was accounted for when using these same predictors. This is shown in equation 10, in Table V. A discussion of each hypothesis follows. The hypotheses are considered in relationship to the two equations which provided the best overall statistical fit using the $\bar{R}^2$, SEE, and F as criteria. The individual regression coefficients relative to their standard errors were considered as well.

Hypothesis 1--Marketplace Participation

Increased time spent in the marketplace was associated with less time allocated to voluntarism (Table IV). Greater marketplace participation was also found to decrease monetary contributions to voluntarism (Table V). A one percent increase in the hours of work in the marketplace decreased volunteer time by 87 percent and monetary contributions by 37 percent. The first of these findings is in line

TABLE IV

REGRESSION RESULTS FOR VOLUNTEER TIME--DEPENDENT AND INDEPENDENT VARIABLES RUN AS COMMON LOGS: RESPONDENTS FROM THE 1975-76 TIME USE IN ECONOMIC AND SOCIAL ACCOUNTS STUDY

Variable(s)	Constant	β	R^2 ($\bar{R}^2$)	SEE	F
1. Market Wage Rate	0.38	-.406* (.010)	.011 (.011)	0.740	15.61
2. Religious Practice	0.89	.258* (.018)	.126 (.126)	0.696	187.59
3. Education	0.36	.675* (.123)	-- (--)	0.745	0.30
4. Number of Hours Worked per Week	0.40	-.121* (.026)	.016 (.015)	0.738	21.77
5. Number of Children in Household	0.29	-.323* (.101)	-- (--)	0.745	0.10
6. Number of Hours Worked X Wages	0.37	-.263* (.007)	.010 (.009)	0.741	13.14
7. Consumption Benefit B	0.30	.845* (.005)	.001 (.001)	0.744	2.34
8. Volunteer Time =	0.62		.136 *.133)	0.693	50.74
f(Wage Rate		-.330* (.009)			
Religious Practice		.255* (.018)			
Education		.115 (.118)			
Consumption Benefit B)		-.771* (.052)			

TABLE IV (continued)

Variable(s)	Constant	β	R^2 ($\bar{R}^2$)	SEE	F
9. Volunteer Time =	0.72		.139 (.136)	0.692	41.79
f(Wage Rate		-.715* (.014)			
Religious Practice		.253* (.018)			
Education		.129 (.118)			
# Hrs. Worked		-.874* (.037)			
Consumption Benefit B)		.873* (.052)			
10. Volunteer Time =	0.18		.135 (.133)	0.693	67.34
f(Wage Rate		-.319* (.009)			
Religious Practice		.253* (.018)			
Consumption Benefit B)		.855* (.051)			
11. Volunteer Time =	0.17		.134 (.132)	0.693	67.03
f(Religious Practice		.254* (.018)			
Consumption Benefit B		.857* (.051)			
Wages X Hours)		-.216* (.006)			

*Denotes an approximate t values greater than 2.
SEE = Standard Error of the Estimate.
Standard errors are in parentheses.

TABLE V

REGRESSION RESULTS FOR MONETARY CONTRIBUTIONS TO VOLUNTARISM--DEPENDENT AND INDEPENDENT VARIABLES RUN AS COMMON LOGS: RESPONDENTS FROM THE 1975-76 TIME USE IN ECONOMIC AND SOCIAL ACCOUNTS STUDY

	Variable(s)	Constant	β	R^2 ($\bar{R}^2$)	SEE	F
1.	Market Wage Rate	0.51	.780* (.014)	-- (--)	1.063	0.28
2.	Religious Practice	0.43	.112* (.028)	.011 (.010)	1.057	15.34
3.	Education	-0.48	.543* (.176)	.007 (.006)	1.059	9.50
4.	Number of Hours Worked per Week	0.52	.931* (.037)	-- (--)	1.063	0.06
5.	Number of Children in Household	0.54	-.758* (.144)	-- (--)	1.063	0.27
6.	Number of Hours Worked X Wages	0.50	.892* (.010)	-- (--)	1.063	0.73
7.	Consumption Benefit B	0.60	.377* (.078)	.017 (.017)	1.054	23.34
8.	Monetary Contributions	-0.17		.034 (.031)	1.046	11.57
	f(Wage Rate		.210* (.014)			
	Religious Practice		.118* (.028)			
	Education		.485* (.178)			
	Consumption Benefit B)		.334* (.078)			

