

AN EMPIRICAL ANALYSIS OF A SYSTEMS MODEL  
OF FAMILY RESOURCE MANAGEMENT

by

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(ABSTRACT)

This study was designed to empirically test a systems model of family resource management using data from the 1975-81 Time Use Longitudinal Panel Study. Data collected from 374 husband-wife couples during 1980-81 were applied to the operational model.

Specifically, the study was designed to operationalize and test a systems model of management for (1) the independent effects of input and throughput in the prediction of output, as well as (2) the causal relationships among the composite input and throughput variables in the prediction of output. Demands, material resources, and human resources comprised input, including time use over a seven day period aggregated into four categories. Using Varimax rotated principal components analysis, eight factors were extracted from 34 items assessing managerial behavior. The resulting dimension scale scores represented throughput in the model.

Output, by definition, encompasses individual satisfaction. Using Varimax rotated principal components analysis, seven factors were extracted from 19 questions assessing life satisfaction. The resulting dimension scores, representing satisfaction with personal belongingness, economic status, family, household production, personal autonomy, self-esteem, and educational attainment, were the dependent variables for the subsequent analysis. An additional dependent

variable assessing satisfaction with life was calculated.

Regression analyses and related F tests revealed that the equations incorporating input and throughput from both members of the couple were superior to those using predictor variables from only one spouse. Similar analysis revealed that inclusion of throughput significantly increased the explanation of variance for both spouses.

Significant predictor variables were aggregated into input and throughput composites for path analysis of the causal relationship. Results provided some support for the proposition that output is a function of input and throughput. The direct effects of input on output were consistently stronger than the indirect effects as mediated by throughput.

In general, results of the study supported the model specification and relationships. Results clearly verified the prediction of satisfaction as an output. Explanation of variance for the wives generally exceeded that for the husbands. The diversity of the aspects of life satisfaction supported the proposed broad applicability of management theory.

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## CHAPTER I

### INTRODUCTION

The theory and discipline of home management, or family resource management, has evolved as an integral part of home economics. In fact, Vincenti (1981) has identified the theme of efficiency and economy, which evolved into the field of home management, as one of the eight themes which has influenced the ideas, beliefs, and values of the home economics profession.

Historians of the discipline of family resource management note the development of the field through steps, or stages, aligned with concurrent societal needs. To meet these needs, instruction and research paralleled the emphases for which the developmental periods were named. Gross, Crandall, and Knoll (1980) cite the six stages of development, none of which are mutually exclusive, as the "dumping ground," the "resource centered emphasis," the "human centered emphasis," the "process emphasis," the "values and decision emphasis," and the "holistic approach."

Using a similar delineation, Vickers (1984) identified three major phases of family resource management development including (1) a work-centered emphasis on efficiency and work simplification, (2) a person-centered emphasis on the components of management theory, and (3) a systems approach, which encompassed all earlier concepts. The "holistic" approach identified by Gross, Crandall, and Knoll and the systems approach phase identified by Vickers refer to the period of the 1960's to the present.

It was during the 1960's and 1970's that family resource management made a radical shift in its theoretical orientation, by organizing management concepts within the paradigm of general systems theory. This has come to be referred to as a "systems approach to management." (See Chapter II for a detailed discussion of the theoretical development from the 1960's through the 1980's.)

Maloch and Deacon first proposed a systems framework for the study of management in a 1966 article in the Journal of Home Economics. This work was an outgrowth of efforts to develop a theoretical framework which would (1) clearly delineate and define management and (2) function as a workable research framework. As a continuation of this work, an empirical study to identify the components of managerial situations in the home was published in 1970 (Maloch and Deacon, 1970).

In 1973, Gross, Crandall and Knoll published the first textbook using a systems framework. They cited three reasons for using the systems approach as the conceptual framework for their text.

First, management cannot from this perspective be viewed as an isolated activity. Second, the systems approach highlights interrelationships, interdependence, and interaction, all of which tend to keep the analysis in close contact with the real world. Third, the systems approach makes it possible to focus on individual components without losing sight of the totality (p. 9).

The systems approach to management offered a simple, yet comprehensive, model of managerial behavior in the context of a multi-faceted society.

Whereas Maloch and Deacon applied the systems approach as a means for explicating the components of management, Gross, Crandall, and Knoll used the approach to view management as an "ecological social

system." Earlier authors (i.e. Knoll, 1963; Liston, 1964; Schlater, 1967) had commented on the physical and socio-cultural environment surrounding the family, but the Gross, Crandall, and Knoll approach ensured its consideration in future management studies. Aside from this emphasis and some variation in terminology, the Gross, Crandall, and Knoll textbook paralleled and expanded upon the Maloch and Deacon framework (1966, 1970).

In 1975, Deacon and Firebaugh (nee Maloch) introduced their first textbook. This provided the authors an opportunity to continue the clarification of management components and to expand upon the consideration of management within the context of the surrounding environment. The term "throughput" was first introduced in this text; "controlling the plan" became a part of "implementation."

Revisions of these major textbooks in 1980 (Gross, Crandall, and Knoll) and 1981 (Deacon and Firebaugh) provided further clarification of the management systems theoretical framework. In the 1966 article theorizing the systems approach to management, Deacon and Maloch defined home management as "planning and controlling the use of resources of a household with respect to demands" (p. 33). By the introduction of the 1981 text the theoretical framework had been significantly revised, yet the definition of management was fundamentally unchanged. "Management is planning for and implementing the use of resources to meet demands" (Deacon and Firebaugh, 1981, p. 29).

Similarly, the management definition presented in the 1973 and the 1980 editions of the Gross, Crandall, and Knoll textbook did not

change. "Home management consists of purposeful behavior involved in the creation and use of resources to achieve family goals" (1973, p. 3; 1980, p. 6).

In their 1966 journal article, Maloch and Deacon concluded that the proposed systems framework was "tentative and will be modified as criticism, empirical testing, and analysis provide direction" (p. 35). Theorists and researchers have attempted to continue this process of clarification and definition. During the past 20 years, the conceptual framework of management as a system has been accepted as the foundation of research and instructional models in resource management. The framework has been utilized for numerous research applications. Generally, these studies have considered relationships among components of the system but have not attempted to analyze the relationships throughout the entire system.

Recent computer applications that simplify statistical techniques have facilitated empirical analysis to establish the validity of the systems framework (i.e. Sheffield, 1976; Newton, 1979; Mueller, 1983; Heck, 1983; Swift, 1985; Williams, 1985). Continued testing will depend on the collection of data to support such broad-based analysis. A need exists to further clarify the systems model of management by empirically operationalizing and determining relationships among components of the model.

### A Brief Overview:

#### The Systems Theoretical Framework of Management

In the Deacon and Firebaugh (1975, 1981) systems framework of management, the family (individual) is defined as an open system which is constantly interacting with its surrounding environment. The family system is composed of the personal and managerial subsystems (Figure 1). The personal subsystem is responsible for the personal development and maintenance of the individual; the managerial subsystem is responsible for the planning and use of resources to meet demands.

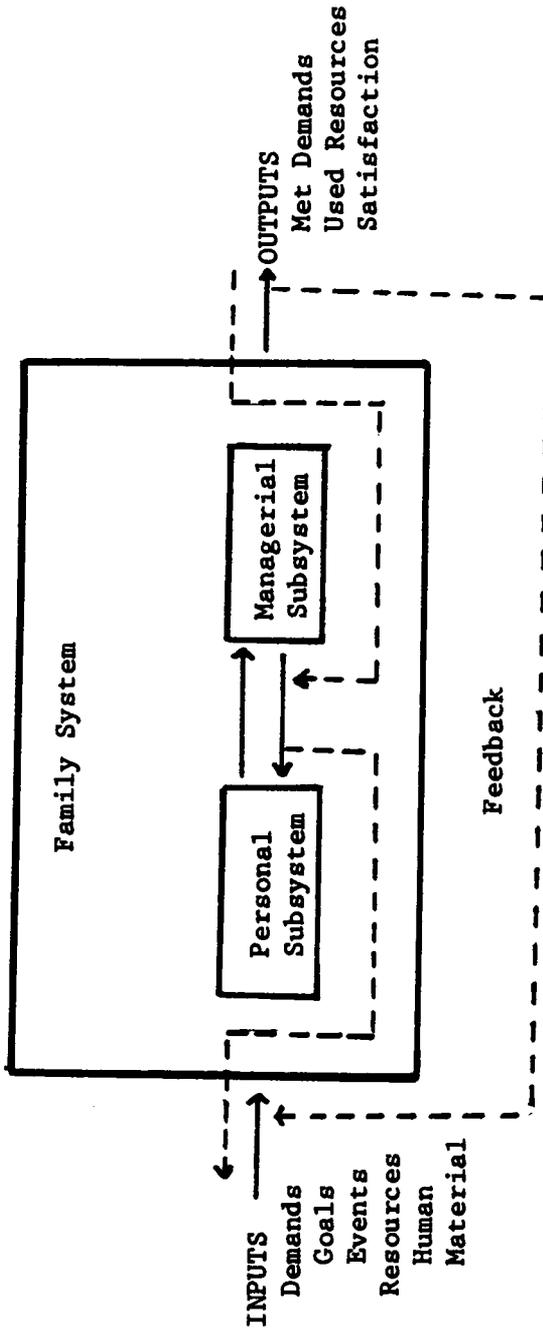
The family continually faces demands, defined as goals and events, which require action and use of human and material resources, either available within the family system or within the community. Demands and resources are the inputs to the management system; dynamic action within the system is called throughput. Throughput is generally defined as the process of planning and implementation necessary to meet demands using available resources.

Output is defined as the end result of the throughput process, and includes met goals and demands, as well as used, or changed, resources. Implicit within the output measure of met demands is the satisfaction or dissatisfaction resulting from the managerial activity. Feedback provides for continual processing of information within the system, as well as between the system and the environment.

#### Problem Statement and Objectives

The systems framework has been criticized for its insufficiency as a catalyst for generating empirical research which

System Environments



System Environments

FIGURE 1

Systems Framework of Family Resource Management  
(Adapted from Deacon and Firebaugh, 1975, p. 12.)

contributes to the development both of the field and of families. The greater number of variables included in empirical work and the emphasis on system interactions have not resulted in what is so badly needed in the field: (1) clarification of management itself, 2) generally accepted, reliable, valid measures of management concepts, and 3) criteria for assessing management (Stafford, 1981, p. 122).

Results from this study have implications for these issues.

As an applied science, family resource management has fostered research which was descriptive, or problem oriented. Findings of this applied research have benefited individuals and families while contributing to the explanation of the phenomenon of management.

Yet limited empirical support for the systems theoretical framework is an acknowledged need for basic research. In a recent article, Berger (1984) noted that "home management theorists and researchers must continue to build and refine theory," but "perhaps of more importance to home management now is the testing of existing theories/models" (p. 261).

As a result of these research needs, this study evolved as an attempt to operationalize and empirically test a systems model of family resource management. Specifically, the objectives of the study were:

1. To operationalize a systems model of management for empirical testing on the basis of theoretical and empirical considerations.
2. To test the model using regression analysis to determine the relative individual effects of the input and throughput variables to predict output, as well as the marginal value of throughput to contribute to the explanation of output.

3. To test the model for causal relationships among the composite variables of input, throughput, and output using path analysis.

The study was limited to intact husband and wife families, regardless of the age of the couple or the age or presence of children or other family members in the household. Data collected from 374 husband-wife couples as a part of the 1975-81 Time Use Longitudinal Panel Study were applied to the model.

#### Summary

The theoretical validity of the Deacon and Firebaugh (1975, 1981) systems framework of management has been unquestionably accepted since its introduction. Numerous researchers have analyzed relationships among components of the system. Empirical support for the comprehensive framework is emerging, yet further exploration is justified. This study was designed as an attempt to provide such empirical support.

## CHAPTER II

### THE RESEARCH MODEL:

#### THEORETICAL AND EMPIRICAL JUSTIFICATION

Developing a model of an abstract theory is a complex task. Every effort must be made to develop a realistic representation of the abstraction. Yet, a testable model is only a representation of reality, and cannot include every possible parameter. Not every possible variable can be measured, or even identified, when trying to explain the behavior of individuals and families. The macrocosm of human life does not lend itself to microscopic review.

On the basis of the theory, the supporting research literature, and the bounds of a researchable problem, the researcher must hypothesize a model representative of the phenomenon in question. The model is tested with full recognition that it is not all inclusive.

This caveat is particularly applicable to the systems theory of family resource management. Efforts to develop a finite specification of the systems theoretical framework are constrained by the generality of the theory. By definition, "management is planning for and implementing the use of resources to meet demands" (Deacon and Firebaugh, 1981, p. 29). Other theorists would concur that the management process is not limited to any particular category of resources or demands. Demands are accepted as any unforeseen occurrence, or planned for goal, that requires some action (mental or physical) for accomplishment.

Note, therefore, that by definition and inference, the theory has

almost limitless application. Whether the demand be paying a utility bill, preparing and serving dinner to a hungry family, staying overtime at work, or simply listening to a child, managing, by definition, means planning the use of available resources to meet that demand. The process of management does not require, nor imply, the compartmentalization of life into sectors which can, or cannot, be managed.

The holistic nature of the systems approach to management captured this fluidity of interdependent relationships by viewing the family as a system constantly in interaction with its surrounding environment. This environment is characterized by social, biological, and physical systems which in turn are interacting and affecting each other as well as the family system. Demands, which may initiate management, and resources for use in meeting these demands, originate from the surrounding environment. (See Figure 1.)

When specifying a systems model of management for functional analysis, it is important that the model adequately represent realistic input, throughput, and output. Specification of the management model in such a broad scope, as supported by the theory, requires an equally broad review of related literature. Although not couched in management terminology, research studies addressing time use, household production, or consumer expenditures within the household can all be considered under the framework of a planned use of resources to meet demands.

By superimposing the systems framework on existing research literature in these related areas, it was possible to explore other

relationships likely to impact household managerial behavior.

Regardless of the quality of planning or management supporting such decisions, individuals and families daily make decisions regarding the use of resources to meet demands. Whether consciously acknowledged or not, decisions about the use of specific resources are not made in isolation but as part of an interrelated web of competing resources and demands.

To insure that the model specification was representative of the theory, the following were considered in the literature review:

1. The history and theoretical evolution of management theory from the three step process conceptualization of management to the systems theoretical framework.
2. Research studies empirically testing a model of the system framework which included the components, however defined, of input, throughput, and output. These studies provided insight to the specification and functional form of other models of the systems framework.
3. Research studies addressing factors which could be identified as input, throughput, or output in the model conceptualization. These studies provided insight to the definition and delineation of the model input, throughput, and output.

The remainder of this chapter is divided into four major sections. The first three sections parallel the three components of the literature review cited above. The final section of the chapter introduces the operational systems model of management which was empirically analyzed in this research. The model was developed from

the integration of theory and extant research. Both perceptions were essential to the specification of a realistic, yet testable model.

Systems Framework of Management: A Historical  
Perspective

A "revolution" in a discipline would be a sudden and radical alteration of its conceptual framework, bringing into question everything that had been taken for granted; for the conceptual framework, as a starting point, consists of everything that must be taken for granted in order that work go on in that discipline at all (Kotzin, 1964, p. 14)

Rhoda Kotzin made this statement in a paper presented at a 1964 conference titled "Conceptual Frameworks: Process of Home Management." She noted that the conceptual framework constituted the "starting point" for a discipline, and determined "its scope and limits" (1964, p. 14). The statement was made almost a decade before the first home management textbook utilizing a systems approach was published. But, did this radical shift from the three step management process to the systems model constitute a "revolution" in home management? Seemingly, the systems model has been unequivocally accepted, and is now "taken for granted" by practitioners within the discipline. The purpose of this portion of the chapter is to review the historical development of the systems model of management, and in so doing, to assess the extent of the "revolution." This will be accomplished through a review of the relevant literature documenting the proposed conceptual frameworks from the 1960's to the present.

Gross and Crandall (1963) in the second edition of their text Management for Modern Families, noted that early leaders in the field

of home management searched about a decade for the first conceptual framework. Conferences begun in the 1930's culminated in "considerable acceptance" of the three step managerial process framework of planning, controlling, and evaluating.

The 1947 text by Gross and Crandall was the first to incorporate the concept of process and the term "steps" for the components of planning, controlling and evaluating (Gross and Crandall, 1963; Vickers, 1984). The second edition of that text published in 1963 also used the process formulation. Nickell and Dorsey, in the 1950 revision of their text, highlighted the process conceptualization, but used the term "activities" instead of steps (Gross and Crandall, 1963).

According to Vickers (1984) the 1961 French Lick Seminar provided the impetus for the application of the systems approach and the exploration of conceptual frameworks. Ad-hoc committees resulting from this meeting established the priorities of (1) the development of a home management concept analysis and (2) the development of a conceptual framework. The concept analysis resulted in the following key concepts: family, home management, values, goals, standards, resources, decision making, organization, and process.

The 1964 "Conceptual Framework" Conference considered home management from three very different perspectives. First, the development and value of the traditional three step framework was explored. Aside from this tool for teaching and research, the question of the identification of the essential management proficiencies and skills was raised. Finally, management was considered as a component of a larger social process.

### The Decade of the '60's

In addition to the influence of the French Lick Seminar, the development of the discipline of home management was stimulated by the literature of the '60's. Articles by Deacon and Bratton (1962) and Knoll (1963) influenced the 1964 "conceptual frameworks" conference. Citing the lack of research to support the process framework of management, Deacon and Bratton (1962) proposed a six function management framework, including criteria for the evaluation of each function. The goal-defining function considered the importance of individual and family values and resources in the formulation of realistic goals. The planning function noted the need for consideration of short and long term situations as well as available human and material resources. Creativity in generating and analyzing alternatives was a critical aspect of the planning function.

Deacon and Bratton (1962) clearly distinguished the generality of the decision making process from the decision-making function. The latter referred to the ability to reach a reasonable conclusion following consideration of the relevant alternatives. The expediting function could be called "organizing to implement," as it dealt with the how, where, and when of the implementation, as well as work simplification.

The implementation of the plan occurred during the integrating function. As the name implies, this function was concerned with consistency in dealing with various demands, the ability to make adjustments and maintain effort relative to the importance of the

goal(s), and the interpersonal relationships among the family or household members. Communication was an important aspect of the integrating function.

The evaluating function considered the quality of the present managerial situation and the related decision making, as well as the relevance of the managerial functions to the overall family situation both now and in the future. It is interesting to note the similarity between the evaluating function and the role of feedback in the systems approach to management.

Deacon and Bratton (1962) did not present this framework as a radical change from the process orientation. Instead, it was presented as an explication, and perhaps clarification, of the "functions which appear to operate in the process of managing: goal-defining, planning, decision-making, expediting, integrating, and evaluating" (p. 766).

The following year Knoll (1963) further expanded the framework by placing the general aims and values of the family in the context of the economic and social environment. This approach emphasized the idea that family values and goals must be operationalized in a manner consistent with the culture and society. The decision-making process (using the scientific method or creative thinking), the resulting decision, and the organized family effort for daily activities completed this conceptual framework for home management.

Knoll went on to discuss decision-making, organization, and process in the context of this framework. The cyclical nature of the process, "steps" in the process, and the usefulness of the process concept were critical areas of concern. Knoll concluded that the

process conceptualization appeared to be a useful instructional tool with beginners, but had limited application for empirical study. The simplified three step process of planning, controlling, and evaluating was too ambiguous to facilitate analysis of successful management procedures. In contrast, elaboration of the process resulted in a specificity which could not be captured in daily activities.

Some of the same issues raised by Knoll were addressed by Crandall at the 1964 "frameworks" conference. In reference to the Deacon and Bratton (1962) article and the Knoll (1963) article, Crandall asserted that these positions were not in opposition to the traditional process approach. However, these positions were focusing attention on the three basic criticisms of the three step process.

First, according to Crandall (1964), the task-oriented traditional approach was thought to be too narrow in focus. She argued that

it is impossible to consider the process in isolation from its environment since this will determine in large measure the values held by the individuals or families who are using the process and the resources available. Thus, the environment is a "given" in a specific managerial situation, a dimension which cannot be ignored, but to change which is not one of the primary functions of management (p. 24).

The Knoll (1963) conceptual framework emphasizing the social and economic environment, and the Liston (1964) perspective of management as a social process further addressed this issue of scope.

Over-simplification beyond realism was the second criticism of the process conceptual framework according to Crandall. In response to this criticism, Crandall asserted that the management process was simultaneously in progress for numerous goals and objectives. Furthermore, decisions related to any one of these objectives would be

made relative to the constraints of other goals and objectives. Thus, the complexity and interdependency of the management process required simplification for comprehension and analysis.

Analogous to the criticism of over-simplification were questions of rationality and applicability of the process. To the charge that the management process was based primarily on rational human behavior with little regard for uncertainty, Crandall (1964) contended that the traditional process recognized "uncertainty as a permanent fact of life! If knowledge of the future was perfect, plans could be made with such certainty that neither revisions (the control step) nor evaluation would be necessary" (p. 26).

Knoll (1963) had suggested that the process seemed more appropriate for routine or standing plans than for the numerous situations which require immediate attention but are of no later concern once resolved. Again pointing to the interdependent nature of individual and family decisions, Crandall (1964) noted that the process relative to one goal could be ongoing over a long period of time and overlapping other managerial activities and objectives.

Finally, the third major criticism of the process formulation dealt with the clarification of the steps or sub-components. Lack of agreement among business and home management writers on the number and definition of the sub-components contributed to this concern. The nature of home management, and the inherent time perspective, required that some of the business management processes (i.e. communicating, motivating, and organizing) be considered as sub-processes in one or more of the three phases of the home management formulation.

In addition, the inability to interpret the process in operational definitions limited empirical work on the components of the process. Crandall (1964) noted a "real need for such research" (p. 29), but went on to clarify the consistencies among the home management writers and their interpretations of the three step process. Other participants at the 1964 Conceptual Framework Conference also called for increased research efforts (Bratton, 1964; Bettinghaus, 1964; Halliday, 1964). But, perhaps Bratton captured the essence of the concern: "One weakness of the concept of process in home management, then, is that it has not been fruitful in research, one of the prime functions of the conceptual framework in a field of study" (1964, p. 37).

Gross in summarizing the 1964 conference identified five controversial issues. Three of the issues related to the number, names, and linkages of the "component parts" of management. The additional questions focused on the placement of "goal-defining" and "decision-making" within the process formulation. These issues all related to what Gross called a "critical spot," or the question of "how to link the various parts of management into a framework" (p. 102). A second "critical spot" focused on an issue raised by Liston: how much emphasis should be placed on family relationships within the management framework. This continues to be a critical issue even today (Deacon and Firebaugh, 1986).