TABLE V (continued)

Variable(s)	Constant	β	R^2 ($\bar{R}^2$)	SEE	F
9. Monetary Contributions =	-0.45		.007 (.005)	1.060	3.23
f(Wage Rate		.938* (.022)			
# Hrs. Worked		-.262* (.057)			
Education)		.546* (.178)			
10. Monetary Contributions =	-0.13		.035 (.031)	1.046	9.33
f(Wage Rate		.130* (.022)			
Religious Practice		.117* (.028)			
Education		.049 (.179)			
# Hrs. Worked		-.369* (.057)			
Consumption Benefit B)		.338* (.079)			
11. Monetary Contributions =	-0.22		.034 (.031)	1.046	11.62
f(Religious Practice		.118* (.028)			
Education		.048 (.178)			
Wages X Hours		.479* (.010)			
Consumption Benefit B)		.322* (.078)			

*Denotes an approximate t value of greater than 2.
SEE = Standard Error of the Estimate.
Standard errors are in parentheses.

with the relationship outlined between marketplace participation and voluntarism in Hypothesis 1-A, which indicated as individuals worked more in the marketplace their time contributions to voluntarism would decrease. However, it also was expected that monetary contributions to voluntarism would increase with increased markeplace participation.

Market wage rate had a regression coefficient which was large relative to its standard error for both volunteer time (Table IV) and monetary contributions (Table V). Each one percent increase in the wage rate was associated with a 72 percent decrease in volunteer time and a 13 percent increase in monetary contributions. As the wage rate increased, respondents contributed less time and more money to voluntarism. This supports the relationship between wage rate and voluntarism specified in Hypothesis 1-B which suggested that as income increased individuals would decrease time allocations and increase monetary contributions to voluntarism.

Gender did not have a significant coefficient with respect to either volunteer time or monetary contributions. Neither of the regression equations for gender in Tables A-I and A-II accounted for any variation in the model for voluntarism. Gender was not included in either of the best fit equations found in Tables IV and V. This did not support the relationship outlined in Hypothesis 1-C which suggested females would have greater time allocations to voluntarism than would men.

Hypothesis 2--Number and Ages of Children

The number of children did not have a significant coefficient for either volunteer time, Table A-I, or monetary contributions, Table A-II. This was contrary to the relationship outlined in Hypothesis 2 between voluntarism and number of children which implied voluntarism would decline as the number of children increased.

The relationship between the ages of respondents' children and voluntarism was explored by dividing children into groups according to age and gender. The presence of children less than five years of age was expected to decrease volunteer involvement, while children greater than five years of age were expected to increase voluntarism which specifically involved them. It was also thought that mothers might contribute more time to voluntarism which involved daughters over the age of five, as opposed to sons over the age of five. None of these relationships was supported in the regression equations shown in Tables A-I and A-II. Neither the number of children nor the ages of children was included in the equations which best fit the model.

Hypothesis 3--Education

Education was not a significant coefficient in the best fit equations for voluntary time, Table IV, or monetary contributions, Table V. The inference to be drawn is that increases in education were not associated with changes in voluntarism. As outlined in Hypothesis 3, it was expected that both monetary and time contributions to voluntarism would increase with education.

Hypothesis 4--Occupation

Occupation did not have significant coefficients for either time or monetary contributions. In Hypothesis 4, it was suggested that individuals in professional occupations would contribute more time and money to voluntarism than would nonprofessionals. This relationship, as shown in Tables A-I and A-II, was not supported through the regression testing.

Hypothesis 5--Religious Participation

Religious practice had the highest approximated t value of any of the variables in the best fit equation for volunteer time, Table IV. The approximated t value was also significant for monetary contributions to voluntarism as shown in Table V. Respondents who spent a greater amount of time in formal religious practice also contributed proportionately more time and money to voluntarism. A one percent change in religious practice time was associated with a 25 percent change in volunteer time and a 12 percent change in monetary contributions. This supports Hypothesis 5.

Hypothesis 6--Time vs. Monetary Contributions

Some support was found for Hypothesis 6 through the best fit equations which included market wage rate and marketplace participation. Individuals who worked longer hours were associated with less time allocated to voluntarism. Similarly, as wage rates increased, respondents had slightly greater monetary contributions to voluntarism, and fewer time allocations. This would support the trade-offs between

time and money implied by the model for voluntarism. However, individuals were also shown to decrease monetary contributions to voluntarism as marketplace participation increased. This would not support the time vs. money trade-offs suggested by the model, but rather could indicate more complex economic trade-offs were involved.