The first application of systems theory to home management appeared in a 1966 Journal of Home Economics article authored by Maloch and Deacon. In this article, they reported on the first step of an ongoing research project designed to describe home management. This

first step focused on the "adaptation of existing theories to management and the evolving of a framework" (p. 31). Maloch and Deacon stated that "in the process of examining and adapting existing theories to home management, the systems approach has been a major stimulus in the over-all conceptualization of home management" (p. 31). The remainder of the article presented the proposed framework for home management based on a systems approach, and was interjected with quotes from various social scientists. It is interesting to note that prior to this article, several authors (Knoll, 1963; Gross and Crandall, 1963; Crandall, 1964; Bettinghaus, 1964) had noted the influence of various business theorists and practitioners on the development of home management.

Maloch and Deacon (1966) defined a system as "an organized collection of interrelated elements characterized by a boundary and functional unity," and a subsystem as "interrelated elements or parts having a boundary and functional unity within a larger system" (p. 33). Specifically, the proposed systems approach to management included the critical components of input, home management, and output. External factors, demands and resources, comprised the input which was processed through home management to result in output. Output was defined simply as the use of resources by the household.

Two subsystems, planning and controlling, were identified as parts of the home management system. Evaluation, not specifically identified within the model, was considered relative to actions and standards, resources, and decisions. It is interesting to note that "feedback" was identified within the diagram, but was not defined in the article.

The article did, however, suggest that feedback contributed to evaluation.

Later that year, Crandall (1966), in a letter to the editor, applauded the efforts of Maloch and Deacon to explicitly define components of the process as well as to represent the theory schematically. Her only criticism focused on what she perceived to be the failure of the model to adequately represent the multiplicity of goals and related plans which are considered by the individual and household. Maloch and Deacon (1966) responded that planning could occur intermittently over time before a goal was ever achieved. Similarly, they asserted that empirical testing of the model should recognize this multiplicity of values, goals, events, demands, and resources.

Schlater (1967) confirmed this multiplicity of goals the following year in another Journal of Home Economics article. She noted that the task-centered approach to home management had been replaced by the human-centered emphasis. "Today we recognize that management is operative in all aspects of the home environment and in its relationships with the wider community of which the home is a part" (1967, p. 93).

However the Schlater framework of management differed sharply from the systems approach. Schlater asserted that management was composed of two subprocesses, such that

$$\text{Management} = d_m + d_i$$

where  $d_m$  equalled decision making and  $d_i$  equalled decision implementing. These two subprocesses were not, by definition, mutually

exclusive although they could be differentiated by the degree of mental or nonmental managerial activity. According to Schlater, decision making was predominately a mental activity, while decision implementing was primarily a physical activity. According to this management framework, decision making was central to management.

### The Decade of the '70's

In an effort to merge the theories of home management and family economics, Edwards (1969, 1970) introduced another conceptual framework to explain "goal-oriented family behavior." This framework purported that all of family system behavior can be divided into two areas -- goal oriented behavior and interpersonal behavior. Much of what had traditionally been called home management occurred as goal oriented behavior. Specifically, Edwards proposed that goal oriented behavior was composed of two subprocesses -- goal setting and goal effectuation.

A goal, defined as a "desired state of being," resulted from the process of goal setting during which the family considered values and available resources. The resulting hierarchical goal-complex gave direction to family activity, and became the objective of goal effectuation activity. Goal effectuation, according to Edwards, was composed of decision-making and decision-implementing behavior aimed toward transformation of the goal-complex into reality. This definition parallels the Schlater (1967) definition of management.

Goal attainment, adaptation, and integration were the interrelated activities composing the goal effectuation behavior. Goal attainment

activity also could be described as the familiar planning, controlling, and evaluating which culminated in goal achievement. Adaptation focused on the planned use of resources such that resources would be available now as well as in the future, and would maintain broad utility. Edwards, again in agreement with Schlater (1967), noted that it was resource limitations which create the need for "adaptive" or managerial activity.

Integration, the third component of goal effectuation activity, focused on the unification of family resources and efforts toward the identified goal complex. It was in this phase that goal-oriented behavior and interpersonal behavior overlapped. This was a unique concept in that the identity of the individual, as defined by personal values and goals, had to be merged with that of other family members in an effort of mutual support and commitment.

Edwards' (1969, 1970) explanation of the three interrelated components of goal effectuation was quite insightful. It captured the process of planned activity toward goal achievement, the development of that plan within the context of present and future resource needs, and ultimately the implementation of that plan by the individual within the context of the family group. Edwards attempted to integrate family economics and management theory into one conceptual framework. But of perhaps more importance was the attention focused on the need to resolve the multiplicity of individual goal demands within the complex of the family goals. Edwards' framework and terminology did not receive wide acceptance, however it did contribute to continued theory development.

In a 1970 research bulletin, Maloch and Deacon (1970) reported on the empirical work which was a continuation of their earlier systems proposal. The evolution of the framework had continued as two major subsystems, personal and managerial, had been proposed by Deacon in a 1966 speech. The primary function of the personal subsystem, as explained in this report, was socialization -- the development of the values, personality, and family and societal roles of the individual. The managerial subsystem functioned as what had earlier been described as "home management." The empirical work, focusing on planning and controlling, dealt only with the managerial subsystem.

Data were collected from personal interviews with 180 homemakers from husband-wife households with children under 18 years of age. Hypothetical market and non-market situations were utilized to ascertain planning and controlling behavior. The quality and quantity aspects of standards, the sequencing and coordinating of tasks, and the complexity, reality, clarity, and flexibility of both standards and sequences were considered. Controlling, as defined by checking, facilitating, and adjusting behavior, also was considered. Findings supported the inclusion of these components within the management framework. Results did vary by situation indicating that, whereas the components of the process might be universal, the importance placed on those components varied given a market or non-market situation.

The 1973 edition of Management for Modern Families by Gross, Crandall, and Knoll was the first textbook to employ a systems approach to management. But whereas Maloch and Deacon used the systems approach as a means for explicating the components of management, Gross,

Crandall, and Knoll used the approach to view management within the broader "whole" of which it was a part. They presented management as an "ecological social system," which considered the functioning of the family within the context of the surrounding environment.

The boundaries of the environments surrounding the family were limited by the parameters of family interaction. For example, the household environment surrounding the family was limited by the daily interaction of the family group. The near environment was constrained by the "groups with which the family interacted, the facilities provided by these groups, and the natural characteristics of the area" (p. 17). The larger environment extended to the extremes of the family's interaction. Whereas earlier authors (i.e. Knoll, 1963; Liston, 1964; Schlater, 1967) had commented on the physical and socio-cultural environment surrounding the family, the Gross, Crandall, and Knoll approach ensured its consideration in future management studies.

The instrumental and expressive functions of the family were viewed as two subsystems: the managerial and the psycho-social. Although the terminology varied, the explanation paralleled that of Maloch and Deacon (1970). Similarly, the systems terminology of input, output, and feedback was employed. However, Gross, Crandall and Knoll chose to call "home management" the "processes or managerial action" phase of the system. Again, taking a broad functional approach, they delineated the processes unique to management, from those shared with other disciplines. Planning, goal setting, and implementing of plans were identified as unique management processes. Communicating,

decision making, and utilizing feedback were general processes interwoven throughout the others. Note that evaluation was absent from the formulation, but was highlighted in the utilization of feedback.

The 1975 Deacon and Firebaugh text provided an opportunity for the authors to continue the clarification of management components presented in the 1966 article (Maloch and Deacon, 1966). They too expanded upon the consideration of management within the context of the surrounding environment. The individual or family setting was defined as the micro-habitat, while the macro-habitat included the "man-made and natural space and the biological contents of the physical environment" (1975, p. 18). Interchanges between these habitats occurred through the social-cultural, economic, and political systems, and were often facilitated by technology.

Within the micro-habitat, the individual or family functioned through the exchange between the personal and managerial subsystems. The term "throughput" was introduced to explain what was called "home management" in the first systems presentation. The managerial system, a subsystem of the larger family system, became the focus of study. Aside from clarity of presentation, the theories discussed in 1966 and 1973 were quite similar. Control of the plan, a major component of the 1966 schematic, became a part of implementation in the 1973 theory. Output, initially defined only as household resource use, was broadened to include "met demands" as well as "used resources." Another new aspect of the 1973 formulation was the addition of a "management bypass" which moved input directly to output, with no interceding managerial action (p. 53, 57-58).

The differences in the 1966 and 1973 formulations of management also were reflected in the basic definitions. Maloch and Deacon defined home management as "planning and controlling the use of resources of a household with respect to demands" (1966, p. 33). Reflecting the emphasis on implementation, Deacon and Firebaugh defined management as "planning the use of resources and then implementing the plans to meet demands" (1973, p. 47-48).

#### The Decade of the '80's

In 1980, the fourth edition of the Gross, Crandall, and Knoll textbook was published. However, the management definition presented in the 1973 and the 1980 editions of the textbooks did not change. "Home management consists of purposeful behavior involved in the creation and use of resources to achieve family goals" (1973, p. 3; 1980, p. 6). And in fact, aside from subtle clarifications, the managerial conceptual framework did not change.

In 1981 Deacon and Firebaugh introduced yet another management textbook. Again, they relied heavily on schematic presentations of the theory. The term "actuating" was introduced to convey the action phase of plan implementation (1981, p. 31, 33-34). Yet aside from clarification, the conceptual framework did not change dramatically from that presented in the 1973 text.

Terminology associated with the discussion of the environment surrounding the family varied: micro-habitat and macro-habitat became the micro-environment and the macro-environment. Yet no substantive differences in the content were evident. The concept of personal and

managerial subsystems, and the interaction of these subsystems among family members was given increased attention (1981, p. 21-24). It is interesting to note that this aspect of the management conceptualization continues to warrant additional clarification in the current revision of the Deacon and Firebaugh text (1986).

### A True "Revolution"

By reviewing more than 20 years of home management history, an attempt has been made to identify significant changes in the development of the theory. Rhoda Kotzin referred to the sudden and radical alteration of the conceptual framework within a discipline as a "revolution" (1964). But in retrospect, the introduction of the systems perspective to management was not so much a revolution but the application of a convenient tool for organizing existing thought. The basic three step process of planning, controlling, and evaluating was not replaced. Instead, controlling evolved into implementing -- a phase more indicative of the managerial activity necessary to bring about the desired action. Likewise, evaluating became an integral part of the entire management process through the emphasis placed on feedback.

The application of the systems approach to management provided the structure necessary for the logical identification of the component parts. But perhaps the most important contribution of the systems approach is the emphasis on the environment surrounding the system. For it is this approach which has broadened the perspective of individual managerial activity within the household, to the managerial

activity of the individual within the global community. Systems theory emphasis on the exchange between the system and the environment easily accommodated the growing interest of home management theorists in the influence of the household and cultural environment on managerial activity.

The study of management must begin with a clear, agreed upon delineation of the component parts. But realistic study of those parts, which will contribute to continued theory development, can only occur if those parts are studied in the context of the "whole" of which they are a part.

The application of the systems approach to management was not truly a "revolution" as described by Kotzin (1964, p. 14). "Everything that had been taken for granted" about management was not questioned. Instead there was a synergetic attitude of inquiry and clarity among the theorists and practitioners within the discipline. A persistence of that attitude will contribute to the continued responsiveness of the systems conceptual framework. When the systems approach will no longer support such growth through empirical testing and theory development it will be time for a conceptual framework "revolution."

### The Managerial Systems Framework as a Research

#### Model

A few researchers (Sheffield, 1976; Newton, 1979; Heck, 1983; Mueller, 1983; Swift, 1985; Williams, 1985) have attempted comprehensive assessments of the managerial systems model. Although set in different contexts, these studies have operationalized input,

throughput, and output measures to empirically test the managerial systems framework.

Sheffield (1976) was interested in the concept of standard setting in relation to resource distribution when considered within the context of the systems model. Inputs were operationalized as demographic factors, family characteristics, and a measure of the internal boundary orientation of the family. Standard intensity scales for the demands of food, clothing, housing, and furnishings, as well as measures of the distribution of resources for each demand were generated to represent throughput in the model. Composite measures representing perceived quantity and quality of demand achievement for each of the four demands were calculated as the dependent variables.

Path analysis was used to analyze the relationships in each of the four demand models. Throughput and output measures were summed into simple additive scales and were analyzed in a fifth model which included overall satisfaction as the dependent variable. Satisfaction in this model was defined as feedback within the systems framework.

Results revealed that the family orientation variable had a significant effect on levels of achievement across demands, as well as overall satisfaction. Family orientation and income were consistent predictors of the intensity of standards. An increase in the intensity of standards associated with a demand was accompanied by a related increase in the resource distribution for that demand. For each demand considered, a direct relationship existed between the intensity of the standard and the level of achievement.

In the model considering satisfaction as a measure of feedback,

significant predictors included sex of the household head, presence of a spouse, family system orientation, the summated standard intensity scale, and the summated demand achievement scale. The standard intensity scale had a negative effect on satisfaction, while the demand achievement scale had a positive effect on satisfaction. Sheffield (1976) concluded that the research did support the systems model proposition that input, throughput, and output effected feedback.

Based on the Deacon and Firebaugh (1975) systems conceptualization of management, Newton (1979) designed a study to "assess the impact of managerial behavior on goal achievement, satisfaction with management and overall life satisfaction" (p. 1). Noting that "Deacon and Firebaugh (1975) indicate that met demands can be assessed by the level of satisfaction," Newton hypothesized that "met demands should lead to overall life satisfaction" (p. 4). The relationships among the variables were tested using regression and path analysis.

The input, or independent variables, included total household income, household size, and education, age and sex of the head of household. Ten items assumed to represent managerial behavior were summed into a scale identified as the throughput, or intervening variable.

Output was defined in two stages. Goal achievement, measured on a ten-item scale, and satisfaction with managerial behavior were defined as intermediate dependent variables. Satisfaction with managerial behavior was measured by a five-item weighted scale assessing satisfaction with the family's management of time, work and money and the associated importance of this managerial behavior. Overall life

satisfaction, measured by a three-item scale, was included to validate the model. Each scale had a Cronbach's alpha reliability coefficient of .70 and above.

Newton (1979) failed to reject the hypothesis that managerial behavior was a function of selected socioeconomic-demographic variables. Age of the head of the household was the only significant contributor. Newton accepted the hypotheses that goal achievement was a function of reported managerial behavior, as was satisfaction with managerial behavior. Total income was the most significant predictor of goal achievement, followed by reported managerial behavior. Reported managerial behavior, sex of the household head, and size of the household were significant predictors of satisfaction with managerial behavior.

The final hypothesis stated that overall life satisfaction was a function of satisfaction with managerial behavior and goal achievement when controlling for selected socioeconomic-demographic variables and reported managerial behavior. Satisfaction with managerial behavior and goal achievement were the most significant predictors of overall life satisfaction, as well as reported managerial behavior, age and education of the head of household, and size of household.

Based on this research, Newton (1979) reached two major conclusions. First, the research offers "strong support" for the Deacon and Firebaugh model of the managerial system composed of inputs which are determinants of throughput, that in turn, effect the output. Second, the research supported the reliability and validity of the scale for measuring reported managerial behavior.

Using satisfaction with different aspects of household production, Heck (1983) estimated eleven probit equations with various measures for input, throughput, and output. Output, or the dependent variable, was measured on the basis of the responses to eleven questions ascertaining satisfaction with household production, availability of time for leisure and family activities, money, health status, and success of children. Eleven binary variables, differentiated on the basis of any level of satisfaction vs. any level of dissatisfaction, were created as the dependent variables.

Inputs to the managerial system were specified as demands and resources. Demands were defined by a goal orientation index, the presence of a child under six years of age, and the employment status of the wife. More materialistic-oriented goals, larger families and the presence of younger children, and lack of adaptability due to the constraints of the homemaker's employment were hypothesized to result in decreased satisfaction (output).

Resources, the second major group of inputs, were operationalized as human and material resources. Human resources included health of the husband, wife, and children, length of current marriage, marital satisfaction, and education of the wife. Poor health of the husband, wife, or children was expected to detract from the resource pool, thereby contributing to dissatisfaction with family output. Likewise, increasing the length of marriage, marital satisfaction, and/or education of the wife was expected to increase satisfaction (output). Material resources included measures of total family earned and unearned income, number of capital goods, home ownership, net worth

position, and location of residency. The availability of greater levels of material resources was expected to increase satisfaction (output).

Throughput, or the managerial element in the model, was specified on the basis of planning activities (two binary variables), decision making style (two binary variables), and total household production time of the husband and wife. Total household production time of husband and wife was assumed to be an indicator of throughput activity, with larger commitments of time assumed to increase the quantity and quality of family outputs.

Statistical tests for the independent effects of the input and throughput variables on the prediction of output yielded inconsistent results. Inputs which were negatively related to reported satisfaction levels of the family included a materialistic goal orientation, the employment and poor health status of the wife, the total amount of earned and unearned income, the accumulation of capital goods, and rural residency. In contrast, inputs which were positively related to satisfaction included the length of current marriage, education of the wife, home ownership, the family's net worth position, employment status of the wife for two equations, and total amount of earned income in one equation.

Significant throughput variables which were positively related to output included planning activities and egalitarian decision making styles. Conversely, the planning activities index was negatively related to satisfaction in two equations, as was household production time of the wife. Husband's household production time was positively

related to satisfaction with available free time.

The full empirical equation of input, throughput, and output measures was significant for the prediction of satisfaction with the outputs of "amount of clean clothes," "amount of free time," and "amount of money." However, tests for the contribution of the throughput to the model, based on chi square tests between the full and restricted models, were significant only for the equation where "satisfaction with cleanliness of house" was the output.

Noting the limitations of the data and the measurement of the output variables, Heck (1983) called for additional research which addressed these limitations and extended the testing of this model. She concluded that the "results show some validity for the conceptualization of the family management frameworks and the need for a more complete and rigorous testing of these frameworks" (p. 134).

Using "debt-to-income ratio" as the output measure of household solvency, Mueller (1983) tested the managerial systems model in relation to household money management. "Debt-to-income ratio" was regressed on four sociodemographic characteristics and seven money management practice variables. The sociodemographic variables entered the model as inputs, defined as demands and resources. Mueller considered household size, marital status, and age of the money manager as demands, while education of the money manager was classified as a resource. The seven money management practice variables were identified as planning or implementing components of the throughput.

Regression analysis revealed that the full model of solvency status (output) regressed on the input and throughput variables was

significant with 40.3% of the variation in solvency status explained by the predictors. Mueller (1983) concluded that the "research provided evidence to support the managerial systems model" (p. 120). Demand and resource inputs were shown to affect planning and implementing (throughput), and both phases of the throughput were related to used resource output. Results also supported the contention that input and throughput, in combination, are necessary for output prediction.

Using the same data set as Mueller, Swift (1985) designed a study to determine the influence of communication patterns on household solvency status. Solvency status, or debt-to-income ratio was defined as the output, or dependent variable. Based on the Mueller (1983) results, Swift defined throughput as the number of credit cards used by members of the household, and the amount of money the manager was comfortable owing on all credit cards. These selected money management practices as well as communication behavior comprised throughput. Inputs were operationalized as socioeconomic characteristics.

In separate analyses of the model, Swift determined that communication behavior was a function of age of the money manager, marital status, and household size; age of the money manager and household size also were predictors of solvency status. Analysis of the full systems model revealed that communication patterns and number of credit cards owned by the money manager were significant predictors of debt-to-income ratio. A higher debt-to-income ratio was associated with ownership of more credit cards and higher levels of communication about financial matters.

Swift (1985) concluded that communication "has a legitimate place

as a throughput in the Deacon-Firebaugh model" (p. 79). However, the strong relationship between financial difficulty and increased levels of communication suggests that communication may also serve an important role as feedback. Although the study supported the throughput role of communication, future research should consider the function of communication as feedback.

An empirical test of the assumed relationships in the Deacon and Firebaugh managerial system was the subsidiary purpose of a study conducted by Williams (1985). Specifically, the study utilized regression and path analysis to explore the relationships among personal management, resource satisfaction, sense of control, and quality of life.

Input variables included family income, occupation, education, age, health, housing tenure, environment, age of youngest child, number of children, and household production or non-market economic activities. Throughputs, or mediators of the impact of input on the output, resource satisfaction, were defined as a summated scale of 14 management activities performed by men and women.

Output was defined as a composite score of satisfactions with various objective measures corresponding to the input variables. The corresponding input-output variables were used to determine if possession of a resource/characteristic was satisfying in itself, without mediation of another variable. A Cronbach's alpha coefficient of reliability of .81 indicated internal consistency in the measure of satisfaction. Sense of control and satisfaction with quality of life were included as two additional outputs for the path analysis.

Two regression models were analyzed and compared. A full model regressing resource satisfaction on inputs and managerial practices was compared to a restricted model using inputs as the only independent variables. Both models were analyzed with the total sample, as well as with subsamples of metropolitan men, metropolitan women, non-metropolitan men, and non-metropolitan women.

Results indicated the inclusion of management procedures increased the ability of the independent variables to explain the dependent variable, resource satisfaction. Calculation of the F statistics for change in  $R^2$  were significant for the total sample, metropolitan men, and non-metropolitan women, indicating a significant contribution of management practices to the explanation of resource satisfaction.

Controlling for the input variables, management procedures significantly contributed to satisfaction with resources, or output. Analysis of standardized regression coefficients (betas) indicated management practices were second only to income in predicting satisfaction with resources for the total sample.

Analysis for the subsamples indicated that men with a physical disability or health problem were less satisfied with resources than those men without such a constraint. Education level, occupation, income, and management practices were significant contributors to resource satisfaction among non-metropolitan women. Income, alone, was a significant predictor for non-metropolitan men.

Results of the path analysis indicated that management procedures linked the input variables of productive activities (men and women), age (women), and health constraints (men) with the dependent variable

resource satisfaction. For both men and women, controlling for the input variables indicated that management contributed directly to resource satisfaction, and indirectly to satisfaction with control through resource satisfaction. Furthermore, management contributed indirectly to quality of life through resource satisfaction and satisfaction with control.

Williams (1985) concluded that "findings support the validity of the managerial system by empirical testing for men and women" (p. 248). Path analysis provided partial support for extending the conceptual framework to include sense of control and quality of life as dependent variables. Resource satisfaction was the strongest direct effect on satisfaction with quality of life, followed by sense of control. Income affected satisfaction with resources and quality of life independent of personal management practices.

Although set in different contexts, the systems model of family resource management was the conceptual model for the Sheffield (1976), Newton (1979), Heck (1983), Mueller (1983), Swift (1985), and Williams (1985) studies. Results of all four studies supported the input, throughput, output systems conceptualization of management.