Hypothesis 7--Consumption Benefits

Consumptions benefits were measured by respondents' answers to individual questions related to their enjoyment of participation in: (a) church activities, and (b) social and volunteer clubs and organizations. Initial regression coefficients were significant only for responses related to participation in social and volunteer clubs (Tables A-I and A-II). As respondents viewed participation as being more enjoyable they contributed more time and money to voluntarism on an annual basis. Comsumption benefit B was included in both of the best fit equations for voluntarism, and had significant coefficients.

II. SYNOPSIS

Though a high percentage of variation was not accounted for in testing the model of voluntarism, the regression results did show consistent signs and magnitudes for coefficients. For example, coefficients and standard errors for religious practice in Table II did not even vary one full percent.

The best fit for the model of volunteer time allocations was found using market wage rate, religious practice, education, number

of hours worked, and consumption benefit B as independent variables in double regressions. Using these key variables, 14 percent of the variation was accounted for with respect to volunteer time. Accounting for variation in monetary contributions was more difficult. Using the same predictors as for volunteer time, only about three percent of the variation for monetary contributions was accounted for in the regressions.

In modeling both means of volunteer participation, time and monetary, the regression results would suggest that a complex set of factors influences an individual's decision to participate in voluntarism. Economic motives and demographic variables may not be enough to fully explain volunteer participation by consumers. A more in-depth interpretation of the study's conclusions is provided in Chapter V.

CHAPTER V

SUMMARY AND CONCLUSIONS

I. SUMMARY

An economic model was developed in this study to analyze consumer support of volunteer activities through either time or monetary contributions. Data from the Time Use in Economic and Social Accounts Study were used to test the model of volunteer participation. The time use study represented a national probability sample of households in the United States.

Several variables were identified through the review of literature as possible influences on a consumer's choice of time or monetary contributions to voluntarism. From the variables highlighted in the literature review, those selected were: market wage rate, religious participation, education, number of hours worked in the marketplace, occupation, consumption benefits, gender, number of children, and ages of children.

Linear regressions were computed for the data using time spent in voluntarism and monetary contributions to voluntarism as the two dependent variables. These did not produce meaningful statistical results; consequently, various non-linear regression equations were estimated. The best fit for the model of volunteer time allocations was found using market wage rate, religious practice, education,

number of hours worked in the marketplace, and consumption benefit B as common log predictors. This was based on an approximate $\bar{R}^2$, SEE, and the approximate significance of the coefficients. Using these key variables, 14 percent of the variation was accounted for with respect to volunteer time.

Modeling monetary contributions was more difficult. Only three percent of the variation for monetary contributions was accounted for using the common log form of market wage rate, religious participation, education, number of hours worked in the marketplace, and consumption benefit B.

II. CONCLUSIONS

Hypothesis 1--Marketplace Participation

Individuals who spent more time working in the marketplace were shown to spend less time in volunteer work. A one percent rise in the number of hours worked led to an 87 percent decrease in volunteer time. As respondents increased marketplace participation, they also decreased monetary contributions to voluntarism. A one percent increase in income resulted in a 37 percent decrease in monetary contributions.

This relationship did not follow the trade-offs between time and money which were implied by the model. As individuals spend more time in the marketplace their time becomes more valuable in relative terms, and they should substitute money for time when possible. For employed individuals with higher time opportunity costs, then, it would

be logical to substitute money for time with respect to voluntarism.

The findings related to the relationship between volunteer time and marketplace participation were consistent with Becker and Gronau's work which has shown that individuals working in the marketplace have a higher time opportunity cost than individuals working in the home (7,21). The results from this study also support Stober and Weinberg's research showing working women should seek ways to economize on time such as devoting less time to volunteer work (57).

Market wage rate was significantly related to both volunteer time and monetary contributions. As the wage rate increased, respondents contributed less time and more money to voluntarism. With a one percent increase in market wage rate, respondents decreased volunteer time by 72 percent and increased monetary contributions by 13 percent.

This relationship was consistent with the study's model which implied as income increased respondents would decrease time allocations and increase monetary contributions to voluntarism. These findings did not support Morgan's work in Productive Americans which showed people with higher incomes devoted more of both time and money to voluntarism (39, p. 14). However, the results here are consistent with Becker and Gronau's research (7,21) which shows individuals have higher time opportunity costs with increased market wage rates. This would suggest a substitution of monetary contributions for time commitments as wage rates increased.