Whereas Newton (1979) and Williams (1985) did not differentiate inputs into demands and resources, there were consistent specifications of the inputs among the studies. Education of the head of the household (Newton, 1979), of the wife (Heck, 1983), of the money manager (Mueller, 1983; Swift, 1985), and of the head of the household and spouse (Williams, 1985) was considered as an input in five of the studies. Sheffield (1976) combined education with occupational status

as a measure of social status.

Sheffield (1976), Newton (1979), Mueller (1983), Swift (1985), and Williams (1985) each considered age of household head, or money manager, as well as household size; Sheffield considered only the number of minor children, while Williams defined household size as number of children. Sheffield, Newton, and Williams considered total household income, while Heck (1983) differentiated total family earned and unearned income. Heck and Williams considered health status, housing tenure, and residential environment.

Sheffield (1976), Mueller (1983) and Swift (1985) included marital status, while Heck (1983) identified length of current marriage and marital satisfaction as resources. Newton (1979) recommended the inclusion of the employment status of wife in future research. Heck included this variable as a demand, but results related to this variable were inconsistent.

In the specification of the throughput variables, the studies included decision making activities, planning behavior, and some measure of implementation behavior. Williams (1985) did not describe the 14 management activities summated for this scale. Newton (1979), Mueller (1983), and Swift (1985) each considered implementing behaviors, while Heck (1983) considered household production time of the husband and wife. According to Heck, "since throughputs refer to those activities and realities of the actual management process involving mainly planning and implementing, the total time spent in household production by both the husband and wife were viewed as indicators of throughput activities" (1983, p. 125). Sheffield (1976)

was the only researcher to operationalize throughput on the basis of standards.

Newton (1979) and Swift (1985) included communication activities as part of the throughput, while both Newton and Mueller (1983) considered evaluation activities. Sheffield (1976) considered satisfaction as an indicator of feedback, while Swift suggested that communication might function as feedback within the system.

Satisfaction with levels of goal achievement and/or with life in general was identified as a measure of output by Newton (1979) and Heck (1983). Similarly, Williams (1985) identified output as level of resource satisfaction, in addition to sense of control and satisfaction with quality of life. Level of goal or demand achievement was the output considered by Sheffield (1976), Mueller (1983), and Swift (1985).

Whereas the results of all six studies supported the Deacon and Firebaugh systems framework, the researchers called for continued research based on this model. As Mueller concluded, "it is essential that researchers discover what are the components of family resource management and how these components interrelate in order to distinguish effective from ineffective management" (1983, p. 116).

#### Empirical Support for the Model Specification

A related purpose of the literature review was to provide background for the specification of a valid systems model. As stated earlier, the breadth of applicability of the systems framework of family resource management suggests that research on household time

use, household production, or household consumer expenditures could all be considered under the framework. Each represents an output generated by the household members. Consequently, related research which considered factors identifiable as input, throughput, and output was considered.

What factors have consistently affected managerial decisions within the household? When considered in the context of management theory, are these factors demands or resources? Are these input factors originating in the family system, or other systems? What constitutes a valid delineation of throughput, or managerial activity? How can throughput be measured? Does the specification of output require measures of quantity and quality, or can output be measured by satisfaction? Finally, what combination of the input, throughput, and output measures is necessary for a comprehensive analysis of the theory? This section of the literature review was designed to consider these as well as other questions. Research related to input, throughput, and output will be considered separately.

#### Defining Components of the System: Input

A review of the literature yields a variety of demands and/or resources that potentially impact household activity. Because of the dual nature of these factors, a strict classification as a resource or demand was not possible. For example, employment of the wife is normally recognized as a demand on human and material resources. Conversely, her employment is a resource in that it provides income, social interaction, development of human capital, and self-esteem.

Clearly, the demand - resource differentiation is ambiguous. Furthermore, the identification of a factor as a resource or demand will vary with the values and goals of the individual and/or family in question. Because demands and resources simultaneously enter the model as input, the dual nature is not contrary to the theory.

By considering the affect of the variable on the individual and/or family output, the differentiation of the input factor as a resource or demand may be more apparent. Thus, for clarification, the input factors have been grouped according to the system from which they originated, and not as resources or demands.

According to Deacon and Firebaugh (1975, 1981), the individual and/or family functions within two interdependent environments. The micro-environment encompasses the immediate surroundings -- physical and social -- of the family system. The macro-environment includes all aspects of system interchange whether with the natural environment, the man-made environment, or the societal systems which control the macro-environment. Functioning at all times within these environments are the socio-cultural, political, economic, and technological societal systems. These systems are operative in the macro-environment, as well as the micro-environment of the household.

Gross, Crandall and Knoll (1973, 1980) would concur with this description of family functioning. Although they use the terminology household, near, and larger environment, the descriptions agree. Likewise, they acknowledge the sociocultural, political, economic, and technological systems which are functioning within the different environments. The natural system is highlighted as a fifth aspect.

Characteristics of the family system and the members comprising that system can be identified as demands and/or resources. Several input factors are associated with the economic system, a system of the macro-environment surrounding the family. This system also functions within the micro-environment. Finally, the household environment or the physical residence within the micro-environment provides inputs to the management system. The household environment is a source of resources, as well as a source of demands. The family system and the household environment also could be classified as the family sphere and shelter sphere as identified by Swanson, 1981.

Research related to the family system, the economic system, and the household environment will be considered individually. Due to the volume of literature, only studies published since 1980 will be considered in this section of the literature review. Attention will focus on trends in the literature, however the reader is cautioned not to ignore the methodological and sample differences inherent in the studies.

Input from the Family System. Characteristics of the family system likely to impact household activity have focused on the marital dyad, as well as the children. A related resource/demand, individual time use also has been considered.

Age of the husband and/or wife has been considered by several researchers (Schnittgrund, 1980; Wheeler and Arvey, 1981; Abdel-Ghany and Nickols, 1983; Henze, 1983; Nickols and Abdel-Ghany, 1983; Tasker, Lawrence, Purtle, and Babcock, 1983; Bellante and Foster, 1984). As shown in Table 1, age has been considered as a factor in household time

Table 1

Selected Family System Input Variables

Study	Unit of Analysis	Independent Variable	Dependent Variable	Relationship*
<u>Age of Husband and/or Wife</u>				
Schnittgrund, 1980 Time Use in Economic & Social Accounts Data, 1975-76	Unemployed household head, N=52; Employed household head, N=399	Age—head of household	Time use: Market Household Leisure Personal Time	S, - NS NS NS
Wheeler & Arvey, 1981	Husband & wife pairs, N=68	Age of husband Age of wife	H's and W's responsibility for female, shared, and male household tasks	S, - Age of husband. NS Age of wife
Abdel-Ghany & Nickols, 1983 Interstate NE-113 Time Use Data	2 parent, 2 child households w/both spouses employed, N=421	Age of husband & wife	H's & W's household work time	NS, H's household work time S,+ W's household work time
Henze, 1983 NE 113 Time New York Time Use Data	2 parent, 2 child households, N=320	Age of wife	Demand for (1) automatic washer, (2) dryer, and, (3) wife's time in care of clothes & household linen	NS for all inputs in the derived demand for clean clothes and household linen
Nickols & Abdel-Ghany, 1983 Interstate NE-113 Time Use Data	2 parent, 2 child households w/both spouses employed, N=405	Age gap (H's age - W's age = age gap)	H's leisure time, during 2 day period W's leisure time during 2 day period	NS NS
Tasker, Lawrence, Furtle & Babcock, 1983 Interstate NE-113 Time Use Data	2 parent, 2 child households, N=2,100	W's age  H's age	Family travel time per day: Social & recreational activities Paid work Shopping Chauffering	NS, for all travel for the family, H & W <u>except</u> , S. + for entire family travel time for shopping  NS for all travel for the family, husband and wife
Bellante & Foster, 1984 1972-73 Consumer Expenditure Survey	H, W families in which both were less than age 65 and the H was employed full time for at least 48 wks. during the survey year. N=3,732	W's age, in 4 groups: 25 - 34 years 35 - 44 years 45 - 54 years 55 - 64 years	Expenditures for services: food away from home child care domestic service clothing care personal care total services	S,+ age 35-44 only S,+ age 25-34 only S,+ age 55-64 only S,+ ages 45-54, & 55-64 S,+ all age groups S,+ all age groups

\* S = Significant; NS = Not significant; + = Positive; - = Negative; W = Wife; H = Husband; NR = Not reported

Table 1 (continued)

Study	Unit of Analysis	Independent Variable	Dependent Variable	Relationship*
<b>Education of Husband and/or Wife</b>				
Marlow, 1980 Time Use in Economic & Social Accounts, 1975-76	Married respondents, N=603	Education	Incidence of joint production, as measured by time spent simultaneously in primary & secondary activities	S,+
Schnittgrund, 1980	Unemployed house- hold head, N=52; Employed house- hold head, N=399	Education of the household head	Time use: Market Household Leisure Personal time	S, - NS NS NS
Ortiz, MacDonald, Ackerman & Goebel 1981 Wisconsin NE-113 Time Data	2 parent, 2 child households, N=210	Education of the wife	(1) W's time in food preparation (2) Average number of persons per meal for all meals prepared at home (3) Percentage of all meals eaten away from home	NS S,+ NS NS
Sanik, 1981 1967 Syracuse New York Time Data & NE-113 New York Time Data	2 parent, 2 child households, 1967, N=378 1977, N=105	Education of the wife	Time use by W, H, children, & total family in 8 cate- gories of household time use, including total time	S,- W's time in clothing care, S,+ H's time in dishwashing, S,- Children's time in dishwashing, S,- All family's time in clothes care
Wheeler & Arvey, 1981	Husband and wife pairs, N=68	Education of the husband  Education of the wife	H's and W's respons- ibility for female, shared, and male household tasks	S,+ H's education & responsibility for female & shared tasks  NS, W's education & responsibility for tasks
Abdel-Ghany & Nickols, 1983 Interstate NE-113 Time Use Data	2 parent, 2 child households w/both spouses employed, N=421	Education of the husband and wife	H's & W's household work time	NS, H's household work time  S,- W's household work time
Hafstrom & Schram, 1983 1976-77 Quality of Life Survey	H - W households, less than age 65 & not disabled, N=227	Education of the wife	W's hours spent in housework on a weekly basis	NS
Henze, 1983 New York NE-113 Time Use Data	2 parent, 2 child households, N=320	Education of the wife	Demand for (1) dish- washer, (2) dryer, & (3) wife's time in care of clothes & household linen	NS, Washer S, + Dryer NS, Time

\* S = Significant; NS = Not significant; + = Positive; - = Negative; W = Wife; H = Husband; NR = Not reported

Table 1 (continued)

Study	Unit of Analysis	Independent Variable	Dependent Variable	Relationship*
<b>Education of Husband and/or Wife (continued)</b>				
Lawrence, Tasker, & Babcock, 1983 Interstate NE-113 Time Use Data	Urban youth, age 12-17 N=483	Education of the mother	Time spent in household work, per day:	Mother's education NS for all categories, <u>except</u> S,+ for total household work time
		Education of the father		Father's education NS for all categories, <u>except</u> S,- for dish-washing and clothing construction
Nickols & Abdel-Ghany, 1983 Interstate NE-113 Time Use Data	2 parent, 2 child households w/both spouses employed, N=405	Educational gap (H's years of education - W's years of education = Educational Gap)	H's leisure time, during a 2 day period W's leisure time during a 2 day period	NS NS
Senik, 1983 1967 Syracuse NY Time Data & 1977 NY NE-113 Time Use Data	2 parent, 2 child households, N=NR	Education of the wife, in years	H's & W's time in housework: Food preparation Dishes House Clothes Management Shopping  H's and W's time in family care: Physical  Nonphysical	NS, W's time NS, W's time S,- W's time NS, W's time S,+ W's time NS, W's time H's time NS for all categories  S,+ W's time S,+ H's time S,+ W's time S,+ H's time
Tasker, Lawrence, Purtle, Babcock Interstate N-113 Time Use Data	2 parent, 2 child households, N=2,100	Education of the wife	Family Travel time per day in selected categories	NS for all categories of time for H, W, & the entire family
		Education of the husband	Family Travel time per day	NS for all categories for the H, W, & the entire family, <u>except</u> , S,- for H's time spent chauffeuring
Bellante & Foster 1984, 1972-73 Consumer Expenditure Survey	H, W families in which both were less than age 65, & the H was employed full time for at least 48 weeks during the survey year. N=3,732	Education, wife, 1. some high school 2. high school graduate 3. some college 4. college graduate	Expenditures for services: Food away from home Child care Domestic services  Clothing care Personal care  Total Services	S,+ for all age groups NS, for all groups S,+ college graduates only  S,+ all groups S,+ high school & some college only S,+ for all groups

\* S = Significant; NS = Not significant; + = Positive; - = Negative; W = Wife; H = Husband; NR = Not reported

Table 1 (continued)

Study	Unit of Analysis	Independent Variable	Dependent Variable	Relationship*
<b>Education of Husband and/or Wife (continued)</b>				
Foster, 1986 1980-81 Consumer Expenditure Survey	Urban H and W households w/pretax income of \$75,000 or less N=4,299	Education of the wife measured in years completed	Education elasti- cities of family consumption expendi- ture categories: Food at home Food away from home Alcohol Tobacco Personal care products Personal care services Nonprescription drugs Housekeeping supplies Utilities Gasoline	NS S,+ S,+ S,- S,+ NS S,+ S,+ NS NS
<b>Length of Marriage</b>				
Wheeler & Arvery, 1981	Husband & Wife pair, N=68	Length of Marriage	H's & W's respon- sibility for female, shared, and male household tasks	H, S H's responsi- bility for male tasks increased with increasing years of marriage, less inclined to female tasks  W, NS
<b>Race</b>				
Schnittgrund, 1980 Time Use in Economic & Social Accounts Data, 1975-76	Unemployed house- hold head, N=52; Employed house- hold head, N=399	Race	Time Use: Market Household Leisure Personal Time	NS S NS NS  Caucasian heads spent more time in household activities than those identified as Black or others
Bellante & Foster, 1984 1972-73 Consumer Expenditure Survey	Husband, wife families in which both were less than age 65, and the H was employed full time for at least 48 weeks during the survey year, N=3,732	Race	Expenditures for Services: Food away from home Child care Domestic servie Clothing care Personal care Total services	- # - - + - -
# Results only reported without actual statistical levels of significance reported; additional analysis on this variable available from authors.				
* S = Significant; NS = Not significant; + = Positive; - = Negative; W = Wife; H = Husband; NR = Not reported				

Table 1 (continued)

Study	Unit of Analysis	Independent Variable	Dependent Variable	Relationship*
<b>Household Size</b>				
Marlowe, 1980 Time Use in Economic & Social Accounts, 1975-76	Married respondents N=603	Number of children	Joint production	S, +
Schnittgrund, 1980 Time Use in Economic & Social Accounts Data, 1975-76	Unemployed house- hold heads, N=52; Employed household heads, N=399	Number in family unit	Time Use: Market Household Leisure Personal Time	NS NS NS NS
Hafstrom & Schram, 1983 1976-77 Quality of Life Survey	H - W households less than age 65 and not disabled, N=227	Family size	W's hours spent in housework on a weekly basis	S, +
Ballante & Foster, 1984 1972-73 Consumer Expenditure Survey	H, W families in which both were less than age 65, and the husband was employed full time for at least 48 weeks during the survey year N=3,732	Family size excluding children under 6 years of age	Expenditures for Services: Food away from home Child care Domestic service Clothing care Personal service Total services	NS NS S, - S, - NS NS
		Number of children under 6 years of age	Expenditures for services: Food away from home Child care Domestic service Clothing care Personal care Total services	S, - S, - S, + NS S, - S, +
<b>Age of Children</b>				
Ortiz, MacDonald, Ackerman, & Goebel, 1981 Wisconsin NE-113 Time Data	Two parent, 2 child households, N=210	Age of younger child Baby Preschool School age Teen	(1) Wife's time in food preparation (2) Average number of persons per meal for all meals prepared at home (3) Percentage of all meals eaten away from home	Baby & preschool, S,+; others NS Baby & preschool S,+; others NS NS

\* S = Significant; NS = Not significant; + = Positive; - = Negative; W = Wife; H = Husband; NR = Not reported

Table 1 (continued)

Study	Unit of Analysis	Independent Variable	Dependent Variable	Relationship*
<b>Age of Children (continued)</b>				
Sanik, 1981 1967 Syracuse, NY time data & 1977 NE 113 NY time data	Two parent, 2 child households, 1967, N=378 1977, N=105	Age of younger child	Time use by wife, husband, children, & total family in 9 categories of household time use including total time	W's time use, S,- for 4 of the 9 categories. H's time, NS for 7 of the categories Total family time, S,+ for housecare and shopping; S,- for physical and non- physical care of family members. Children's time use, S,+ for 6 of 9 categories
		Age of older child		W's time use: - for physical care of family members + food preparation NS for 7 of the 9 categories Children's time use: - Nonphysical care of family members + Total time, and food preparation time H's time use: - Physical & non- physical care of family members, house care, & total time (4 of the 9 categories)
Goebel & Hennon, 1982 Wisconsin NE 113 Time Use Data	Two parent, 2 child households, N=210	Age of younger child	Wife's time in meal preparation	NS
			Household average expenditure for meals away from home	S,+
Fox & Nickols, 1983 Sample of NE 113 Time Use Data	Two parent, 2 child households with employed husbands N=206	Age of younger child	Total time spent in in 10 household activities for husband & wife	H's time: NS W's time: S, -
			Diversity of house- hold activities performed	H's diversity: S, - W's diversity: S, -
			Total work day length	H's work day length, NS W's work day length, S, -

\* S = Significant; NS = Not significant; + = Positive; - = Negative; W = Wife; H = Husband; NR = Not reported

Table 1 (continued)

Study	Unit of Analysis	Independent Variable	Dependent Variable	Relationship*
<b>Age of Children (continued)</b>				
Goebel & Hennen, 1983 Interstate NE-113 Time Use Data	Urban 2 parent, 2 child households, N=1050 Rural 2 parent, 2 child households, N=1050	Age of younger child	W's time in meal preparation, service and cleanup  Expenditures for meals purchased away from home  Average number of meals eaten together as a family for 1 day  Average number of meals eaten together as a family at home for 1 day	S, Urban sample NS, Rural sample  NS, Urban sample NS, Rural sample  S, Urban sample S, Rural sample Younger child between ages 1 & 11, families eat more meals together  S, Urban sample S, Rural sample Younger child between ages 1 - 11, families eat more meals together at home
Hafstrom & Schram, 1983 1976-77 Quality of Life Survey	H - W households less than age 65 and not disabled N=227	Age of younger child	W's time spent in housework on a weekly basis	NS
Henze, 1983 New York NE-113 Time Use Data	Two parent, 2 child households, N=320	Age of younger child  Age of older child	Demand for automatic washer, dryer, & W's time in care of clothes & household linen	S, - Washer S, - Dryer S, - Time  S + Washer S + Dryer S + Time
Nickols & Abdel-Ghany, 1983 Interstate NE-113 Time Use Data	Two parent, 2 child households with both spouses employed N=405	Age of younger child, range 1-17	H's leisure time, during 2 day period  W's leisure time, during 2 day period	NS  S, +

\* S = Significant; NS = Not significant; + = Positive; - = Negative; W = Wife; H = Husband; NR = Not reported

Table 1 (continued)

Study	Unit of Analysis	Independent Variable	Dependent Variable	Relationship*
<b>Age of Children (continued)</b>				
Nickols & Fox, 1983 Sample of NE-113 Time Use Data	Two parent, 2 child households, N=1,639	Age of younger child, range 1-17	Ownership of 8 time-buying capital goods  Substitution of: 1) Convenience products (disposable diapers) 2) Purchase of meals 3) Paid labor substitutes 4) Family members as substitutes for W's time/labor  Quantity of W's housework  Quality & efficiency of W's housework  W's time in other activities: 1) Unpaid work 2) Social & recreational activities 3) Personal time	S. + Freezer ownership  S. - S. + for 4 of 6 types of meals S. - for child care only NS, H's time in household work S. - H's time in care of family members S. + Children's time in household work  S. + W's time in household work S. - W's time in care of family members S. + Number of meals prepared at home NS, number of items per meal S. + difficulty of food preparation per item  S. + S. + NS
Sanik, 1983 1967 Syracuse NY Time Data & 1977 NY NE-113 Time Use	Two parent, 2 child households, N=NR	Age of younger child, range 1-17 years	H's & W's time in housework  H's & W' time in family care - physical  nonphysical	NS, H's time NS, W's time  S. - W's time NS, H's time S. - W's time NS, H's time

\* S = Significant; NS = Not significant; + = Positive; - = Negative; W = Wife; H = Husband; NR = Not reported

Table 1 (continued)

Study	Unit of Analysis	Independent Variable	Dependent Variable	Relationship*	
<b>Age of Children (continued)</b>					
Sanik, 1983 (continued)		Age of older child, range 1-17 years	H's & W's time in Food preparation	W's time	H's time
			Dishes	S. +	NS
			Housework	NS	NS
			Clothes	NS	NS
			Management	NS	S. +
			Shopping	S. +	NS
			H's & W's time in family care:		
			Physical	NS	S. -
Nonphysical	S. -	NS			
<b>Time Use</b>					
Hafstrom & Schram, 1983 1976-77 Quality of Life Survey	H - W households less than age 65 & not disabled, N=227	W's weekly sleep hours	W's hours spent in housework on a weekly basis	NS	
Nickols & Abdel- Ghany, 1983 1983 Inter- state NE-113 Time Use Data	Two parent, 2 child households with both spouses employed, N=405	Minutes during 2 days spent on 8 housework activities	H's leisure time, during 2 day period	S. -	
			W's leisure time, during 2 day period	S. -	
			Spouse's minutes during 2 days spent on 8 housework activities	H's & W's leisure time, during 2 day period	NS for both H's & W's
		Minutes of spouse's leisure time during 2 day period	H's & W's leisure time, during 2 day period	S. + for both H's & W's	
* S = Significant; NS = Not significant; + = Positive; - = Negative; W = Wife; H = Husband; NR = Not reported					

use, the demand for equipment, the expenditure for services, and task responsibility. Except for isolated incidents where age significantly affected market time and household work time (Schnittgrund, 1980; Abdel-Ghany, 1983), task responsibility (Wheeler and Arvey, 1981), and service expenditures (Bellante and Foster, 1984), age of the spouses was not a significant determinant of household activity. Similarly, Deacon and Firebaugh (1975) do not identify age as a factor influencing management, except indirectly as it relates to life cycle or education. Based on this review, age of the spouse might function as a resource, however there is no convincing evidence to support its direct effect within the management model.

Deacon and Firebaugh (1975) posit that education of the spouses will likely affect income and life style, as well as the ability to apply the managerial process to real and abstract situations. Research studies have considered the impact of spouses' education on household time use, task performance, and expenditures (Schnittgrund, 1980; Marlowe, 1980; Ortiz, MacDonald, Ackerman, and Goebel, 1981; Sanik, 1981; Wheeler and Arvey, 1981; Abdel-Ghany and Nickols, 1983; Hafstrom and Schram, 1983; Henze, 1983; Lawrence, Tasker, and Babcock, 1983; Nickols and Abdel-Ghany, 1983; Sanik, 1983; Tasker, Lawrence, Purtle, and Babcock, 1983; Bellante and Foster, 1984; Foster, 1986). As shown in Table 1, education of the female spouse is considered more often than education of the male spouse.

Although these studies suggest that wife's education may be inversely related to time spent in household work, the findings are not conclusive. Instead the emerging pattern suggests that education of

the spouses does not consistently influence household work. Wheeler and Arvey (1981) observed that increasing the education level of one spouse also increased the responsibility of the other spouse for non-traditional tasks. But, education of the wife does influence expenditures (Bellante and Foster, 1984; Foster, 1986). The combined effects of education and wife's employment also must be considered. Given these findings, education of the spouses should probably represent a resource in the model of family resource management.

Length of marriage (Wheeler and Arvey, 1981) and race (Schnittgrund, 1980; Bellante & Foster, 1984) have also been identified as factors affecting household activity. As shown in Table 1, male spouses were less inclined to female tasks with increasing years of marriage. Heck (1983), in the earlier described comprehensive study of a management model, reported that length of marriage was positively related to output, defined as satisfaction with various aspects of life. This finding would support Heck's inclusion of this variable as a resource. Studies reported in Table 1 suggest that race influences time spent in household work, as well as expenditures for services.

Size of household has been assessed through alternate measures defined as family size (Marlowe, 1980; Schnittgrund, 1980; Hafstrom and Schran, 1983), or family size excluding children under the age of six (Bellante and Foster, 1984). Results of these studies, shown in Table 1, are in opposition. One study (Schnittgrund, 1980) reported no relationship between family size and time use, while Hafstrom and Schran reported a positive relationship between family size and wife's time in housework. Marlowe reported a positive influence on joint

production. Family size excluding children under age six, apparently does not have the impact on expenditures as the number of children under age six (Bellante and Foster, 1984). Logically, one would expect that an increase in the size of the family would be associated with an increase in demands and events relative to resources. Deacon and Firebaugh concur with this proposition (1975). Therefore, family size would represent a demand within the systems model of management.

Children, once considered an important economic resource, are also a demand on family resources. Older children may contribute human and material resources to the household, while younger children require adult care, necessitating human (time) or material resources (child care costs). To consider this relationship, research has generally differentiated effects of the age of the younger and older child.

More studies have considered the effect of the younger child (Sanik, 1981; Ortiz, MacDonald, Ackerman, and Goebel, 1981; Goebel and Hennon, 1982, 1983; Fox & Nickols, 1983; Hafstrom and Schram, 1983; Henze, 1983; Nickols and Abdel-Ghany, 1983; Nickols and Fox, 1983; Sanik, 1983). Results of these studies, which are reported in Table 1, indicate that the effect of the age of younger child on household work time, or specific tasks, is not conclusively supported. Hafstrom and Schram (1983) and Sanik (1983) both report a nonsignificant effect of age of younger child on wife's time in housework; Sanik (1981) and Fox and Nickols (1983) both report significant inverse relationships. Other studies report results related to specific categories of household work.

Given these findings on the wife's household time use, the length

of the wife's work day (Fox and Nickols, 1983), and the wife's leisure time (Nickols and Abdel-Ghany, 1983), age of the younger child would enter the model of family resource management as a demand. However, the findings unquestionably suggest that age of younger child is not significantly related to the husband's household time use.

Only three studies reported in Table 1 considered age of the older child (Sanik, 1981; Henze, 1983; Sanik, 1983). Findings suggest that age of the older child does not have an overwhelming effect on household time use by either spouse. Henze reported that age of the older child was positively related to the demand for laundry equipment.

Time is categorized as a human resource. However, as Deacon and Firebaugh (1980) state "time in itself is never a sufficient resource input" (p. 145). Instead, time must be used in conjunction with other human and material resources in the accomplishment of a demand. As such, time is often an intermediate measure in the use and valuation of other resources. Although much of the current research in home economics considers time use (other than employment time) as a dependent variable, a few researchers have considered time use in various categories as an independent variable.

Two studies (Hafstrom and Schram, 1983; Nickols and Abdel-Ghany, 1983) have considered time in household work activities, leisure, and sleep as predictors of leisure and household work time. As shown in Table 1, time in household work was inversely related to the leisure time of both spouses. A strong relationship also existed between the spouse's leisure and that of the corresponding husband or wife.

Another human resource directly related to time use, as well as other resource use, is individual health status. Heck (1983) included health of the husband, wife, and children in an analysis of the systems model. Poor health status of the wife was negatively related to levels of family satisfaction. Hafstrom and Schram (1983) included chronic health condition of the wife as a "pressure toward greater time inputs to housework." Results indicated a significant positive relationship. This variable exemplifies the dual nature of demands/resources. "Good health" is a resource, while "poor health" is a constraint, or additional demand on available household resources.

In summary, age, education, race, health status, and time use of the spouses are all family system input variables which could be included in the specification of a model of family resource management. Total family size, and age of the younger and/or older child in the family have also been shown to influence household activity.

Inputs from the Economic System. The economic system is an ever present part of the macro-environment surrounding the family, as well as the micro-environment within the family. For most households, there is a continual flow of resources and demands between the two environments as part of the economic system.

The employment status of the husband and/or wife is an economic system factor likely to impact household activity. The employment status of the wife has been the focus of several studies which have attempted to explain household activity (Marlowe, 1980; Schnittgrund, 1980; Ortiz, MacDonald, Ackerman, and Goebel, 1981; Sanik, 1981;

Wheeler and Arvey, 1981; Goebel and Hennon, 1982, 1983; Pleck, 1982; Abdel-Ghany and Nickols, 1983; Fox and Nickols, 1983; Hafstrom and Schram, 1983; Henze, 1983; Lawrence, Tasker, and Babcock, 1983; Nickols and Abdel-Ghany, 1983; Nickols and Fox, 1983; Sanik, 1983; Stafford, 1983; Tasker, Lawrence, Purtle, and Babcock, 1983; Barclay, Lovingood, Martin, and Savage, 1984; Bellante and Foster, 1984).

As shown in Table 2, some studies included this as a continuous variable based on number of minutes or hours of employment during a time period. Other researchers used employment time to create a categorical variable representing nonemployment, part-time employment, or full time employment.

Employment of the wife was inversely related to time spent in household work, whether considered as individual tasks or in total. Research findings clearly supported this trend. The same relationship appeared to exist between the husband's time in household labor and household work time. Findings also indicated that as the wife increases her work time, and consequently reduces her household work time, the gap is not filled by contributions from the husband or children. Employment of the wife was not significantly related to the time contributions of the husband or the children. Wife's employment, however, was related to selected household expenditures.

Although the wife's labor force participation is a source of resources, research supports the classification of this input variable as a demand. Deacon and Firebaugh (1975) identified occupation as a factor influencing management, however employment status was not considered aside from its relation to education.

Table 2

Selected Economic System Input Variables

Study	Unit of Analysis	Independent Variable	Dependent Variable	Relationship*
<b>Employment Status of the Husband and/or Wife</b>				
Marlowe, 1980 Time Use in Economic & Social Accounts, 1975-76	Married respondents N=603	Hours worked in the market	Joint production	S. +
Schnittgrund 1980 Time Use in Economic & Social Accounts 1975-76	Unemployed house- hold heads, N=52 Employed household heads, N=399	Employment status of head of household: employed and nonem- ployed	Time use: Market Household Leisure Personal	S. + for employed heads S. + for unemployed heads S. + for unemployed heads S. NR
Ortis, MacDonald, Ackerman, & Goebel, 1981 Wisconsin NE-113 Time Data	Two parent, 2 child households, N=210	Employment of the W Nonemployed Part time employment Full time employment	1) W's time in food preparation 2) Average number of persons per meal for all meals prepared at home 3) Percentage of all meals eaten away from home	1) S. - part time employment S. - full time employment 2) NS, part time employment NS, full time employment 3) NS, part time employment S. + full time employment
Sanik, 1981 1967 Syracuse, NY Time Data & NE-113 NY Time Data	Two parent, 2 child households, 1967, N=378 1977, N=105	Hours of W's employ- ment outside the home per week  Hours of H's employ- ment outside the home per week	Time use by W, H, children and total family in 8 cate- gories of household time use, including total time	S. - W's time in all categories but shopping S. - All family's time in all categories, but house care, shopping, and management S. + H's time in foo preparation and dishwashing  S. - H's total time in household work, food preparation, house care, & shopping S. - All family's total time
Wheeler & Arvey, 1981	Husband and wife pairs, N=68	Employment of the wife	H's and W's respon- sibility for female, shared, & male household tasks	W's responsibility for: S. - female tasks NS, shared tasks NS, male tasks  H's responsibility for: NS, female tasks NS, shared tasks NS, male tasks

\* S = Significant; NS = Not significant; + = Positive; - = Negative; W = Wife; H = Husband; NR = Not reported

Table 2 (continued)

Study	Unit of Analysis	Independent Variable	Dependent Variable	Relationship*
<b>Employment Status of the Husband and/or Wife (continued)</b>				
Goebel & Hennon, 1982 Wisconsin NE-113 Time Data	Two parent, 2 child households, N=210	Number of hours of W's employment per week	W's time in meal preparation	S, -
			Household average expenditure for meals away from home	S, +
			Employment status of wife: Unemployed Employed	W's time in meal preparation Household average expenditures for meals away from home NS NS
Fleck, 1982 1) Time Use in Economic & Social Accounts, 1975-76 2) Quality of Employment Survey 1977	1) Employed H & W, N=352 2) Employed H & W, N=912	Paid work time, Husband and wife	All family work time	S, - (both data sets)
			Housework time Children's time	S, - (both data sets) S, - (both data sets)
Abdel-Ghany & Nickols, 1983 Interstate NE-113 Time Use Data	Two parent, 2 child households with both spouses employed N=421	Minutes of paid work, for H & W during 2 day period	H's & W's household work time	S, - H's time S, - W's time
Fox & Nickols, 1983 Sample of NE-113 Time Use Data	Two parent, 2 child households with employed husbands, N=206	W's employment status, defined as hours per week	Total time spent in 10 household activities for H & W	S, - W's time NS, H's time
			Diversity of household activities performed	S, - Significant only for wives with youngest child in the age groups 6-11 12-17 NS, H's diversity
			Total work day length	S, + W's NS, H's
			Difference in length of H's and W's work day	S, - younger child age 12-17

\* S = Significant; NS = Not significant; + = Positive; - = Negative; W = Wife; H = Husband; NR = Not reported

Table 2 (continued)

Study	Unit of Analysis	Independent Variable	Dependent Variable	Relationship*
<b>Employment Status of the Husband and/or Wife (continued)</b>				
Goebel & Hennon, 1983 Interstate NE-113 Time Use Data	Urban 2 parent, 2 child households, N=1050 Rural 2 parent, 2 child households, N=1050	W's employment: 1) Nonemployed 2) Part time employment 3) Full time employment	W's time in meal preparation, service and cleanup  Expenditures for meals purchased away from home  Average number of meals eaten together as a family for 1 day  Average number of meals eaten together as family at home for 1 day	S, - both urban and rural  NS  NS, urban sample S, rural sample Less for part time employment, than with nonemployed or full time employed wives  S, - urban sample; S, rural sample Less for part time employment, than with nonemployed or full time employed wives
Hafstrom & Schram, 1983 1976-77 Quality of Life Survey	H - W households less than age 65 and not disabled N=227	W's weekly labor force hours  H's weekly labor force hours	W's hours spent in housework on a weekly basis	S, -  NS
Hense, 1983 NY NE-113 Time Use Data	Two parent, 2 child households, N=320	W's hours of paid work in the market	Demand for W's time in care of clothes & household linen	S, -
Lawrence, Tasker & Babcock, 1983 Interstate NE-113 Time Use Data	Urban youth age 12-17, N=483	Weekly employment of the mother: Not employed 1-29 hrs employment 30+ hrs employment	Time spent in household work; per day: Total household work Shopping Maintenance  Housecleaning Food preparation Dishwashing Management Nonphysical care Clothing care Physical care Clothing construction	NS NS S, full time employment, 20 min/day Part time employment, 10 min/dayday NS NS NS NS NS NS NS NS
Nickols & Abdel-Ghany, 1983 Interstate NE-113 Time Use Data	Two parent, 2 child households with both spouses employed, N=405	Minutes of paid work during 2 day period for husbands & wives	H's leisure time, during 2 day period  W's leisure time, during 2 day period	S, -  S, -

\* S = Significant; NS = Not significant; + = Positive; - = Negative; W = Wife; H = Husband; NR = Not reported

Table 2 (continued)

Study	Unit of Analysis	Independent Variable	Dependent Variable	Relationship*
<b>Employment Status of the Husband and/or Wife (continued)</b>				
Nickols & Fox, 1983 Interstate NE-113 Time Use Data	Two parent, 2 child households. N=1,639	W's employment, measured as hours worked per week	Ownership of 8 time-buying capital goods	NS
			Substitutions of:	
			1) Convenience Products (disposable diapers)	S, +
			2) Purchase of meals	S, + for 4 of 6 types of meals
			3) Paid labor substitutes	S, + child care only
			4) Family members as substitutes for W's time/labor	NS, H's time in household work or care of family members NS, children's time in household work
			Quantity of W's housework	S, - W's time in household work and care of family members
			Quality & efficiency of W's housework	NS
			W's time in other activities:	
			1) Unpaid work	NS
			2) Social & recreational activities	S, -
			3) Personal care time	NS
			Hours of H's paid employment	
			Ownership of 8 time-buying capital goods	NS
Substitution for:				
1) Convenience products	NS			
2) Purchase of meals	NS			
3) Paid labor substitutes	NS			
4) Family members as substitutes for W's time/labor	S, - H's time in household work NS, H's time in care of family members or children's time in household work			
Quantity of W's housework	NS			
Quality & efficiency of W's housework	NS			
W's time in other activities	NS			

\* S = Significant; NS = Not significant; + = Positive; - = Negative; W = Wife; H = Husband; NR = Not reported

Table 2 (continued)

Study	Unit of Analysis	Independent Variable	Dependent Variable	Relationship*				
<b>Employment Status of the Husband and/or Wife (continued)</b>								
Senik, 1983 1967 Syracuse, NY Time Data & NY NE-113 Time Use Data	Two parent, 2 child households, N=NR	W's number of hours paid employment per week	H's and W's time in housework:	H's time	W's time			
			Food preparation	S, +	S, -			
			Dishes	S, +	S, -			
			House	NS	S, -			
			Clothes	NS	S, -			
			Management	NS	NS			
			Shopping	NS	NS			
			Family care:					
			Physical	NS	S, -			
			Nonphysical	NS	S, -			
			Stafford, 1983 1967-68 Syracuse, NY Time Data	Two parent, 2 child households with employed wives, N=362	W's number of hours paid employment per week	H's & W's time in housework:	H's time	W's time
						Food preparation	S, -	NS
						Dishes	S, -	NS
						House	S, -	NS
Clothes	NS	NS						
Management	NS	NS						
Shopping	S, -	NS						
Family care:								
Physical	S, -	NS						
Nonphysical	S, -	NS						
Tasker, Lawrence Purtie, & Babcock, 1983 Interstate NE-113 Time Use Data	Two parent, 2 child households, N=2,100	W's daily employment time				W's time, by 5 stages of family life cycle, spent in the following:	(Significance Not Reported)	
						After meal cleanup	-	
						Food preparation	-	
						Yard & car care	+	
			House care	-				
			Clothing care	-				
			All family care	+, except stage 2, -				
			Physical family care	-				
			Nonphysical family care	+				
			Marketing/chauf- fering	+				
			Management/Record- keeping	-				
			All household production	-				
			Leisure	-				
			Barclay, Lovingood, Martin, & Savage, 1984 VA NE-113 Time Use Data	Two parent, 2 child households, N=176	W's employment status: Full time employment Full time homemaker	Family travel time per day:	Entire	
Social & recreational activities	Family	H				W		
Paid work	S	NS				S, +		
Shopping	S	NS				S, -		
Chauffering	NS	S, +				NS		
Time spent per day in 10 household work tasks	S, + for full time homemakers in 7 of the 10 categories							
			NS, 3 of the 10 categories					

\* S = Significant; NS = Not significant; + = Positive; - = Negative; W = Wife; H = Husband; NR = Not reported

Table 2 (continued)

Study	Unit of Analysis	Independent Variable	Dependent Variable	Relationship*
<b>Employment Status of the Husband and/or Wife (continued)</b>				
Bellante & Foster, 1984 1972-73 Consumer Expenditure Survey	H, W families in which both were less than age 65, and the H was employed full time for at least 48 weeks during the survey year. N=3,732	Weeks worked by W during the survey year	Expenditures for services:	
			Food away from home	S, +
			Child care	S, +
			Domestic services	NS
			Clothing care	NS
			Personal care	NS
			Total services	S, +
		Hours worked per week during survey year:	Expenditures for services	
		Unemployed	Food away from home	S, + for full time employees only
		Full time (35 hrs +)	Child care	S, + for full time employees only
		Part time (less than hrs per week)	Domestic service	NS
			Clothing care	S, - for part time employees
			Personal care	NS
			Total services	S, + for full time employees only
<b>Occupation of the Husband and/or Wife</b>				
Hafstrom & Schram, 1983 1976-77 Quality of Life Survey	H - W households, less than age 65 and not disabled, N=227	W's occupation	W's hours spent in housework on a weekly basis	NS
Nickols & Fox, 1983 Interstate NE-113 Time Use Data	Two parent, 2 child households, N=1,639	W's occupational status: high or low or nonemployed	Ownership of 8 time-buying capital goods	NS
			Substitution of:	
			1) Convenience products	NS
			2) Purchase of meals	S, for 2 of 6 types of meals
			3) Paid labor substitutes	S, + child care only
			4) Family members as substitutes for W's time/labor	NS
			Quality of W's housework	S, - W's time in household work; NS W's time in care of family members; S, number of meals prepared at home: W's in high & low status jobs prepared fewer meals than nonemployed wives
			Quality & efficiency of W's housework	NS
			W's time in other activities:	
			1) Unpaid work	NS
			2) Social & recreational activities	NS
			3) Personal care time	NS

\* S = Significant; NS = Not significant; + = Positive; - = Negative; W = Wife; H = Husband; NR = Not reported

Table 2 (continued)

Study	Unit of Analysis	Independent Variable	Dependent Variable	Relationship*
<b>Occupation of the Husband and/or Wife (continued)</b>				
Nickols & Fox (continued)		H's occupational status	Ownership of 8 time-buying capital goods	NS, except S. + for ownership of a dishwasher
			Substitution of:	
			1) Convenience products	S. - for disposable disper use
			2) Purchase of meals	S. + for 2 of the 6 types of meals
			3) Paid labor substitutes	NS
			4) Family members as substitutes for W's time/labor	NS, H's time in household work S. + H's time in care of family members NS, children's time in household work
			Quantity of W's housework	NS, W's time in household work S. + W's time in care of family members NS, number of meals prepared at home
			Quality & efficiency of W's housework	S. + Number of items per meal NS Difficulty of food preparation per item
			W's time in other activities:	
			1) Unpaid work	NS
			2) Social & recreational activities	S. -
			3) Personal care time	NS
<b>Hourly Wage Rate</b>				
Marlowe, 1980 Time Use in Economic & Social Accounts, 1975-76	Married respondents, N=603	Hourly wage rate	Incidence of joint production, as measured by time spent simultaneously in primary & secondary activities	NS
Abdel-Ghany & Nickols, 1983 Interstate NE-113 Time Use Data	Two parent, 2 child households with both spouses employed, N=421	Wage rate-earnings per hour on major job for H's & W's	H's & W's household work time	NS, H's time NS, W's time
Henze, 1983 New York NE-113 Time Use Data	Two parent, 2 child households, N=320	Wage rate, Wife  Wage rate, Husband	Demand for automatic washer, dryer	S. - Washer S. - Dryer  S. + Washer S. + Dryer
Nickols & Abdel-Ghany, 1983 Interstate NE-113 Time Use Data	Two parent, 2 child households with both spouses employed, N=405	Wage rate-earnings per hour on primary job for H & W	H's leisure time, during 2 day period  W's leisure time, during 2 day period	NS  NS

\* S = Significant; NS = Not significant; + = Positive; - = Negative; W = Wife; H = Husband; NR = Not reported

Table 2 (continued)

Study	Unit of Analysis	Independent Variable	Dependent Variable	Relationship*
<b>Family Income</b>				
Ortiz, MacDonald, Ackerman & Goebel, 1981 Wisconsin NE-113 Time Use Data	Two parent, 2 child households, N=210	Total family income for previous year	W's time in food preparation  Average number of persons per meal for all meals prepared at home  Percentage of meals eaten away from	NS  NS, except income level \$20,000-\$24,000, S, -  NS, except income level \$25,000+, S, +
Wheeler & Avery, 1981	H & W pairs, N=68	Family income	H's & W's responsibility for female, shared, & male household tasks	NS for husbands & wives
Goebel & Hennon, 1982 Wisconsin NE-113 Time Use Data	Two parent, 2 child households, N=210	Total family income, before taxes, previous year	W's time in meal preparation  Household average expenditures for meals away from home	NS  S, +
Goebel & Hennon, 1983 Interstate NE-113 Time Use Data	Urban 2 parent, 2 child households, N=1050  Rural 2 parent, 2 child households, N=1050	Total annual family income before taxes	W's time in meal preparation  Expenditures for meals purchased away from home  Average number of meals eaten together as a family for 1 day	S, - both urban and rural samples  S, + Both urban and rural samples  NS
Hafstrom & Schram, 1983 1976-77 Quality of Life Survey	H - W households, less than age 65 & not disabled, N=227	Annual family income before taxes	W's hours spent in housework on a weekly basis	S, -
Lawrence, Tasker & Babcock, 1983 Interstate NE-113 Time Use Data	Urban youth, age 12-17, N=483	Total annual family income	Time spent in household work per day	NS for all categories, except, S for food preparation
Nickols & Abdel-Ghany, 1983 Interstate NE-113 Time Use Data	Two parent, 2 child households with both spouses employed, N=405	Total family income for previous year	H's & W's leisure time during 2 day period	NS for H & W
Nickols & Fox, 1983 Interstate NE-113 Time Use Data	Two parent, 2 child households, N=1,639	Total annual family income, before taxes	Ownership of 8 time-buying capital goods  Substitution of: 1) Convenience products (disposable diapers) 2) Purchase of meals 3) Paid labor substitutes	S, + for all 8 items  S, + S, + for 3 of the 6 types of meals S, + for purchased house-cleaning, dry-cleaning and laundry and child care

\* S = Significant; NS = Not significant; + = Positive; - = Negative; W = Wife; H = Husband; NR = Not reported

Table 2 (continued)

Study	Unit of Analysis	Independent Variable	Dependent Variable	Relationship*
<b>Family Income (continued)</b>				
Nickols & Fox (continued)			4) Family member as substitutes for W's time/labor	NS, H's & children's time in household work, or H's time in care of family members
			Quantity of W's housework	NS
			Quality & efficiency of W's housework	NS
			W's time in unpaid, social, & personal care time	NS
Tasker, Lawrence, Furtle & Babcock, 1983 Interstate NE-113 Time Use Data	Two parent, 2 child households, N=2100	Total annual family income	Family travel time per day: Social & recreational activities Paid work Shopping Chauffering	NS for all travel categories for the entire family, H, & W
Bellente & Foster, 1984 1972-73 Consumer Expenditure Survey	H, W families in which both were less than age 65, & the H was employed full time for at least 48 weeks during the survey year, N=3,732	Total after-tax income for survey year	Expenditures for services: Food away from home Child care Domestic service Clothing care Personal care Total services	S, + S, + S, + S, + S, + S, +
Foster, 1986 1980-81 Consumer Expenditures Survey	Urban H & W households with pretax income of \$75,000 or less, N=4,299	Total family pretax income	Income elasticities of family consumption expenditure categories: Food at home Food away from home Alcohol Tobacco Personal care products Personal care services Nonprescription drugs Housekeeping supplies Utilities Gasoline	S, + S, + S, + NS S, + S, + NS S, + NS S, +
<b>Unearned Income</b>				
Marlowe, 1980 Time Use in Economic & Social Accounts, 1975-76	Married respondents, N=603	Unearned income, defined as income not earned by respondent	Incidence of joint production, as measured by time spent simultaneously in primary and secondary activities	S, +
Hense, 1983 New York NE-113 Time Use Data	Two parent, 2 child households, N=320	Unearned income	Demand for automatic washer, dryer, & W's time in care of clothes & household linen	S, + Washer NS Dryer NS Time

\* S = Significant; NS = Not significant; + = Positive; - = Negative; W = Wife; H = Husband; NR = Not reported

The effect of the occupation of the husband and/or wife on household activity has not been widely considered (Hafstrom and Schram, 1983; Nickols and Fox, 1983). Results reported in Table 2 are inconclusive. Whereas Hafstrom and Schram (1983) report no effect of occupation on the wife's household work time, the findings of Nickols and Fox (1983) are similar to those for employment status, regardless of occupation. With the increasing movement of women into the labor force and higher status occupations, this variable should be considered in future efforts to model family resource management.