Gender was not shown to be related significantly to either time allocations or monetary contributions to voluntarism. This result failed to support past research which found women to be the primary producers of volunteer services (48,61). Past studies have consistently shown women to contribute much more time to voluntarism than men, especially when the women were not employed in the marketplace. It is possible the findings from this study did not support previous findings on women and voluntarism simply because wage rates were not included in part research. If differences in wage rates were not recognized, women might be significantly correlated with volunteer time in previous studies.

Hypothesis 2--Number and Ages of Children

Neither the number of children living in the household, nor children's ages was significantly related to voluntarism. This finding was not consistent with the relationship implied in the model which suggested allocations to voluntarism would decrease with the presence of children due to increased demands on home production time.

The study failed to provide support for past research showing increased participation in voluntary activities which involve one's own children (24). The results from this study also failed to support a trade-off implicit in Gronau's work which showed children cause the mother to spend more time in home production, and thus would have less time available for other time uses such as voluntarism (22).

Hypothesis 3--Education

Education was not a significant coefficient for either time allocations or monetary contributions to voluntarism. The relationship set forth in Hypothesis 3, which implied as education increased individuals would contribute more time to voluntarism due to a larger world view. Also, as individuals increase their education they typically work and earn more in the marketplace. In line with this, it was expected these individuals would then have additional money to contribute to voluntarism. The results from this study did not support the literature review which correlated more highly educated individuals with increased allocations to voluntarism (1,39).

Hypothesis 4--Occupation

Occupation was not a significant predictor for either time or money contributions to voluntarism. Individuals with professional occupations did not contribute more to voluntarism than nonprofessionals. This was not consistent with the study's literature review which showed individuals in higher social classes and more prestigious occupations contribute more to voluntarism (48,53). It should be noted that it is possible that occupation was interacting with market wage rates in the regressions run for this study.

Hypothesis 5--Religious Participation

Formal religious practice had a significant coefficient whenever it was included in the regression equations. Religious practice was positively related to both time and monetary contributions. This

suggests individuals who engage in formal religious practice contribute proportionately more to voluntarism than individuals who do not engage in formal religious practice. These findings support past research which has shown individuals contribute to both religious and charitable causes for similar reasons, such as feeling good about one's self or societal pressures (2,54,62).

Hypothesis 6--Time vs. Monetary Contributions

An underlying assumption of the study's model was that consumers would substitute money for time as their opportunity costs for time increased. Some support was found for this trade-off relationship with the regressions run on market wage rate and marketplace participation. Individuals who worked more in the marketplace were shown to contribute less time to voluntarism. And, as wage rates increased, respondents did contribute slightly more money to voluntary causes. These findings are consistent with Becker and Gronau's research which has correlated higher time opportunity costs with marketplace participation (7,21).

Hypothesis 7--Consumption Benefits

Consumption benefits were tested on the basis of respondents' answers to two questions related to their participation in (a) church activities, and (b) social and volunteer clubs and organizations. Only question (b) served as a significant predictor for volunteer participation. As respondents viewed participation in social and volunteer clubs and organizations as being enjoyable they contributed

greater amounts of time and money to voluntarism. This was consistent with the review of literature done for this study which showed individuals engage in voluntarism when they feel good about helping others and/or enjoy the opportunity for socialization (2,43,46).

III. IMPLICATIONS

Several implications can be drawn from this research on the determinants of and the trade-offs between time and monetary contributions to voluntarism. Though testing the study's model of volunteer participation failed to account for a large percentage of variation in consumers' voluntary contributions, several predictors of voluntarism can be highlighted here.

The study's results do suggest individuals working in the marketplace seek ways to economize on their time, such as decreasing time allocations to voluntarism. This finding was in keeping with the study's model which shows as time spent in the marketplace increases, total time spent in other activities must decrease. However, it was not consistent with the model to find decreases in monetary contributions to be associated with greater marketplace participation. Individuals who spend more time working in the marketplace should have more money to contribute to voluntarism than unemployed individuals.

The model also showed trade-offs between time and monetary contributions when using market wage rate as a predictor for voluntarism. A substitution effect between time and money was evident as income increased. This would suggest that it is appropriate to study

voluntarism through a time allocation model.