In addition to occupation, the associated hourly wage of the spouses has been considered as a predictor of household activity (Marlowe, 1980; Abdel-Ghany and Nickols, 1983; Henze, 1983; Nickols and Abdel-Ghany, 1983). Research results shown in Table 2 do not support hourly wage as a predictor of joint production, household work time, or leisure time. According to Henze (1983), the wage rates of the husband and wife significantly affected the demand for laundry equipment, but the projected effects are opposite.

The economic status of the household, defined by family income (Ortiz, MacDonald, Ackerman, and Goebel, 1981; Wheeler and Arvey, 1981; Goebel and Hennon, 1982, 1983; Hafstrom and Schram, 1983; Lawrence, Tasker, and Babcock, 1983; Nickols and Abdel-Ghany, 1983; Nickols and Fox, 1983; Tasker, Lawrence, Purtle, and Babcock, 1983; Bellante and Foster, 1984; Foster, 1986) or unearned income (Marlowe, 1980; Henze, 1983) have been identified as determinants of household activity. Findings reported in Table 2 suggest that total family pretax income does not significantly influence time use among the husband, wife, or

children. Research consistently supported the positive effect of income on expenditures for selected services and products. Unearned income, a component of total family income, had a positive effect on the incidence of joint production as well as the demand for an automatic washer.

Family net worth status, a commonly recognized indicator of economic status, was not considered by any of these research projects. Foster and Metzen (1981) considered predictors of net worth over two time periods. Using longitudinal data, family income and homeownership were the only significant predictors of net worth in 1967, while in 1972, family income, wife's income, wife's education, homeownership, and black race were significant predictors. Because net worth is a comprehensive measure of financial behavior this variable should be considered for inclusion in future studies of household behavior.

Some families increase their available human resources by exchanging money from the economic system for paid household labor, an infusion of additional human resources. The impact of this resource exchange on household functioning has been considered by Nickols and Fox (1983) and Bellante and Foster (1984). (See Tables 1 and 2 for additional information.)

Nickols and Fox (1983) noted a positive relationship between income and purchased housecleaning, while purchased yard work, home maintenance, or appliance repair were not related to any predictors considered. Purchased child care was identified as a paid labor substitute utilized extensively by employed wives. Bellante and Foster (1984) reported that family income, family size and number of children

under age six, selected categories of age and education for the wife, and black race significantly influenced expenditures for domestic services.

In summary, several aspects of the economic system should be considered as inputs in the specification of a model of family resource management. For some variables, such as employment status of the wife and family income, research clearly supports their categorization as a demand and a resource, respectively. For other variables, such as occupational status, unearned income, hourly wage rate, net worth status, and paid household help, the paucity of research does not support such a delineation. However, research does support the consideration of these variables in future efforts to model household managerial behavior.

Inputs from the Household Environment. The household environment, or micro-environment, of the family is another source of input factors. Area of residence, housing tenure, housing structure, and household equipment/technology have been considered for their impact on household activity.

Management theory considers community resources, both material and human, as an important asset to families. The focus on urban or rural residence indirectly captures the stock of available community resources. Generally, more diverse shopping, educational, recreational, and employment opportunities are available in an urban area.

Aside from a few selected activities, research reported in Table 3 (Ortiz, MacDonald, Ackerman, and Goebel, 1981; Henze, 1983; Nickols and

Table 3

Selected Inputs From the Household Environment

Study	Unit of Analysis	Independent Variable	Dependent Variable	Relationship*
<b>Urban/Rural Residence</b>				
Ortis, MacDonald, Ackerman & Goebel, 1981 Wisconsin NE-113 Time Data	Two parent, 2 child households, N=210	Area of residence: Rural Urban	1) W's time in food preparation	NS
			2) Average number of persons per meal for all meals prepared at home	NS
			3) Percentage of all meals eaten away from home	S, + Rural families ate more meals away from home
Hense, 1983 New York NE-113 Time Use Data	Two parent, 2 child households, N=320	Area of residence: Rural Urban	Demand for automatic washer, dryer, & W's time in care of clothes & household linens	NS, Washer S, Dryer, increased demand for urban families NS, Time
			Nickols & Abdel-Ghany, 1983 Interstate NE-113 Time Use Data	Two parent, 2 child households with both spouses employed, N=405
Nickols & Fox, 1983 Sample of NE-113 Time Use Data	Two parent, 2 child households, N=1,639	Area of residence: Rural Urban	Ownership of 8 time-buying capital goods	Dishwasher ownership influenced by living in an urban area; Freezer ownership influenced by residence in a rural area
			Substitution of: 1) Convenience products 2) Purchase of meals 3) Paid labor substitutes 4) Family members as substitutes for W's time/labor	NS S, + for 2 of 6 types of meal; NS for purchased housecleaning; child care; Urban residence increased purchase of laundry dry-cleaning services NS, - H's time S, + for children's time in household work with rural residence
Tasker, Lawrence, Purtle & Babcock, 1983 Interstate NE-113 Time Use Data	Two parent, 2 child households, N=2100	Residence: Rural Urban	Quantity of W's housework	NS
			Quality & efficiency of W's housework	S, + for number of items per meal with rural residence NS, difficulty of food preparation per item
			W's time in other activities	NS
			Family travel time per day: Social & recreational activities	NS, Entire family S, + Rural wives NS, husbands
			Paid work	S, - Rural families S, - Rural husbands NS wives
			Shopping	NS, families NS, wives NS, husbands
			Chauffering	NS, families NS, wives NS, husbands

\* S = Significant; NS = Not significant; + = Positive; - = Negative; W = Wife; H = Husband; NR = Not reported

Table 3 (continued)

Study	Unit of Analysis	Independent Variable	Dependent Variable	Relationship*
<b>Housing Tenure</b>				
Bellante & Foster, 1984 Consumer Expenditure Survey	H, W families in which both were less than age 65 & the H was employed full time for at least 48 weeks during the survey year N=3,732	Homeownership: Owns Rents (Rents omitted)	Expenditures for services: Food away from home Child care Domestic service Clothing care Personal care Total services	For homeowners: S, + S, + NS S, - S, + S, +
<b>Housing Structure</b>				
Hafstrom & Schram, 1983 1976-77 Quality of Life Survey	H & W households less than age 65 & not disabled N=227	Number of stories in the house	W's hours spent in housework on a weekly basis	S, +
Henze, 1983 NY NK-113 Time Use Data	Two parent, 2 child households, N=320	Number of rooms	Demand for automatic washer and dryer	S, + Washer S, + Dryer

\* S = Significant; NS = Not significant; + = Positive; - = Negative; W = Wife; H = Husband; NR = Not reported

Abdel-Ghany, 1983; Nickols and Fox, 1983; Tasker, Lawrence, Purtle, and Babcock, 1983) does not indicate significant differences in household activity of urban and rural families. Findings do suggest some differences in appliance demand by area of residence, however the appliances in question (dryers, freezers, and dishwashers) are reflective of the differences in housing structure and lifestyle which might be typical of urban vs. rural living.

Research conducted by Bellante and Foster (1984) is the only study reported in Table 3 which considered housing tenure. Findings indicate homeowners have significantly different purchasing patterns for services than do renters. However, the difference in general economic status associated with homeowners and renters must not be ignored in this analysis. Housing structure has been considered as a determinant of the demand for laundry equipment, as well as wife's time in housework. Henze (1983) and Hafstrom and Schram (1983) both reported significant positive relationships between housing structure and these household behaviors.

The interest in this review has focused on independent variables likely to affect the dependent variable, broadly defined as household activity. Household equipment and other durables would be considered within the management systems conceptualization as resources which the household would use to meet demands. At least two studies, Strober and Weinberg (1980) and Weinberg and Winer (1983) have considered equipment ownership as the dependent variable in an effort to explain ownership.

Both studies concluded that employment of the wife was not significantly related to the purchase of major items of household

equipment. Weinberg and Winer (1983) included other durables and reported a significant relationship between the wife's employment and the purchase of furniture. Income, stage in the family life cycle, age of youngest child, and recent purchase of a home reportedly affected the purchase of selected items of household equipment (Strober and Weinberg, 1980; Weinberg and Winer, 1983).

In a similar study of equipment ownership, Lovingood and McCullough (1986) reported that family income was a significant predictor of ownership of 10 of the 11 appliances considered. Ownership of a sewing machine was not related to income. Other significant predictors of ownership of selected items of equipment included the homemaker's employment, homemaker's and spouse's occupation, area of residence, and age of younger child. A second objective of this study focused on the relationship between appliance ownership and time spent in housework.

A comparison of the differences in homemakers' time per day spent in household tasks by owners and nonowners of the related item of household equipment revealed significant differences for five of the 11 tasks considered. For two of the 11 tasks, there was a significant difference among spouses for owners and nonowners of the related item of equipment. Additional analysis considered ownership of appliances requiring a continuous input of operator's time and that equipment which functioned independent of the operator. Findings indicated that the number of appliances owned which required continuous time of the operator was positively related to the time spent in household work by the homemaker, the spouse, and other family members.

In summary, area of residence, housing tenure and structure, and ownership of household equipment have been considered as predictors of household activity. Previous research does not clearly substantiate the effect of these input variables as demands or resources. The dual nature of inputs is particularly obvious in the research on equipment. Clearly, household equipment facilitates completion of household tasks, although equipment requiring continuous inputs of time increases the demand of household work time. Nevertheless, equipment would be categorized as a resource to the household.

Deacon and Firebaugh (1975) identify both area of residence and housing as factors influencing home management; characteristics of both factors were considered. Each of these input variables from the household environment could be considered for their effect on household managerial activity.

Summary. A number of variables have been identified from the family system, the economic system, and the household environment which are likely to impact household activity. A summary of the variables is shown in Table 4. Given the broad interpretation of the definition of management, these same variables could be considered for inclusion in the specification of a systems model of family resource management.

The apparent dual nature of input variables is supported by the research. Conceptually, the input factors may be differentiated as demands and resources on the basis of their anticipated influence on the dependent variable in question. However, the results suggest that modeling efforts probably should not differentiate demands and resources in the statistical treatment of the model.

Table 4

Input Factors Identified as Influencing Household Activity-----  
Selected Inputs from the Family System  
-----

Age of the Spouses  
Education of the Spouses  
Length of Marriage  
Race  
Household Size  
Age of Children  
Time Use by Family Members

-----  
Selected Inputs from the Economic System  
-----

Employment of the Spouses  
Occupation of the Spouses  
Hourly Wage Rate of the Spouses  
Family Income  
Unearned Income  
Net Worth Status  
Paid Household Help

-----  
Selected Inputs from the Household Environment  
-----

Urban/Rural Residence  
Housing Tenure  
Housing Structure  
Household Equipment/Technology  
-----

### Defining Components of the System: Throughput

Deacon and Firebaugh (1981) define throughput as the "processes of changing the inputs of matter, energy, and information into outputs" (p. 20). Specifically, throughput is composed of planning and implementing. Decision making and communicating are considered as important contributors to the management process. Gross, Crandall, and Knoll (1980) use the term "action" to describe the managerial processes ongoing within the management system. They differentiate goal setting, planning, and implementing of goals and plans as processes unique to management, while decision making, communicating, and utilizing feedback are general processes crucial to management.

A clear delineation of the components, or competencies, within throughput has eluded theorists and researchers since the development of the three step process. Furthermore, because of the lack of a generally recognized specification of throughput, researchers resort to operationalizing throughput in the context of the research problem. This has resulted in a paucity of research on throughput, most of which is unrelated. Some can be classified as basic, while other is applied. To facilitate discussion, related research has been organized into the categories of planning, implementing, and decision making.

Planning. Acknowledging that the measure of family managerial orientation did not include all aspects of management, Huguley (1976) defended the variable "reported efficacy and planning" as adequately representative of planning and implementation. In a study of the relationship between management (throughput) and level of living (output), Huguley considered the input variables of employment status

of the husband and wife, time available for family living, and income.

The relationship between management and level of living was considered relatively strong, although "at least part of the relationship between management and level of living [could] be attributed to income" (p. 77). A strong relationship existed between income and management, and management and education of the husband and wife; time available for family living was not strongly related to management. The relationship between management and level of living was stronger in families where the wife was not employed outside the home.

By defining throughput as financial planning (formality of spending plans), Sahlberg (1977) considered the relationship between throughput and input. Input was operationalized as 10 independent variables including resource inputs, demand inputs, feedback, and general family attitude toward life. Results indicated that demands had three times the effect on throughput as did resources; this supports the Deacon and Firebaugh (1975, 1981) contention that demands initiate managerial action, while resources are used as the means for demand accomplishment. Of the independent variables considered, net worth, event demands, and feedback were positively related to financial planning, while stage in the family life cycle was negatively related to formality of spending plans.

In another study of input and throughput, Garrison (1984) operationalized throughput as a measure of general managerial behavior. Input, defined by socio-demographic variables and family type, was hypothesized to be a determinant of managerial behavior.

Household size, age of the woman in the household, and education of the household head were significant predictors of managerial behavior. Families with children between the ages of one and 17, and families with no children reported higher managerial scores than families with children only under age seven, or children only between the ages of seven and 17. Results suggested that managerial behavior was more a function of family type than of socio-demographic characteristics.

Beard and Firebaugh (1978) conducted a landmark study to develop an instrument to differentiate morphostatic and morphogenic planning behavior in families. Homemakers responded to 86 statements on planning behaviors related to boundary maintenance, standard setting and sequencing, commitment to current system structure, and adjustment to new demands. Results of the factor analysis did not yield factors which clearly demonstrated the bipolar nature of the morphostatic - morphogenic continuum, although there was some support for this position. The researchers suggested that with continued revision and testing, the instrument could be used as a diagnostic tool to help families better adapt to a changing environment.

Implementing. Using the Deacon and Firebaugh (1975, 1981) model, White (1985) focused on throughput in an effort to identify financial management competencies necessary for adults to manage effectively. Noting that "little research has addressed the measurement of managerial throughput competencies," (p. 14) White conceptualized two planning competencies, one sequencing competency, and two implementing competencies. Specifically, these were defined as planning throughput -- standard setting; planning throughput -- sequencing; sequencing

throughput -- budgeting; implementing throughput -- controlling (recordkeeping); and implementing throughput -- facilitating.

Results of the study revealed 16 critical financial management competencies necessary for adults to function effectively in the marketplace over the next 15 years. White concluded that the competencies were clearly associated with the managerial system throughput competencies.

In a study linking the components of throughput and output, Stouffer (1964) considered the relationship between organization and satisfaction. Stouffer studied time records of homemakers who had been self-classified as satisfied or dissatisfied. The management styles of the satisfied homemakers included more planning, clustering of activities, approaching tasks as units rather than single elements, and routines.

By considering organization relative to the homemaker's behavior to define and implement plans for household task completion, Mumaw (1969, Mumaw and Nichols, 1972) identified four distinct organizational styles. The four styles included Task Assignment, Task Arrangement, Task Standardization, and Task Regularization. The homemaker's efforts to assign a task to herself or others on the basis of interest, skill, or the need for skill development were reflected in the style labeled Task Assignment.

As the name implies, the style Task Arrangement focused on the coordination of tasks to balance time, location, and level of activity. Whereas the former style considered flexibility, the Task Regularization style noted adherence to imposed schedules or routines.

The style Task Standardization reflected the effort of the homemaker to develop some order or system for completing components of a task. Results indicated that differences in organizational style were a function of the age and number of children living at home as well as the characteristics of the community of residence.

In an effort to link organization to the personality of the individual, Barclay (1970) considered the components of organization relative to six personality attributes. Organizing was defined to include the components of sequencing, facilitating, checking, and adjusting. Results indicated that sequencing was correlated with all six personality attributes, while adjusting failed to correlate with any personality trait. However, the four components of management were clearly interrelated in the homemakers' perception of their own organization as well as "ideal" organization.

A study involving only employed homemakers determined that "efficient work methods" was the organizational style most frequently utilized, followed by "elimination of part of the task," "change in performance standards," and "assignment of tasks to other family members" (Sponcil, 1975). Changes in performance standards were likely to occur with increases in the hours of employment; however, this organizational style was significantly related to the homemaker's dissatisfaction.

Decision making. On the basis of decision making and decision implementing behavior (throughput), Onorato (1968) classified lower and middle socio-economic families into three managerial structures: autonomous, autocratic, and syncratic. No significant differences in

management (defined as decision making and decision implementing) occurred between the two socio-economic classes. For both, wives autonomously managed household task and family care activities, while both husbands and wives autonomously managed economic activities. In both groups, social activities were managed autocratically by both husbands and wives. Little involvement in household management by teenage children was reported.

Summary. Whereas the research on throughput is limited in scope, findings do consistently support the conceptualization of throughput within the systems model of management. These findings, as well as those reported in the earlier discussion of research analyzing comprehensive systems models of management contribute to future efforts to specify and test a systems model of management.

#### Defining Components of the System: Output

Much of the research on satisfaction with quality of life has been conducted by sociologists. Research interests include monitoring the factors which influence satisfaction currently and longitudinally, determination of the distribution of satisfaction within society, and an understanding of how people evaluate different aspects of their lives relative to their reported well-being (Andrews and Withey, 1976). Results of this research contribute to the development of public policy and are of interest to governments as well as other public institutions.

Landmark studies have been conducted by Andrews and Withey (1976) and Campbells, Converse, and Rogers (1976). Although there are

conceptual and methodological differences in the two studies, both focused on a selected set of life domains which contribute to overall life satisfaction.

Campbell, Converse, and Rogers (1976) defined life domains as the "areas of experience which have significance for all or most people and which may be assumed to contribute in some degree to the general quality of life experience" (p. 12-13). This national research study was based on the proposition that expressions of satisfaction resulted from the perceived gap between domain reality and domain aspirations. Results indicated that assessment of cognitive and affective dimensions of 17 domains explained 54% of the variance in the calculated Index of Well-Being (p. 80). The domains considered included neighborhood, housing, community, life in the U.S., national government, friendships, religion, organizations, work, nonwork, marital, family, usefulness of education, amount of education, health, savings, and standard of living. The most important domains were nonwork, family life, standard of living, work, marriage, savings and investments, friendships, community, and housing.

Andrews and Withey (1976) defined domains of life as "places, things, activities, people, and roles" (p. 11). In addition to domains, this research also considered the criteria or values upon which an individual evaluated life domains. Based on analysis of a total of 123 statements representing life domains and related criteria, 12 critical domains were identified which explained 50%-60% of the variance in life-as-a-whole. The 12 domains included assessments of self, family, money, fun, housing, family activities, leisure time, leisure

activities, national government, consumer services, health, and job.

Home economists have also considered satisfaction with housing and other aspects of economic well-being relative to quality of life. Review will be limited to those research studies utilizing the systems model of management. Satisfaction with various aspects of life was defined as the output in several studies earlier considered in this literature review (Stouffer, 1964; Sponcil, 1975; Newton, 1979; Heck, 1983; Williams, 1986).

In an early study of satisfaction with home management, Wenck (1967) concluded that significant differences existed between employed and nonemployed homemakers in the frequency of household activity completion. However, satisfaction with home management was similar for both groups. Few differences in task satisfaction occurred across age, education, or income groups.

Input factors also have been shown to be related to satisfaction. Burr, (1970) studying satisfaction with various aspects of marriage, concluded that satisfaction with social activities, task performance, companionship, sex, and children was related to the family life cycle stage. Similarly, Ater and Deacon (1972) determined that the satisfaction families expressed with goal completion was related to the nature or quality of the family relationships.

In another study of inputs and outputs, Keith (1975) considered the effects of demands and resources on household and financial management outputs in young families with a first child. Output was operationalized as achievements and satisfactions associated with household and financial management. Satisfaction with the household

management was significantly influenced by the perceived importance of the problem and education of the spouses. Satisfaction with financial management was not a function of any input variables considered. Young families reported more satisfaction with their household management than their financial management.

Davis and Helwick (1985) applied the systems model of management in a study which defined output as financial satisfaction. Inputs were operationalized to include family income, family net worth, and number of earners as resources, while debt/income ratio and remaining number of child rearing years represented demands. Two reference points to financial aspirations and financial condition were included; area of residence was the final input variable. Analysis was conducted with six samples.

Results indicated that the resource of income or net worth was a significant predictor of satisfaction in five of the six samples. The reference points, defined as desire for financial improvement and perceived change in financial condition, were consistent predictors of financial satisfaction. The former had a negative effect on satisfaction, while the latter variable had a positive effect.

Satisfaction has been hypothesized as an output of the systems model of management. Empirical results support this conceptualization of output. Results also support the use of this measure in future modeling efforts, with or without related measures of demands met or resources changed.

## The Proposed Operational Systems Model of Family

### Resource Management

Empirical analysis of the systems model of family resource management was based on the model shown in Figure 2. The model specification includes inputs, throughputs, and outputs. Specification of throughput focused only on the managerial subsystem; the personal subsystem was not considered in this analysis.

Demands, as a component of inputs, were represented in the model as age of the youngest child, household size, and employment status of the husband and wife. Each of these variables uniquely impacts the household activity and the resulting family goals. Research indicates that the presence of younger children in the home increases the wife's household work time, the length of the wife's work day, and the wife's leisure time (Table 1). Increasing family size increases the demand for human and material resources. Hours of employment of the spouses influence the availability of human resources (i.e. time, energy) as well as material resources (i.e. money) available to the family. Research shown in Table 2 supports the classification of spouses' employment as a demand. Demands would be expected to have a negative effect on output.

Resources, as the other component of inputs, were categorized as human and material. Age and education of the husband and wife are likely to affect the goals of the family, as well as the method of goal attainment. Deacon and Firebaugh (1975) assert that "formal education is likely to affect creativity, resourcefulness, and the ability to think abstractly which is important to planning" (p. 85-86). Age and

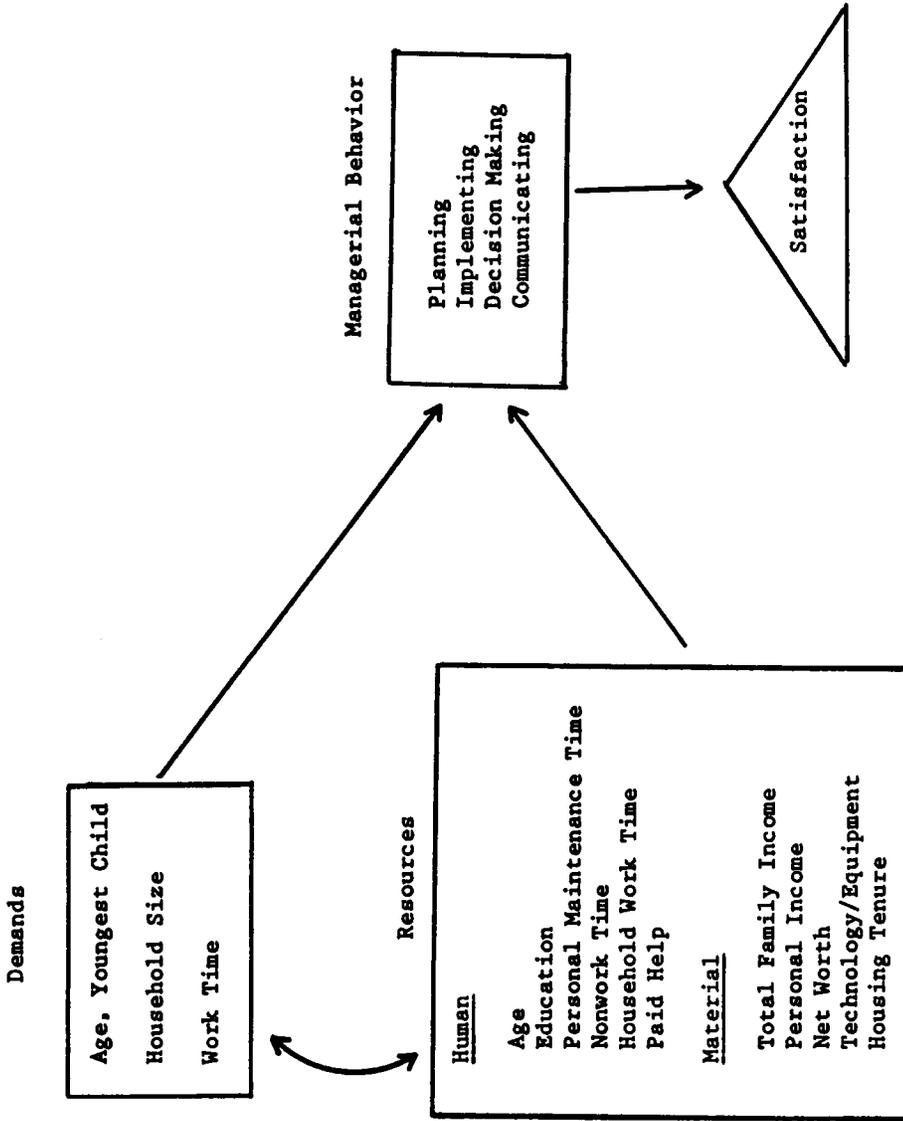


FIGURE 2  
Operational Model of the Systems Framework of Family Resource Management  
for Male and Female Spouses

education of the spouses would likely have a positive effect on output.

Time, classified as a human resource, was subdivided into four categories, including personal maintenance time, non-work time, work time and household work time. Everyone is allotted an equal amount of this resource. Deacon and Firebaugh (1975) state that "time may be the ultimate constraint for human resource use since it cannot be increased as goods can be" (p. 162). Subdividing time into these categories indicated individual time constraints. Additionally, resource use is often analyzed as an overt measure of individual values and goals.

The categorical time classification originated with the summary of the NE-113 interstate time use data (Lovingood, 1981). Personal maintenance time was defined as time spent in care of self, sleeping, eating, etc. Non-work time included time spent in organizational participation, social and recreational activities, as well as associated travel time. Time spent in paid, unpaid, and school work, including associated travel was classified as work time. Time classified as household work included time spent on household tasks, care of family members, and associated travel time. Each category was calculated on the basis of amount of time spent in each category over a seven day period.

Paid household help was the final human resource included in the model. Defined as regular or household help with yard or household chores, excluding child care, paid household help provides an input of time, skills, abilities, and interests of a person(s) outside the family. For this input of human resources, payment of material

resources (money) is required. For many families, this exchange of material for human resources is preferred, although income is a significant predictor of such an exchange.

Total family income for 1980, as well as 1980 individual incomes for husband and wife were included in the model as material resources. Inclusion of total family income provides an indication of earned and unearned income, while separating earned income of husband and wife facilitates discussion of their relative earnings. Family economists assert that relative efficiencies of the individual in market and household activities, often measured through hourly wage rates, are determinants of household behavior. Net worth, a comprehensive measure of family financial behavior, was included as a material resource. A positive relationship would be expected between material resources and output.

Household technology, a material resource, was defined as number of items of equipment owned for the completion of household tasks, lawn and garden tasks, and entertainment. The presence of this technology is assumed to facilitate the production of household goods and services. However, the required expenditure of human and material resources corresponding to the use of this technology cannot be ignored (Lovingood and McCullough, 1986).

The final material resource focused on housing tenure. Home ownership provides for long term resource accumulation (equity), yet there are resource requirements of maintenance and improvement which are unique to home ownership. Home ownership is a significant predictor of family net worth status (Foster and Metzen, 1981).

Planning, implementing, decision making, and communicating were included in the model as throughput. Planning of the individual task responsibility, as well as the scheduling of activities for household production, financial management, and care of preteen children, constituted planning and implementing behavior. Planning and scheduling of activities is assumed to have a positive effect on managerial output.

Level of communication within the family was included because of its role as a facilitator of the management process. Household decision making behavior regarding social and recreational activities, financial management, and employment was included to assess decision making style. Increased levels of communication and egalitarian decision making would be expected to have a positive effect on managerial output.

Although output is commonly measured as a tangible commodity, resource management theory includes satisfaction with output as a result of the process. Consequently, levels of satisfaction with various aspects of life which are impacted by household managerial behavior were considered as output. Satisfaction with household production, with level of living, with personal/social interaction, and with children (if present, and less than or equal to 18 years of age) are representative of the diversity of competing goals which family members must manage on a daily basis.

Management theory suggests a causal relationship among the input and throughput which enter the system and result in output. The proposed systems model of family resource management, representative of

the theory, provides an opportunity for exploring such a relationship.

#### Summary

This chapter was designed to review the literature which contributed to the specification of the operational systems model of family resource management. The statistical analysis of any theory is grounded in an accurate representation of the theory in question. The purpose of the literature review was to ensure that the operational systems model was a valid representation of the theory as well as the household activity which results from managerial behavior.

## CHAPTER III

### METHODOLOGY

This chapter includes (1) a description of the methodology and data collection procedures utilized with the 1975-81 Time Use Longitudinal Panel Study, (2) a discussion of the study limitations and delimitations, and (3) a description of the methodology appropriate for the accomplishment of each objective. The discussion of "Objective I: Specification of the Model" includes sections on the specification of input, throughput, and output, the specification of the operational model, and the testing of the model for specification bias. In "Objective II: The Relative Effects of the Predictor Variables," the regression analysis and calculation of the F ratios for the test for significantly improved explanation are considered. The discussion of "Objective III: Testing for Causal Relationships" includes the methodology and regression analysis to support the development of the path analysis models.

#### The Data Source

This study was based on data from the 1975-1981 Time Use Longitudinal Panel Study conducted by the Institute for Social Research at The University of Michigan. Extensive data on time use, as well as data on the household were collected in four waves during 1975-1976, and again in 1980-81. In addition, identical measures were used for all person-specific information collected from respondents and spouses. Also, individual time use and corresponding teacher reports for

selected children were included in the 1980-81 sample. The 1975-1976 study was designed as a national probability sample representative of housing units in the U.S., exclusive of military reservations (Juster, Hill, Stafford, and Parsons, 1983).

Only the latter data set, collected in 1980-81, was used in this study. The data were collected at four intervals throughout the year, with personal interviews utilized during the first and third waves, and telephone interviews used for the second and fourth waves.

Data on how household members spent their time were collected using the diary recall method for the previous day. On the basis of the time data collected, a synthetic week time budget was constructed indicating time use among 223 mutually exclusive activities. Because some respondents failed to provide all necessary data, a synthetic week time budget was not available for all respondents. Also, some synthetic week time budgets did not add to the total of 10,080 minutes because of unaccounted for time.

The total 1980-81 collection included data from 620 respondents and from their spouses if they were married at the first contact in 1981. This resulted in available data from 376 husband-wife pairs. Due to the quantity of missing data from respondents in two of the couples, the sample was reduced to 374 couples, or a total of 748 respondents. These husband-wife pairs were the unit of analysis for the study. Although the 1980-81 data set is longitudinal, for the purposes of this study it was viewed as cross-sectional.

### Limitations and Delimitations of the Study

The study was obviously limited by the stock of information contained within the existing data set. For example, a preferred measure of output might have included measures of quantity and quality of household production; however such analysis was precluded by the data set. Instead, self-reported satisfaction with various aspects of life was used.

Measurement error was yet another limitation of the study. The quality of the data is dependent on the respondents to accurately answer in an unbiased fashion. Because the questions deal with household activities and family interaction, reactive error is potentially present. Interpretation of the questions is yet another source of error. Use of the panel and the repetition of some questions may have biased the response. Well-trained interviewers are a precaution against this error, and an underlying assumption of this study is that the Institute for Social Research took necessary precautions in the data collection.

The use of a panel of respondents was a final limitation of the study. Measurement error associated with question repetition and reactive error have been acknowledged. But the representativeness of the panel may have been hampered by attrition over the life of the survey. The 1975-76 Survey was designed as a probability sample representative of housing units in the U.S., exclusive of military reservations. Eligible participants in the 1981 study included those respondents from whom three or four waves of data had been obtained in the 1975-76 study, and who were heads of households or wives of heads

of households in 1975. This study was based on the assumption that with random attrition, the 1980-81 data maintained its national representativeness.

This study was delimited by the breadth and depth of information included within this national data set. The survey was designed to collect comprehensive time use data as well as extensive information on the individuals and their household activities.

Focusing the study only on intact husband and wife families as the unit of analysis was another delimitation. This approach supported the specification and testing of a representative model which considered the individual, as well as the couple.

#### Objective I: Specification of the Model

The first objective of this research study was to operationalize a systems model of management for empirical testing on the basis of theoretical and empirical considerations. Theoretical and empirical support for the specification of the model was discussed in the literature review. The proposed operational model (Figure 2) resulted from this analysis.

However, the application of the operational model to the available data required additional empirical analysis. This analysis focused on the conceptual interpretation and manipulation of the data to create needed input variables as well as principal components factor analysis to reduce the management and satisfaction items into distinct dimensions for inclusion in the model. Once all model components were identified, regression analysis was used to test for correct

specification of the model for subsequent testing of the elements. To facilitate discussion, these sequential steps in the model development will be considered individually. The Statistical Package for the Social Sciences-X (SPSS-X) (SPSS-X User's Guide, 1983) was used for all data analysis.

### Specification of Input

The specification of the input variables in the operational model was based on household information as well as information about the individual husband and wife. Input variables were designated as belonging in one of three sets: the husband's, the wife's, or shared within the household. This was in contrast to the original data set which included household, respondent, and spouse data. Couples were differentiated on the basis of "respondent" and "spouse," but these categories were not structured by sex. Thus, it was necessary to recode all of the items pertaining to the individual. Based on the item responses (Table 5 and Appendix A), age, education, and income were differentiated and recoded on the basis of sex. This resulted in age, education, and income variables for the husband and for the wife, respectively.

Similarly, the synthetic week time budgets had to be recoded to differentiate respondent and spouse by sex. The resulting husband and wife time budgets were then aggregated into the categories of work, nonwork, household work, and personal maintenance time. Because of the large number of respondents reporting "unaccounted for time," for only 5.24% of the responses (N=29) did the time budgets add to a constant.

Table 5

Input Variables and Data Set Items

Variable	Data Set Items			Response from Respondent/Spouse
Age of Youngest Child	V1018 V1025 V1032	V1039 V1046 V1053	V1060 V1067	Respondent
Household Size	V1004 V1017 V1024 V1031 V1038 V1045 V1052 V1059 V1066 V4033	V4038 V4043 V4048 V4053 V4058 V4070 V4075 V4080 V4085 V4090	V4095 V4100 V4105 V4110 V4123 V4128 V4133 V4138 V4143	Respondent
Age of Husband and Wife	V1005	V8625		Respondent Spouse
Education of Husband & Wife	V5134			Respondent Spouse
Paid Help	V7080	V7082	V7084	Respondent
1980 Total Family Income	V5129			Respondent
1980 Income, Husband & Wife	V5122			Respondent Spouse
Net Worth	V5130			Respondent
Equipment/Technology	V6012 to V6019 V6022 to V6027 V6029 V6034 V6036	V6019 V6027 V6041 V6043 V6045	V6048 V6051 V6054 V6056 V6061	Respondent
Housing Tenure	V5014			Respondent

The 223 mutually exclusive time classifications were not included in Appendix A, however the broad time classifications and their subcategories are shown in Table 6.

The remaining input variables related to the household were reported by the respondent during the data collection. Therefore, a necessary assumption of this study was that the respondent, regardless of sex, was knowledgeable of the household characteristics and accurately reported this information. Consequently, it was assumed that the household information was as relevant for the respondent as for his or her spouse.

Total 1980 family income, net worth, equipment/technology ownership, and housing tenure were items directly available in the data set. (See Table 5 for the original item numbers, and Appendix A for the items.) The age of youngest child, household size, and paid household help variables were created on the basis of responses to several items.

The original data set did not include an item to determine household size over the four waves of data collection. Instead, during the first wave of data collection, the respondent was asked to report the sex, age, and relationship to the respondent for up to nine household members. During the fourth wave, the respondent provided similar information for family members moving into or out of the household during the time period of the second, third, and fourth waves.

By manipulating these items in the data set, the age of youngest child and household size variables were created. The age of the

Table 6

Data Set Time Categories for the 223 Time Classifications**Work and Other Income Producing Activities**

Paid Work

**Household Activities**

Indoor

Outdoor

Miscellaneous Household Chores

**Child Care**

Child Care for Children of Household

Other Child Care

**Obtaining Goods and Services**

Goods

Services

**Personal Needs and Care**

Care to Self

Help and Care to Others

Other Personal and Helping

**Education and Professional Training****Organizational Activities**

Volunteer, Helping Organizations

Religious Practice

Religious Groups

Professional/Union Organizations

Child/Youth/Family Organizations

Fraternal Organizations

Political Party &amp; Civic Participation

Special Interest/Identity Organizations

Other Miscellaneous Organizations

Travel Related to Organizational Activities

**Entertainment/Social Activities**

Attending Spectacles/Events

Socializing

**Sports and Active Leisure**

Classes/Lessons for Active Leisure Activity

Active Sports

Domestic Crafts

Out of Doors

Arts and Literature

Walking, Biking

Music/Theatre/Dance

Hobbies

Games

**Passive Leisure****Missing Data Codes**

youngest child variable referred to the age of the youngest child present in the household, whether an offspring by birth, marriage, or adoption, an extended family member, or a foster child. Similarly, the household size variable measured the maximum number of individuals living in the household during the data collection year.

The variable to determine the incidence of paid help for yard or household chores, excluding child care, was created from three items in the data set (Table 5 and Appendix A). By recoding the responses to the three items, a continuum of household help was created. The recoded responses categorized households on a four point continuum ranging from no paid household help to both regular and occasional paid help during the year.

#### Specification of Throughput

A total of 35 items were identified as measures of throughput. These items dealt with family decision making patterns, family communication, the planning, scheduling, and implementing of household activities, and the existence of rules or standing plans within the family.

Twenty of the items (V5156 - V5175) focused on the scheduling and implementing of tasks related to seven household activities (Table 7 and Appendix A). Only individuals identified as "respondents" in the original data set, regardless of sex, answered these items. "Spouses" in the original data set did not respond to these items. On the assumption that the respondent was knowledgeable and truthful about household activities, these items were recoded and attributed to the

Table 7

Throughput Variables and Data Set Items

Variable	Data Set Items	Response from Respondent/Spouse
Scheduling & Implementing of Household Tasks: - Cooking Dinner - Doing Laundry - Cleaning House - Checks/Bills - Grocery Shopping - Outdoor Tasks - Care of Preteen Children	V5156 to V5175	Respondent
Most Say in Decision Making	V6241 to V6247	Respondent Spouse
Couple Sit & Talk	V6292	Respondent Spouse
Planning of Free Time	V7069 to V7071	Respondent Spouse
Family Rules & Communication	V7099 to V7102	Respondent Spouse

spouse.

Both data set "respondents" and "spouses" responded to the remaining 15 of the 35 items identified as measures of throughput (Table 7 and Appendix A). Thus, the male and female spouse had a total of 35 items to measure throughput, 20 of which were identical for both spouses.

Because of the multitude of items considered to measure throughput, it was necessary to reduce or summate the items. Principal components factor analysis was the procedure chosen. "The general purpose of factor analytic techniques is to find a way of condensing (summarizing) the information contained in a number of original variables into a smaller set of new composite dimensions (factors) with a minimum loss of information" (Hair, Anderson, Tatham, & Grablovsky, 1979, p. 218). Principal component factor analysis of the management items was used to extract the underlying dimensions rather than rely on intuition or some arbitrary scale development. This procedure offered the advantage of reducing the data into a minimum number of factors which maximized the explanation of system variance.

In keeping with the initial plan to develop unique systems models for both husbands and wives, the 35 items were independently analyzed for each group. The resulting unrotated factor structures yielded similar loadings on some factors and dissimilar loadings on others. Because of the lack of major differences associated with the sex of the respondent and the relatively small sample size (N=374) for each gender, the decision was made to drop the sex differentiation and, for the purpose of this factor analysis, to consider the spouses as

individuals (N=748).

directed by

Using this approach necessitated the recoding of items V6246 and V6247 (Table 7 and Appendix). These two items ascertained the contribution of the husband and the wife to the decision for the wife to "go to work or quit work." Because V6246 was directed only to females and V6247 was directed only to males, half of the sample was "missing" for each item. To avoid the problems associated with the missing data, the two items were recoded into one item identified as WW. Therefore, this recoded variable included responses for 748 individuals.

and the

A final revision of the management items focused on items V5157, V5160, V5163, V5166, V5169, V5172, and V5175 (Table 7 and Appendix A). There were ten possible responses to these items, yet the basic information contained in the items could be combined into four responses as specified below. Consequently, this recoding maintained the integrity of the information, while decreasing the actual number of responses for each category.

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Specifically, responses "1. respondent" and "2. spouse" were recoded into one category. Either of these responses indicated that the same individual usually did the task in question. Response "3. respondent and spouse" was not recoded, as this response indicated that the task was shared. The remaining responses were combined, indicating that the task was diffused among the respondent and/or spouse and children, the respondent and/or spouse and others, or simply others. The missing data category also was maintained.

Thus, the recoded response set implied that the task was usually

done by one member of the couple, shared by the couple, or distributed among members of the household or others. Because of the original data collection procedures and the way the items were used for this analysis, the issue of identifying sex roles with the various tasks was moot before the recode.

To provide a parsimonious description of management behavior, principal components factor analysis was performed on the resulting 34 items. Varimax rotation was used to simplify the factor loadings structure and to increase interpretability. With orthogonal rotation the factors remain uncorrelated, and the sum of the variance accounted for by the factors does not change. Factors were extracted on the basis of Catell's scree test (1966), Kaiser or eigenvalue-one criterion, and the interpretability of the rotated factors.

In terms of constructing dimension scale scores from items, Kim and Mueller (1978) support "simple index construction" rather than the creation of more complex factor scales. Using this approach, "a scale is built by summing all the variables with substantial loadings and ignoring the remaining variables with minor loadings. The scale created in this way is no longer a factor scale but merely factor-based. . . . The rule of thumb often used in this context is to consider factor loadings less than .30 as not substantial" (p. 70).

A similar method of generating dimension scale scores was utilized; only items with factor loadings equal to or greater than .40 were included. Dimension scale scores were derived by calculating the mean of the items with substantial loadings on the individual factors. The resulting management dimension scores for each individual were

entered as throughput in the subsequent analysis of the model.