The results from this study would suggest that motivations for formal religious practice and contributions to voluntarism may indeed be similar. Because formal religious practice was a significant predictor for both time and monetary contributions to voluntarism, implications may be drawn about the relationship between these variables. Individuals may participate in both activities because of social acceptance and encouragement or because it makes them feel good about themselves.

It is interesting to note that only enjoyment of (b) social and volunteer clubs and organizations and not (a) church activities was a significant predictor for voluntarism. This could suggest that individuals feel a need to participate in church activities whether they enjoy them or not, and determine participation in clubs and organizations on the basis of their utility functions. While the findings associated with activity (b) are consistent with utility theory, they are still not exceedingly strong indicators of voluntarism. This may question past studies on voluntarism which have shown personal reasons such as enjoyment to be the prime motivators for volunteer participation.

It was surprising to find that gender, presence of children in the household, education, and occupation were not good predictors of voluntarism. Several implications can be drawn here. Gender may not necessarily be a good predictor for voluntarism anymore as women continue to enter the labor force in greater numbers, women's wages

approach men's, and men increase volunteer participation. And, it can be suggested on the basis of this study's results that the individuals so inclined may contribute time and money to voluntarism regardless of whether or not they have children. With respect to education, it could be possible that more highly educated individuals are devoting their time to the marketplace rather than voluntarism. Finally, the results associated with occupation as a predictor could suggest one of two things; either occupation was not an accurate means of measuring the relationship between voluntarism and cultural variables, or individuals do not take part in voluntarism for social reasons, as the literature suggests, but for other motivations instead.

IV. LIMITATIONS OF THE STUDY

Voluntarism was not a primary focus of the Time Use Study used for this research. Instead, data on consumer time contributions to voluntary causes were collected in conjunction with time use and data on monetary contributions were provided as part of the study's demographic variables. A more ideal approach for studying voluntarism might be to design a national probability sample which deals more specifically with voluntarism. This would allow the researcher to examine more closely the variables which influence the trade-offs between time and monetary contributions. Such a study might look at an experimental group of volunteers and a control group of nonvolunteers to constrast the differences.

Another possible limitation of this study relates to the yesterday approach used to collect consumers' time use data. Obviously, it is difficult for subjects to remember exactly how they spent time in the previous day. When subjects fail to account for their time use in the exact manner in which they spent it the day before, there can be problems with the data's accuracy and reliability. Though the yesterday approach has been used effectively to study consumers' time use, it can have these drawbacks.

The timeliness of the data source should also be considered when interpreting the study's results. Since 1975, the scope of voluntarism may have undergone changes. This could be especially true in light of the present administration's call for increased voluntarism in light of reduced government funding for social programs. Given this new emphasis on the need for volunteer work, more current data should be collected to study consumer costs and benefits associated with voluntarism.

The model of voluntarism tested in this study represented a static time situation. In other words, it did not take into account factors from previous time periods which could influence a consumer's decisions regarding voluntarism. For example, the model was not designed to handle savings of previous income which could have a bearing on monetary contributions.

Finally, the review of literature for this study suggested that a cultural phenomenon may play an important role with respect to voluntarism. As previously pointed out in the literature review,

consumers may contribute time and money to voluntary activities because of cultural and social expectations. The data used for this study did not have variables applicable for researching the impact of a possible cultural influence on voluntarism. Consequently, in testing this study's model for voluntarism, a potentially important element, cultural influences, may have been omitted.

V. NEED FOR ADDITIONAL RESEARCH

Future research on voluntarism needs to recognize and account for the trade-offs between consumers' time and monetary contributions. Studying either time allocations or monetary contributions in isolation fails to recognize the full opportunity cost of voluntarism for the consumer. An effort to more fully quantify consumer time contributions and constrast such data to monetary contributions would be an important addition to the study of voluntarism.

Further study is also needed on the relationship between cultural variables and consumer decisions related to the support of voluntary activities. The development of a socioeconomic index of volunteers to be used in conjunction with a time allocation model would provide possible insights on the consumer's choice between time and monetary contributions. Such research could look more closely at the difference between volunteers motivated by social expectations or utility maximization.