### Specification of Output

This research offered the advantage of studying the management model in a more comprehensive manner than that of a specific demand or task orientation. A total of 23 items were identified which measured satisfaction with some aspect of life. Satisfaction items included in the data set dealt with satisfaction with household production, social/personal interaction, standard of living, and success of children (Table 8 and Appendix A). These factors represent the diversity of competing demands with which an individual must cope. Management as a "holistic" problem solving tool would be expected to impact these satisfaction levels.

Due to an oversight during wave one of the data collection, "spouses" were not asked to respond to the same set of satisfaction questions (V5032 to V5027) as the "respondents" but did respond to these items during wave two (V6067 to V6071). See Table 8 and Appendix A. For consistency in the analysis, items V5032 to V5027 for the "respondents" were recoded as items V6067 to V6071. Since an underlying assumption of this research was that the data, although longitudinal, could be viewed as cross-sectional, the difference in the time interval on these items was not considered to be a critical limitation.

Principal components factor analysis again was utilized to reduce the items into a smaller set of variables for inclusion in the subsequent analysis of the model. In keeping with the plan to develop unique systems models for both husbands and wives, the 23 items were

Table 8

Output Variables and Data Set Items

Variable	Data Set Items	Response from Respondent/Spouse
How do you feel about? - Life as a Whole - Income - Standard of Living - Success - Job	V5023 to V5027	Respondent
How do you feel about? - Life as a Whole - Income - Standard of Living - Success - Job	V6067 to V6071	Spouse
How satisfied are you? - Cleanliness of House - Main Meal of Day - Time With Children - Time With Family - Success of Children - Amount of Free Time - Amount of Money - Health and Energy	V7072 to V7079	Respondent Spouse
How satisfied are you? - Life as a Whole - Standard of Living - Amount of Education - Free Time Activities - Job - Family - Friends - Club/Organization Participation - Community Social Position	V8067 to V8076	Respondent Spouse

independently analyzed for each group. The rotated factor structures identified six factors for each group, although there were differences in the item loadings and the underlying dimensions. However, consistent with the analysis of the management items, the decision was made to drop the sex differentiation and, for the purpose of the analysis, to consider the spouses as individuals (N=748).

In an effort to clean the data and avoid problems with missing responses, all missing data were recoded to the mid-point for each scale. For items V6067 to V6071 (Appendix A), responses "8. never thought about it," "9. No feelings about it," and "0. Inappropriate" were recoded as response "4. Mixed (about equally satisfied and dissatisfied)." Similarly, for items V7072 to V7079 (Appendix A), "98. Don't know" and "99. Not applicable" responses were recoded to a "five" response on a scale of zero to ten. Responses "8. Don't know," "9. Not applicable," and "0. Inappropriate" to items V8067 to V8076 (Appendix A) and were recoded to a "four" on a scale of one to seven. This reflects the fact that those using these categories were actually reporting a neutral influence of the item.

Principal components factor analysis with Varimax rotation did not yield a clean factor structure with interpretable dimensions. Experimentation with other rotations (Equimax, Quartimax) and principle axis factoring yielded similar results. Double items assessing satisfaction with the same dimension (life, standard of living, job) were not loading on the same factor, nor were the other loadings clean and interpretable.

In an effort to resolve this, the six items representing the three

basic elements were recoded. The scale for items V6067, V6069, and V6071 was reversed to match that of items V8067, V8068, and V8071 (Appendix A). The pairs of items assessing satisfaction with life, standard of living, and job were then averaged. This resulted in three new items "life," "standard of living (sol)," and "job" which replaced the original six.

The item "life" had significant loadings on more than one factor in the subsequent rotated principal components factor analysis structure. An arbitrary decision was made to eliminate this item from the factor analysis of the satisfaction items because it did not uniquely define one of the underlying dimensions. The remaining 19 items, including the "standard of living" and "job" items, were analyzed using the principal components technique. Varimax rotation was used to simplify the factor loadings structure and to increase interpretability. Catell's scree test (1966), Kaiser or eigenvalue-one criterion, and interpretability of the rotated factors were criteria used to determine the number of extracted factors.

A simple index based on the mean of the items with substantial factor loadings was used to create the dimension scale scores. Only items with factor loadings equal to or greater than .45 were included in the scale construction. The resulting satisfaction dimension scores, in addition to the "life" item, were calculated for each individual and entered the model as output. Subsequent analysis of the model was based on these dependent variables.

Specification of the Operational Model

The proposed operational system model of management, as well as the theoretical and empirical support for the model specification, was discussed in Chapter II. Additional empirical analysis required to apply the data to the model also has been considered. Based on this, the variables in the operational model of management (Figure 2) were defined as follows:

INPUTDemands:

- Age of youngest child: Determined by the age of the youngest child present in the household, reported in years.
- Household/Family size: Based on the maximum number of individuals living in the household during the year of data collection.
- Work time: Total time during a seven day period spent in paid, unpaid, and school work, including travel associated with such work for both husband and wife.

Human Resources:

- Age of the husband and wife: Reported in years.
- Education of husband and wife: Reported in years of schooling completed.
- Personal maintenance time: Total time during a seven day period spent in care of self, sleeping, and eating for both husband and wife.
- Household work time: Total time during a seven day period spent on household tasks and care of family members including travel

associated with such work for both husband and wife.

- Nonwork time: Total time during a seven day period spent in organizational participation and social and recreational activities including travel associated with such activities for both husband and wife.
- Paid household help: Regular or occasional household help with yard or household chores excluding child care.

Material Resources:

- Total family income: 1980 total family income from all sources, before taxes and other deductions.
- Individual income: 1980 total salary or wages before taxes and deductions, for husband and/or wife.
- Net worth: Household positive, negative, or zero net worth.
- Equipment/technology: Number of items owned, including equipment/technology used for the completion of household chores, lawn and home maintenance tasks, and entertainment.
- Housing tenure: Respondent owns the home, or pays rent.

THROUGHPUT

Managerial behavior: Individual dimension scores based on household managerial behavior as reported by husband and wife:

- Decision making patterns within the family.
- Communication within the family.
- Planning, scheduling, and implementing of activities within the family.
- Existence of rules or standing plans within the family.

## OUTPUT

Satisfaction: Individual dimension scores based on satisfaction with various aspects of life as reported by husband and wife as satisfaction with:

- Household production.
- Personal/social interaction.
- Standard of living.
- Children, if present, with ages less than or equal to 18 years of age.
- Life in general ("life" variable).

The model specification included measures of input for the husband, the wife, and their shared household variables as well as measures of throughput and output for the husband and the wife. Some measures of input were unique to the individual, while others focused on characteristics of the household of which the individual was a part. Feedback, an acknowledged component of the systems management conceptualization, was considered to be beyond the scope of this study.

## Testing the Model for Specification Bias

The first objective of this study was to operationalize a systems model of management for empirical testing on the basis of theoretical, empirical, and statistical specification considerations. Berry and Feldman (1985) describe specification error as "a nice way of saying that the 'wrong model' has been estimated" (p. 18). Specification error may occur because of error in the functional form of the modeled

relationship, or error in the independent variables in the modeled relationship. It was assumed that the relationships among the variables in the systems model of management were both linear and additive. Thus, it was assumed that the functional form of the model was correct, averting specification error.

The second cause of specification bias can occur because of the erroneous inclusion or omission of independent variables in the modeled relationship. The proposed model of the systems approach to management was derived from strong theoretical and empirical support. However, because of the limited research base to support such comprehensive modeling of the systems approach, there was not a clear answer to a fundamental question.

When modeling the managerial behavior for a couple, utilizing the systems approach, should the model include input and throughput from both members of the couple in the prediction of output for one spouse? Or, is the prediction of output contingent only on the input and throughput for the spouse in question? Management theory suggests support for the former position, although there is not a definitive answer. An answer to this question was necessary to control for specification error.

Both husband and wife share the same household characteristics; however, there are distinct individual input and throughput variables. The prediction of output based on the full model, or the predictor variables of the household, individual, and spouse, is represented by the following:

$$Y_{ni} = a + bI_{jh} + bI_{ji} + bI_{js} + bT_{ki} + bT_{ks}$$

where  $Y_{ni}$  = Output for  $n$  satisfaction factors for the individual,  $i$

$a$  = Constant

$b$  = Regression coefficient

$I_{jh}$  = Input variables, for the  $j$  household variables in the model

$I_{ji}$  = Input variables, for the  $j$  individual variables in the model

$I_{js}$  = Input variables, for the  $j$  spouse variables in the model

$T_{ki}$  = Throughput variables, for the  $k$  individual variables in the model

$T_{ks}$  = Throughput variables, for the  $k$  spouse variables in the model

The alternate equation, where only the predictor variables for the household and the spouse are considered, is represented by the following:

$$Y_{ni} = a + bI_{jh} + bI_{ji} + bT_{ki}$$

where  $Y_{ni}$  = Output for  $n$  satisfaction factors for the individual,  $i$

$a$  = Constant

$b$  = Regression coefficient

$I_{jh}$  = Input variables, for the  $j$  household variables in the model

$I_{ji}$  = Input variables, for the  $j$  individual variables in the model

$T_{ki}$  = Throughput variables, for the  $k$  individual variables in the model

The latter equation, which includes fewer variables, is referred to as the restricted equation. Using both equations, the satisfaction criterion variables for the husband and wife were regressed on the full and restricted models using a backward stepwise elimination procedure.

Initial regression analysis suggested some problems in the data which required correction. First, for income variables in the original data set, "no income" was coded as missing. Recoding the missing category for these variables (husband's income, wife's income, total family income) to "zero or no income reported", corrected the problem associated with a large number of missing responses. Similarly, on the researcher-generated variable "age of youngest child," data for families with children over age 18 or families with no children were initially coded as missing. By recoding data for these families as 19, rather than missing, the problems of missing responses were corrected. The 19 was used to indicate that these families had a minimal load placed on them by children.

Because of a low response rate for items V5174 and V5175, the throughput dimension score on which this doublet was calculated had to be eliminated from further modeling. Only households with children age 12 or younger responded to these questions. This constituted less than half of the households (44.39%), but when considered on the basis of the individuals ( $N=748$ ), it constituted 22.19% of the sample. Because

the analysis of the management items was based on individuals, inclusion of this factor in the regression analysis threatened the stability of the results.

Similarly, items V7101 and V7102 which were relevant only to families with children age 18 or younger, were having an unusual effect on the throughput factor on which they loaded. Consequently, these two items were eliminated from further modeling. This necessitated the recalculation of the dimension score based on this factor. Two other items (V5171, V5172) had strong loadings on this factor; consequently the dimension scale score was calculated on the basis of this doublet.

With these modifications complete, analysis of the full and restricted models for the prediction of output for the husbands and wives was repeated. A backward stepwise elimination procedure was utilized. With this procedure, all predictor variables are included in the initial analysis. Variables are sequentially eliminated until all variables are excluded, or some criterion for selection is met. The default value for probability of F-to-remove is .10 when using backward regression with SPSS-X (SPSS-X User's Guide, 1983, p. 609).

When using multiple regression, the F ratio is used to determine whether the addition, or deletion of a variable or set of variables to a regression equation significantly changes the variance explanation. The F ratio tests the statistical significance of the increment of the proportion of variance accounted for by the additional variables (Pedhazur, 1982). Although not the commonly used equation for calculation of the F ratio (see Pedhazur, 1982, pp. 62-63), the following derivation was used to test the increment of the proportion

of variance explained between the full and restricted models because of small differences in sample sizes caused by missing data.

$$F = \frac{\frac{R^2_{y.12\dots k1} - R^2_{y.12\dots k2}}{df_{reg1} - df_{reg2}}}{\frac{1 - R^2_{y.12\dots k1}}{df_{res1}}}$$

This equation is defined as follows, where

- $R^2_{y.12\dots k1}$  = the squared multiple correlation coefficient for the full model
- $R^2_{y.12\dots k2}$  = the squared multiple correlation coefficient for the restricted model
- $df_{reg1}$  = degrees of freedom regression for the full model
- $df_{reg2}$  = degrees of freedom regression for the restricted model
- $df_{res1}$  = degrees of freedom residual for the full model

Whereas the F test is typically applied to models with fixed sets of variables, it can also be used to test the marginal significance of removing or adding a variable(s) in a stepwise regression procedure. Furthermore, it is appropriate for testing to determine whether one set of variables does a better job of variance explanation than a significantly smaller set of variables. While an F ratio test of significantly improved explanation is not generally used after a

backward stepwise procedure, the following issues should be considered:

1. When there are two sets of variables,  $N$  and  $M$ , where  $N$  is contained in  $M$  and stepwise regression selects  $n$  variables from  $N$  and  $m$  variables from  $M$ , and  $m$  is greater than the  $n$ , the test for improvement in the explanation of variance does not require that the set of  $n$  variables be contained in  $m$ .
2. Given the situation described above, if the  $m$  set of variables from the full model is smaller than  $n$  set of variables and the  $R^2$  from the full model is as good or better than from the restricted model, then the full model can automatically be concluded superior. The full model has, in effect, good or better explanation of the variance with a smaller set of independent variables.
3. The denominator in the  $F$  test to test the superiority of a full set of variables is an inflated estimate of the true error variance so that the test tends to be very conservative.
4. The intent is to generate sets of variables worthy of further investigation. Future research should test the value of the variable set. Also, larger samples would allow use of principal components factor analysis or ridge regression to remove the problems of multicollinearity.

Objective II: Determining the Relative Individual  
Effects of Input and Throughput

The second objective of this study was twofold. Regression analysis was used to test the marginal value of throughput to contribute to the ability of input to explain output. Results of the regression analysis also were used to determine the relative individual effects of the input and throughput variables to explain output. The mathematical equations for the restricted and full model, respectively, are:

$$\text{Output} = f(\text{Input})$$

$$\text{Output} = f(\text{Input}, \text{Throughput})$$

The purpose of the following statistical analysis was to determine if the inclusion of the management measures (throughput) improved the prediction of satisfaction (output). Alternately, could satisfaction, or output, be predicted with comparable efficiency on the basis of input alone? Management theory would suggest that throughput, or managerial behavior, is an essential component of the system. Regression analysis and calculation of appropriate F ratios provided insight into this question.

Application of the first mathematical equation to the operational model resulted in the following regression equation:

$$Y_{ni} = a + bI_j$$

where  $Y_{ni}$  = Output for  $n$  satisfaction factors for the individual

$a$  = Constant

$b$  = Regression coefficient

$I_j$  = Input variables, for the  $j$  variables in the model

Specification of the second mathematical equation resulted in the following regression equation:

$$Y_{ni} = a + b_j I_j + b_k T_k$$

where  $Y_{ni}$  = Output for  $n$  satisfaction factors for the individual

$a$  = Constant

$b$  = Regression coefficient

$I_j$  = Input variables, for the  $j$  variables in the model

$T_k$  = Throughput variables, for the  $k$  variables in the model

The first equation, with fewer independent variables is called the restricted equation. The latter equation is referred to as the full model. Using both equations, the satisfaction criterion variables for the husband and wife were regressed on the full and restricted models using backward stepwise elimination.

The regression procedure allows for use of the model for prediction, as well as statistical testing of the significance and magnitude of the effects of the predictor variables on the dependent variable satisfaction (using  $F$  and  $t$  ratios). As in the earlier analysis to determine the model specification, the  $F$  ratio was calculated to test the statistical significance of the increment of the proportion of variance accounted for by the addition of the throughput variables.

The regression coefficients were used to determine the relative individual effects of the input and throughput variables. Interpretation of the standardized beta weights allowed for cautious comparisons of the effects of the predictor variables within the sample

population. Consideration of the unstandardized beta weights provided comparisons of the effects of the variables between subsamples of the population (i.e. between the male and female spouses).

### Objective III: Testing for Causal Relationships

The third objective of the research study was to test the model for causal relationships among the composite variables of input, throughput, and output using path analysis. The systems approach to management contends that input, when processed by the throughput or managerial subsystem, results in output. A causal relationship is implicit within this theory.

The empirical test of the proposition that a causal relationship exists between input and throughput to result in output was based on the model resulting from the preliminary regression analysis. This model included only the input and throughput variables making a significant contribution to the explanation of variance in the prediction of satisfaction for the husband and the wife. A unique model was calculated for each spouse for each satisfaction dimension score and the variable "life."

Variables included in these models were combined into the respective input and throughput composite variables by multiplying the respective individual variables by their unstandardized beta weights and then summing the results into the composite measures. Because input represented demands and human and material resources, composite variables were generated for each of these categories. These four variables and the satisfaction dimension scores were included in the

path analysis. (For another example of the use of this technique of aggregating theoretically like variables into composites for path analysis, see McLaughlin and Montgomery, 1976.)

Pedhazur (1982) describes path analysis as a "method for studying the direct and indirect effects of variables hypothesized as causes of variables treated as effects. . . Path analysis is not a method for discovering causes, but a method applied to a causal model formulated by the researcher on the basis of knowledge and theoretical considerations" (p. 580). In the systems managerial conceptualization, a causal relationship is assumed between the combined effects of input and throughput, and the resulting output.

In the theoretical model, feedback among the factors of input, throughput, and output, and the surrounding environment is assumed to affect the ongoing managerial process, the environment, and future managerial activities. Such an analysis was beyond the scope of this study. Consequently, analysis was limited to the recursive model (causal flow in only one direction) shown in Figure 3.

As depicted in this model, demands, human resources, and material resources each were defined as an exogenous variable, or one "whose variability is assumed to be determined by causes outside the causal model" (Pedhazur, 1982, p. 581). Path analysis does not attempt to explain the variability in this variable. An endogenous variable is "one whose variation is explained by exogenous or endogenous variables in the system" (Pedhazur, 1982, p. 581). In the path model, throughput and output were defined as endogenous variables.

Results of the path analysis procedure indicate the direction and

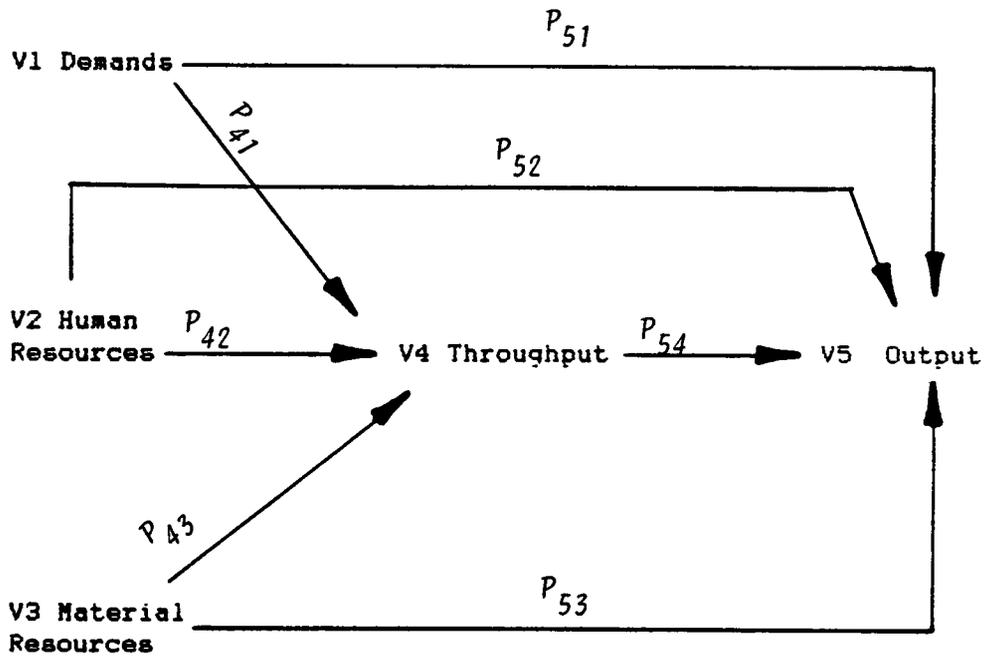


FIGURE 3

Basic Path Model of a Management System

relative size of the direct and indirect effects. The following equations define the system of direct effects in the basic model shown in Figure 3.

$$\text{Throughput} = P_{41} \times \text{Demands} + P_{42} \times \text{Human Resources} +$$

$$P_{43} \times \text{Material Resources}$$

$$\text{Output} = P_{51} \times \text{Demands} + P_{52} \times \text{Human Resources} +$$

$$P_{53} \times \text{Material Resources} + P_{54} \times \text{Throughput}$$

In this equation,  $P_{ij}$  (for example,  $P_{41}$ ) is the direct effect of (j) on (i) and is also a standardized partial regression coefficient (beta). The first subscript identifies the effect or dependent variable; the second subscript identifies the cause or independent variable. Indirect effects are the product of the connecting paths. For example, the indirect effects of demands on output (mediated by throughput) is  $P_{41} \times P_{54}$  (Wolfle, 1977).

Specifically, the path analysis for each of the unique dependent variable models was based on the following mathematical equations, where input was defined as demands, human resources, and material resources:

$$\text{Output} = f(\text{Input})$$

$$\text{Throughput} = f(\text{Input})$$

$$\text{Output} = f(\text{Input}, \text{Throughput})$$

Path coefficients were generated from the results of the regression analysis of this set of equations for each dependent variable. The

SPSS-X enter regression procedure enters all variables in the equation which meet the tolerance criterion. The default tolerance value is .01, with a probability of F-to-remove value of .10 (SPSS-X User's Guide, 1983, p. 609).

### Summary

This study offered the advantage of a systematic analysis of the systems model of family resource management utilizing a recognized, nationally representative data base. The sequential plan for the accomplishment of each of the research objectives is summarized in Table 9. Rigorous specification and analysis of the systems model of management should foster additional basic and applied research applications.

Table 9

Summary of Methodology-----  
Objective 1: Specification Of The Model  
-----Specification of Input:

- Recoded some existing items.
- Created new variables from data set items.

Specification of Throughput:

- Reduced 35 items using principal components factor analysis by gender of spouse (N = 374).
- Recoded some items.
- Reduced 34 items using principal components factor analysis by individual (N = 748).
- Calculated dimension scale scores for each individual,  $r > \text{or} = .40$ .

Specification of Output:

- Recoded some items.
- Reduced 23 items using principal components factor analysis by gender of spouse (N = 374).
- Reduced 23 items using principal components factor analysis by individual (N = 748).
- Averaged pairs of items to create variables "standard of living," "job," and "life."
- Reduced 20 items using principal components factor analysis by individual (N = 748).
- Reduced 19 items using principal components factor analysis by individual (N = 748); "life" omitted.
- Calculated dimension scale scores, including "life" variable, for each individual,  $r > \text{or} = .45$ .