In a democracy there will most likely always be consumers who are unable to compete in the marketplace. Consequently, there will

be a continued need for voluntary contributions from consumers who function effectively in the marketplace. As with all limited and scarce resources, volunteer contributions need to be allocated efficiently. This suggests future research should concentrate on the full opportunity costs, both monetary and time, of consumers' contributions to voluntarism. Such research will surely be timely in light of recent trends to reduce government spending for social programs.

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APPENDICES

APPENDIX A

REGRESSION RESULTS: INDEPENDENT VARIABLES RUN SEPARATELY

TABLE A-I

REGRESSION RESULTS FOR VOLUNTEER TIME--INDEPENDENT VARIABLES RUN SEPARATELY: RESPONDENTS FROM THE 1975-76 TIME USE IN ECONOMIC AND SOCIAL ACCOUNTS STUDY

	Independent Variable	Constant	β	R^2	SEE	N
1.	Market Wage Rate	27.52	.234* (.000)	--	116.359	673
2.	Religious Practice	19.71	.154* (.020)	.042	113.829	1293
3.	Education	20.48	.804 (1.075)	--	116.314	1285
4.	Number Hours Worked per Week	50.05	-.502 (.313)	.003	116.175	762
5.	Occupation	29.38	2.660 (10.167)	--	116.363	783
6.	Consumption Benefits	6.15		.013	115.616	
	A. Church Activities		10.325 (9.808)			1139
	B. Social/Volunteer Clubs		24.630* (7.854)			1046
7.	Gender	24.86	8.969 (6.520)	.001	116.254	1293
8.	Number of Children in Household	31.08	-1.250 (2.41)	--	116.327	1293
9.	Male/Female Children < 5 Years Old	29.83	.514 (6.020)	--	116.339	1293

TABLE A-I (continued)

	Independent Variable	Constant	β	R^2	SEE	N
10.	Male Children > 5 Years Old	30.96	-2.930 (4.340)	--	116.319	1293
11.	Female Children > 5 Years Old	31.89	-5.807 (4.798)	--	116.273	1293
12.	Male/Female Children > 5 Years Old	32.03	-3.053) (2.738)	--	116.283	1293
13.	Numbers of Hours Worked X Wages	32.65	-.538* (.000)	.002	116.169	1293
14.	Monetary Contributions	27.86	.766 (.010)	.002	116.380	1293

*Denotes an approximate t value greater than 2.

SEE = Standard Error of the Estimate.

Standard errors are in parentheses.

TABLE A-II

REGRESSION RESULTS FOR MONETARY CONTRIBUTIONS TO VOLUNTARISM--
INDEPENDENT VARIABLES RUN SEPARATELY: RESPONDENTS FOR
THE 1975-76 TIME USE IN ECONOMIC AND SOCIAL
ACCOUNTS STUDY

	Independent Variable	Constant	β	R^2	SEE	N
1.	Market Wage Rate	24.78	.342* (.001)	.009	344.268	673
2.	Religious Practice	57.16	.463* (.063)	--	345.621	1293
3.	Education	-53.86	9.690* (3.248)	.007	344.455	1285
4.	Number Hours Worked per Week	-76.90	3.423* (0.946)	.017	342.717	762
5.	Occupation	48.09	57.136. (30.820)	.004	344.996	783
6.	Consumption Benefits	6.80		.007	344.642	
	A. Church Activities		25.696 (29.239)			1139
	B. Social/Volunteer Clubs		52.037* (23.414)			1046
7.	Gender	56.71	6.208 (19.785)	--	345.683	1293
8.	Number of Children in Household	67.75	-8.275 (7.300)	.001	345.518	1293
9.	Male/Female Children < 5 Years Old	65.57	-24.147 (18.235)	.001	345.452	1293

TABLE A-II (continued)

	Independent Variable	Constant	β	R^2	SEE	N
10.	Male Children > 5 Years Old	63.42	-9.225 (13.172)	--	345.628	1293
11.	Female Children > 5 Years Old	62.72	-7.410 (14.550)	--	345.660	1293
12.	Male/Female Children > 5 Years Old	64.39	-6.090 (8.300)	--	345.621	1293
13.	Number of Hours Worked X Wages	43.83	.325* (.000)	.012	343.588	1293
14.	Volunteer Time Contributions	56.65	.119 (.084)	.001	345.410	1293

*Denotes an approximate t value greater than 2.

SEE = Standard Error of the Estimate.

Standard errors are in parentheses.

APPENDIX B

REGRESSION RESULTS: INDEPENDENT VARIABLES RUN AS NATURAL LOGS

TABLE B-I

REGRESSION RESULTS FOR VOLUNTEER TIME--INDEPENDENT VARIABLES RUN AS NATURAL LOGS: RESPONDENTS FROM THE 1975-76 TIME USE IN ECONOMIC AND SOCIAL ACCOUNTS STUDY[a]

Variable(s)	Constant	β	R^2 ($\bar{R}^2$)	SEE	F
1. Market Wage Rate	40.36	-1.921* (0.698)	.005 (.005)	116.000	7.56
2. Religious Practice	12.14	10.138* (1.340)	.042 (.041)	113.844	57.21
3. Education	24.96	2.049 (8.402)	-- (--)	116.337	0.06
4. Number of Hours Worked per Week	43.57	-6.180* (1.769)	.009 (.008)	115.793	12.20
5. Number of Children in Household	30.15	-0.753 (6.877)	-- (--)	116.339	0.01
6. Volunteer Time =	-4.721		.050 (.046)	113.556	13.61
f(Wage Rate		-0.902 (1.058)			
Religious Practice		9.980* (1.350)			
Education		12.105 (8.335)			
# Hrs. Worked		-5.210* (2.693)			
# Children)		-1.283 (6.772)			

*Denotes an approximate t value greater than 2.
SEE = Standard Error of the Estimate.
Standard errors are in parentheses.

[a]These regressions were run only for respondents' non-zero responses.

TABLE B-II

REGRESSION RESULTS FOR MONETARY CONTRIBUTIONS--INDEPENDENT VARIABLES RUN AS NATURAL LOGS: RESPONDENTS FROM THE 1975-76 TIME USE IN ECONOMIC AND SOCIAL ACCOUNTS STUDY[a]

Variable(s)	Constant	β	R^2 ($\bar{R}^2$)	SEE	F
1. Market Wage Rate	62.82	-0.477 (2.124)	-- (--)	345.689	0.51
2. Religious Practice	50.16	5.733 (4.148)	.001 (--)	345.431	1.91
3. Education	-58.29	48.706 (25.429)	.002 (.002)	345.187	3.67
4. Number of Hours Worked per Week	69.29	-4.107 (5.385)	-- (--)	345.615	0.58
5. Number of Children in Household	67.77	-28.141 (20.828)	.001 (--)	345.442	1.83
6. Monetary Contributions =	-72.91		.007 (.003)	344.960	1.86
f(Wage Rate		1.785 (3.280)			
Religious Practice		6.700 (4.184)			
Education		56.166 (25.825)			
# Hrs. Worked		-7.746 (8.343)			
# Children)		-29.465 (20.982)			

SEE = Standard Error of the Estimate.

Standards errors are in parentheses.

[a]These regressions were run only for respondents' non-zero responses.

VITA

Dulcie Lynne Sybouts-Peccolo was born in Medford, Oregon on February 7, 1952. She attended elementary schools in Oakridge and Eugene, Oregon and led a blissfully happy childhood until she discovered she was fat in the sixth grade. Never one to let adversity stand in her way, she kept eating brownies and was elected class president in the sixth grade even though she wore men's crew socks and weighed more than her teacher.

Upon moving to Lincoln, Nebraska, Dulcie entered Culler Junior High School. She graduated without honors, especially in physical education, where she had difficulty bouncing a ball and walking at the same time. After attending Lincoln East High School for three years, she graduated in 1970 with a very unimpressive record, although she had mastered the skills of making out in the back seat of a car without going too far.

The author received a B.S. degree in Home Economics from the University of Nebraska, Lincoln, in 1974. She finally landed a man and married Charles M. Peccolo, Jr. promptly after graduation. Since her husband did not earn all that much money, Ms. Peccolo worked at the University of Tennessee until 1978. While working at the University, she completed a Master's degree in Consumer Economics and Housing. She also got around to having her first child, Jessica Michel.

She enrolled in the interdisciplinary doctoral program in the Fall of 1978 and distinguished herself as the student taking the longest

time to complete a Ph.D. in Consumer Studies. However, this was again a very fertile time for the author and she had her second child, Meredith Suzanne. Her committee finally got tired of working with her so they agreed to let her graduate in December, 1982.

The author is a member of a couple of professional organizations so that she can pad her resumé when needed. Ms. Peccolo is hoping there is employment after graduation. If not, her immediate plans include finger painting and watching Sesame Street.