Testing for Model Specification Bias:

- Using backward stepwise elimination, dependent variables for husbands and wives were regressed on full and restricted models to determine if model specification for the individual should include spouse's input and throughput variables.
- Recoded variables, personal income, family income, and age of youngest child.
- Eliminated one throughput factor from further modeling.
- Eliminated two items from a throughput factor; recalculated that dimension score for all individuals.

Table 9 (continued)

- Using backward stepwise elimination, dependent variables for husbands and wives were regressed on full and restricted models to determine if model specification for the individual should include spouse's input and throughput variables.
- Calculated F ratio test for significantly improved explanation between the dependent variable equation pairs for the male and female spouses.

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Objective II: Determining the Relative Individual Effects of  
Input and Throughput

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- Using backward stepwise elimination, dependent variables for husbands and wives were regressed on full and restricted models to determine if inclusion of throughput in the model significantly improved the explanation of variance in the dependent variables.
- Calculated F ratio test for significantly improved explanation between the dependent variable equation pairs for the male and female spouses.

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Objective III: Testing For Causal Relationships

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- Calculated composite demand, human, and nonhuman input variables, as well as a composite throughput variable, from the original variables which significantly contributed to the explanation of variance in the dependent variables for male and female spouses.
  - Using a forced entry procedure, (1) the dependent variables for husbands and wives were regressed on the composite input and throughput variables, (2) the dependent variables were regressed on the composite input variables, and (3) the composite throughput variables were regressed on the composite input variables.
  - Developed path models and calculated path coefficients.
-

## CHAPTER IV

### DEMOGRAPHIC AND HOUSEHOLD CHARACTERISTICS OF THE SAMPLE

This study was designed to empirically test a systems model of management using data from the 1975-81 Time Use Longitudinal Panel Study. The purpose of this chapter is to describe results from the sample; discussion will focus on the sample and some of the variables used to specify the model. Results of the statistical methods used to analyze the model will be considered in Chapter V.

#### Description of the Sample

Since the data collection was designed as a follow-up of a national probability sample representative of housing units in the U.S., it could be expected that the sample reflected middle class stability. Data from the 1980-81 collection included data from 376 couples. Due to the quantity of missing data from respondents in two of the couples, the sample was reduced to 374 couples, or a total of 748 respondents.

Mean age of the sample was 45.74 years, with an age range of 20 to 89. As shown in Table 10, mean age of male spouses was 47.23 years, while the mean age of female spouses was 44.25 years. The male spouses, then, were approximately three years older than the female spouses. Age range for the wives exceeded that of the husbands. Ages of the husbands ranged from 21 to 87, while the wives' ages ranged from 20 to 89 years. Three out of 10 of the female spouses (31.15%) were between 30 and 39 years of age.

Table 10

Age of Respondents

Age	Male Spouses N=374		Female Spouses N=374	
	N	x	N	x
19-29 years	24	6.42	47	12.57
30-39 years	115	30.75	118	31.55
40-49 years	91	24.33	89	23.80
50-59 years	64	17.11	67	17.91
60-69 years	43	11.50	30	8.02
70-79 years	30	8.02	21	5.61
80+ years	7	1.87	2	.53
Mean	$\bar{X} = 47.23$		$\bar{X} = 44.25$	
Range	21-87		20-89	

Education of the couples ranged from three to 19 or more years, representing a range of elementary school education through advanced graduate training (Table 11). Male spouses had a slightly higher level of educational attainment, with a mean of 13.20 years of education completed while female spouses had completed an average of 12.57 years of education. The husbands' educational attainment ranged from three to 19 years; the wives, four to 19 years.

The largest percentage (30.50%) of the couples lived with no other family members at any time throughout the year (Table 12). Household size ranged from two to eleven members with a mean household size of 3.62 individuals. Over half (61.23%) of the couples reported having a child age 18 or younger living in the household (Table 13). The child could have been a natural or adopted offspring, extended family member, or foster child. While mean age of the youngest child for the entire sample was 8.37 years, ages of the youngest child were divided almost equally over three age ranges. Of the 229 couples reporting a child age 18 or younger, in more than one-third of the households (36.24%) the youngest child was age five years or less. In a slightly larger number of households (37.99%), the youngest child was between the ages of six and 12. In the remaining one-fourth of the households (25.76%), the youngest child was in the age group of 13 to 18.

Couples were asked to report total family income, as well as individual income before deductions for 1980. Total family income reported by the couples ranged from \$3,972 to an income in excess of \$99,995. Mean total family income equalled \$31,463. One out of four of the couples (24.6%) reported family income between \$20,000 and \$29,999

Table 11

Years of Education Completed by Respondents

Years	Male Spouses N=374		Female Spouses N=374	
	N	x	N	x
0-8 years	40	10.70	31	8.29
9-12 years	152	40.64	206	55.08
13-16 years	124	33.16	113	30.21
17+ years	57	15.24	24	6.42
NA/No Answer	1	.27	0	0.00
Mean	$\bar{X} = 13.20$		$\bar{X} = 12.57$	
Range	3-19		4-19	

Table 12

Maximum Household Size

N=374 Households

Size of Household	N	x
2	114	30.48
3	73	19.52
4	94	25.13
5	56	14.97
6	21	5.61
7	9	2.41
8	4	1.07
9	2	0.53
10	0	0.0
11	1	0.27
Mean	$\bar{X} = 3.62$	
Range	2-11	

Table 13

Age of Youngest Child in the Household

N=374 Households

Age, in Years	N	x
1	34	9.09
2	12	3.21
3	15	4.01
4	9	2.41
5	13	3.48
6	11	2.94
7	14	3.74
8	8	2.14
9	10	2.67
10	14	3.74
11	19	5.08
12	11	2.94
13	11	2.94
14	5	1.37
15	10	2.67
16	16	4.28
17	11	2.94
18	6	1.60
No children; No child under age 18 in the household	145	38.77
Mean	$\bar{X} = 8.37$ years	

(Table 14).

Mean income of the husbands exceeded that of the wives (Table 15). Husbands reported a mean income of \$21,806; wives, a mean income of \$5,410. The largest group of the husbands (28.61%) reported income in the range of \$20,000 to \$29,999, while the largest group of the wives (38.77%) reported incomes of less than \$10,000. One-third of the wives (35.29%) reported earning no income.

When asked what would happen if the possessions of all household members were sold and all debts repaid, most respondents (89.30%) reported that they would have something left over, i.e. a positive net worth. Only 2.67% of the respondents reported a negative net worth (Table 16).

Given the reported net worth status, it is not surprising that almost nine out of 10 of the couples (89.84%) owned their home, as shown in Table 17. Less than 10% of the couples (8.56%) were renting their house.

Respondents were asked to report the ownership of a specific list of equipment used for the completion of household chores, yard and home maintenance tasks, and entertainment. The list included a total of 25 items (Appendix A). As shown in Table 18, respondents owned a mean of 17.09 items, with a range of ownership from six to 23 pieces of equipment. Over half of the households (55.35%) owned between 16 and 20 items of household equipment/technology.

To determine the availability of human resources, in addition to that of the family members for household production, respondents were asked about paid help (Table 19). Over half of the couples (57.22%)

Table 14

1980 Total Family Income, Before Deductions

N=374 Households

Income	N	x
Less than \$10,000	23	6.15
10,000-19,999	57	15.24
20,000-29,999	92	24.60
30,000-39,999	69	18.45
40,000-49,999	34	9.09
50,000-59,999	25	6.68
60,000-69,999	8	2.14
70,000-79,999	15	4.01
DK/NA	51	13.64
Mean #	$\bar{X} = \$31,463$	
Range	\$3,972 - \$99,995+	

Table 15

Individual Income Before Deductions

Income	Male Spouses N = 374		Female Spouses N = 374	
	N	x	N	x
No Income Earned	47	12.57	132	35.29
Less than 10,000	28	7.49	145	38.77
10,000-19,999	87	23.26	67	17.91
20,000-29,999	107	28.61	13	3.48
30,000-39,999	37	9.89	2	0.53
40,000-49,999	16	4.28	0	0.00
50,000-59,999	12	3.21	0	0.00
60,000-69,999	4	1.07	0	0.00
70,000 or more	9	2.41	1	.27
DK/NA	27	7.22	14	3.74
Mean #	$\bar{X} = \$21,806$		$\bar{X} = \$5,410$	
Range	0 - \$99,995+		0 - \$99,995+	

\* Not the true mean because the upper limit is not known.

Table 16

Net Worth of the Households

N=374 Households

Net Worth	N	%
Positive Net Worth	334	89.30
Zero Net Worth	24	6.42
Negative Net Worth	10	2.67
DK/NA	6	1.60

Table 17

Housing Tenure of the Households

N=374 Households

Tenure	N	%
Owns or Buying Home	336	89.84
Renting House/Apartment	32	8.56
Neither Owns nor Pays Rent	6	1.60

Table 18

Equipment/Technology Ownership by Household

N=374 Households

Items of Equipment/Technology	N	x
0-5	0	0.00
6-10	9	2.41
11-15	78	20.86
16-20	207	55.35
21-25	36	9.63
No Response	44	11.76
Mean	$\bar{X} = 17.09$	
Range	6-23	

Table 19

Paid Household Help, Excluding Child Care

N=374 Households

Paid Household Help	N	x
No Paid Help	214	57.23
Occasional Paid Help	42	11.23
Regular Paid Help	29	7.75
Regular/Occasional Paid Help	14	3.74
Response Missing	75	20.05

reported no regular paid help to assist with household or yard chores, excluding babysitting, over the past year. Only 3.74% of the couples reported paying for both regular and occasional help with household and yard work.

#### Household Time Use

Based on the time data collected during each of the four waves of the 1980-81 survey, researchers at the Institute for Social Research at the University of Michigan weighted the data to create an aggregate synthetic week time approximation. Because some respondents failed to provide all necessary data, aggregate synthetic week measures were not available for 104 of the husbands and 91 of the wives, 27.81% and 24.33% of the sample, respectively. The 223 time activities were aggregated into four categories.

Work time of the husband and wife was defined as time spent in paid, unpaid, and school work as well as associated travel time, during a seven day period. As shown in Table 20, husbands worked an average of 40.94 hours, while wives worked an average of 19.35 hours outside the home. Both male (7.49%) and female (27.54%) spouses reported no work time; husbands reported a maximum of 85.68 hours in work activities, while wives reported a maximum of 72.07 hours. Almost three out of ten husbands (27.81%) reported working between 45 and 59 hours during a seven day period.

Time spent in activities related to household tasks and care of family members, including related travel, during a seven day period, was defined as household work time. On the average, wives spent more

Table 20

Work Time of Respondents During Seven Days

Work Time	Male Spouses N=374		Female Spouses N=374	
	N	x	N	x
No Work Time				
Reported	28	7.49	103	27.54
Less than 1 hr	0	0.0	2	0.53
1-14 hrs	14	3.74	36	9.63
15-29 hrs	34	9.09	51	13.64
30-44 hrs	48	12.83	51	13.64
45-59 hrs	104	27.81	31	8.29
60-74 hrs	34	9.09	9	2.41
75-89 hrs	8	2.14	0	0.00
Missing Response	104	27.81	91	24.33
Mean	$\bar{X} = 40.94$ hrs		$\bar{X} = 19.35$ hrs	
Range	0 - 85.68		0 - 72.07	

than twice as much time as husbands in household work (Table 21). Male spouses reported a mean of 15.38 hours, while female spouses reported a mean of 35.72 hours over a seven day period. Maximum time spent in household work activities equalled 62.87 hours for husbands, and 79.05 hours for wives. The largest group of male respondents (37.70%) reported one to 14 hours of household work time, while most females (26.20%) reported spending 15-29 hours per week. Almost an equal number of women (22.73%) reportedly spent 30-44 hours per week on household work activities.

A comparison of mean committed time of the spouses to work, inside and outside the home, revealed that the work week for male and female spouses was very similar. Husbands spent a mean of 56.32 hours in such work activities; wives spent slightly less time per week (55.08 hours).

Nonwork, or leisure time, was defined as time spent participating in organizations, social and recreational activities, and related travel. Nonwork time for husbands and wives during the seven days was almost equal, as shown in Table 22. Mean time was 37.19 hours and 37.25 hours, respectively. The largest percentage of husbands and wives (30.21% and 34.49%, respectively) reported spending between 30 and 44 hours in nonwork activities. Maximum time spent in nonwork activities was greater for male spouses (92.08 hours) than for female spouses (79.32 hours).

Time spent by the individual in care of self (sleeping, eating, etc.) was defined as personal maintenance time. As shown in Table 23, mean personal maintenance time reported by husbands and wives was

Table 21

Household Work Time of Respondents During Seven Days

Household Work Time	Male Spouses N=374		Female Spouses N=374	
	N	%	N	%
No Time Reported	4	1.07	0	0.00
Less than 1 hr	7	1.87	0	0.00
1-14 hrs	141	37.70	21	5.61
15-29 hrs	96	25.67	98	26.20
30-44 hrs	17	4.55	85	22.73
45-59 hrs	4	1.07	55	14.71
60-74 hrs	1	.27	22	5.88
75-89 hrs	0	0.00	2	0.53
Missing Response	104	27.81	91	24.33
Mean	$\bar{X} = 15.38$ hrs		$\bar{X} = 35.72$ hrs	
Range	0 - 62.87		4.33 - 79.05	

Table 22

Nonwork Time of Respondents During Seven Days

Nonwork Time	Male Spouses N=374		Female Spouses N=374	
	N	x	N	x
No Time Reported	0	0.00	0	0.00
Less than 1 hr	0	0.00	0	0.00
1-14 hrs	7	1.87	9	2.41
15-29 hrs	85	22.73	78	20.86
30-44 hrs	113	30.21	129	34.49
45-59 hrs	40	10.70	53	14.17
60-74 hrs	19	5.08	9	2.41
75-89 hrs	4	1.07	5	1.34
90-104 hrs	2	0.53	0	0.00
Missing Response	104	27.81	91	24.33
Mean	$\bar{X} = 37.19$		$\bar{X} = 37.25$	
Range	7.62 - 92.08		11.4 - 79.32	

Table 23

Personal Maintenance Time of Respondents During Seven Days

Personal Maintenance Time	Male Spouses N=374		Female Spouses N=374	
	N	x	N	x
No Time Reported	0	0.00	0	0.00
Less than 1 hr	0	0.00	0	0.00
1-14 hrs	0	0.00	0	0.00
15-29 hrs	0	0.00	0	0.00
30-44 hrs	2	0.53	1	0.27
45-59 hrs	22	5.88	23	6.15
60-74 hrs	141	37.70	132	35.29
75-89 hrs	86	22.99	105	28.07
90-104 hrs	17	4.55	20	5.35
105-119 hrs	2	0.53	1	0.27
120-134 hrs	0	0.00	0	0.00
135-149 hrs	0	0.00	1	0.27
Missing Response	104	27.81	91	24.33
Mean	$\bar{X} = 73.08$		$\bar{X} = 74.57$	
Range	39.87 - 114.60		43.87 - 136.62	

almost equal (73.08 hours and 74.57 hours, respectively). Maximum personal maintenance time was higher for wives (136.62 hours) than for husbands (114.60 hours). The largest group of both husbands (37.70%) and wives (35.29%) devoted between 60 and 74 hours per week to personal maintenance.

Missing time was defined as time unaccounted for by the respondents as a matter of choice or through error. Of the 168 hours in the seven day period, respondents did not account for 30 hours or less of that time, as shown in Table 24. Less than one hour of time was not accounted for by over half of the respondents (56.42%). Mean missing time for male spouses was slightly higher than for female spouses (1.40 hours and 1.12 hours, respectively).

#### Summary of the Sample Description

Given that the 1980-81 Time Use Longitudinal Panel Study data collection was the second phase of a nationally representative longitudinal study, it is not surprising that the sample reflected middle age, middle class stability. This observation is supported by the respondents' age, educational levels, work habits, and economic stability.

Table 24

Missing Time of Respondents During Seven Days

Missing Time	Male Spouses N=374		Female Spouses N=374	
	N	x	N	x
No Time Reported	17	4.55	12	3.21
Less than 1 hr	199	53.21	223	59.63
1-14 hrs	44	11.76	41	10.96
15-29 hrs	10	2.67	7	1.87
Missing Response	104	27.81	91	24.33
Mean	$\bar{X} = 1.40$		$\bar{X} = 1.12$	
Range	0 - 28.85		0 - 29.50	

## CHAPTER V

### SPECIFICATION AND ANALYSIS OF THE MODEL

This study was designed to empirically test a systems model of management. An operational model (Figure 2) based on the systems approach to management as hypothesized by Maloch and Deacon (1966, 1970), Deacon and Firebaugh (1975, 1981), and Gross, Crandall, and Knoll (1973, 1980) was proposed. To empirically test the relationships suggested, data from the 1980-81 collection of the 1975-81 Time Use Longitudinal Panel Study were applied to the operational model. This chapter will present the findings associated with the accomplishment of the research objectives.

#### Objective I: Specification of the Model

The first objective of this research was to operationalize a systems model of management for empirical testing on the basis of theoretical and empirical considerations. Theoretical and empirical support for the model specification was presented in Chapter II. Additional empirical analysis was necessary to define throughput and output in the model. As described in Chapter III, principal components factor analysis was used to reduce the management and satisfaction items into distinct dimensions for inclusion in the model. With the model defined, regression analysis was used to test for specification bias of the model for subsequent evaluation. To facilitate discussion, findings from these sequential steps in the model development will be considered individually.

### Specification of Throughput

To provide a parsimonious description of management behavior, principal components factor analysis was performed on the 34 items. (Refer to Table 26 and Appendix A.) Varimax rotation was used to simplify the factor loadings structure and to increase interpretability. With Varimax, an orthogonal rotation, the factors remain uncorrelated, and the sum of the variance accounted for by the factors does not change.

Based on the eigenvalue-one criterion, the principal components factor analysis (Varimax rotation) resulted in a 13 factor solution which accounted for 69.20% of the total variance (Table 25). The results were considered for factor interpretability. In addition, Catell's scree test (1966) was applied to a scatterplot of the eigenvalues. On the basis of this initial analysis, both a five factor and an eight factor solution seemed appropriate. An additional factor analysis constrained to five factors produced results which were less interpretable, and which did not include items which loaded highly on the initial 13 factor structure. When the analysis was constrained to eight factors, the results were interpretable and a minimal number of items failed to have interpretable loadings on the rotated factors.

Consequently, the eight factor structure was chosen as the appropriate solution. As indicated in Table 25, this solution accounted for 51.61% of the total variance. The rotated factor loadings derived from this solution for the 34 management items are shown in Table 26. Factor loadings equal to or greater than .40 were

Table 25

Eigenvalues and Variance Explanation for Rotated  
Principal Components Factor Solutions for Throughput

Factor	Eigenvalue	13 Factors		8 Factors	
		Percent of Variance	Cumulative Percent of Variance	Percent of Variance	Cumulative Percent of Variance
1	3.924	11.54	11.54	22.36	22.36
2	2.587	7.61	19.15	14.75	37.11
3	2.141	6.30	25.45	12.21	49.32
4	1.991	5.86	31.31	11.35	60.67
5	1.976	5.82	37.13	11.28	71.95
6	1.796	5.28	42.41	10.23	82.18
7	1.597	4.70	47.11	9.11	91.29
8	1.531	4.50	51.61	8.72	100.01
9	1.376	4.05	55.66		
10	1.235	3.63	59.29		
11	1.212	3.56	62.17		
12	1.130	3.32	66.17		
13	1.031	3.03	69.20		

used in the dimension scale score construction as well as the labeling of the factors. To aid the reader, these factor loading patterns have been underlined in Table 26. The correlation matrix for the factor analysis items is shown in Table B-1 in Appendix B.

Items V6246 and V6247 were recoded as the "working wife (ww)" item to represent the spouses' responses about their decision making power regarding the wife's employment plans. This item did not load significantly on any factor. Yet, much attention has been focused on this issue. For this reason, a decision was made to include this single item dimension in the model. Consequently, the factors were labeled as follows:

- Factor I Household Maintenance
- Factor II Household Production Scheduling
- Factor III Household Food Production
- Factor IV Household Yard Work
- Factor V Individual Free Time Use
- Factor VI Household Financial Management
- Factor VII Preteen Child Care
- Factor VIII Decision Making Power
- Factor IX Decision Making Power Regarding the Wife's  
Employment

Each factor and the supporting item loadings will be briefly discussed. Refer to Appendix A for a complete statement of each item.

Household Maintenance. As shown in Table 26, two parallel sets of questions dealing with household laundry and cleaning were highly correlated with factor one. The first item in each set (V5159 and

Table 26

Throughput Factor Loadings for  
Rotated Principal Components Factor Matrix

Item Name#	Factors							
	1	2	3	4	5	6	7	8
V5156	.233	.128	<u>.699</u>	-.015	.292	-.016	.214	.212
V5157	.285	.102	<u>.651</u>	.023	.336	-.028	.223	.237
V5158	.140	<u>.602</u>	.261	-.054	.086	.043	.153	.100
V5159	<u>.847</u>	.046	.051	-.038	-.087	.035	-.038	.039
V5160	<u>.865</u>	.076	.021	.013	-.072	.034	-.052	.082
V5161	.176	<u>.699</u>	-.103	-.034	-.056	.034	-.202	-.109
V5162	<u>.602</u>	.075	.220	.065	-.075	-.106	.307	-.139
V5163	<u>.667</u>	.067	.163	.199	-.011	-.085	.230	-.082
V5164	.067	<u>.699</u>	.082	-.059	.118	-.038	-.006	.036
V5165	-.074	.114	.095	.032	.003	<u>.917</u>	.107	.053
V5166	-.024	.069	.059	.055	-.002	<u>.930</u>	.117	.051
V5167	.132	<u>.509</u>	-.118	-.063	-.031	.329	.093	.118
V5168	.002	.118	<u>.801</u>	-.020	-.157	.130	-.243	-.144
V5169	.080	.122	<u>.803</u>	.002	-.177	.111	-.201	-.140
V5170	-.046	<u>.665</u>	.077	.016	.017	-.003	.069	.024
V5171	.158	-.014	-.038	<u>.812</u>	.183	.060	-.072	-.110
V5172	.268	-.019	-.025	<u>.844</u>	.180	.062	-.101	-.008
V5173	-.105	<u>.571</u>	.177	.156	-.054	-.002	-.036	-.157
V5174	.074	.052	-.096	-.032	-.033	.089	<u>.793</u>	-.120
V5175	.125	-.053	-.027	.075	.050	.080	<u>.783</u>	.088
V6241	.036	-.110	.018	.089	-.211	-.015	-.062	<u>.460</u>
V6242	-.062	-.017	.036	.063	-.152	.035	-.008	<u>.476</u>
V6243	-.048	.078	-.053	.107	-.025	-.030	-.054	-.232
V6244	-.051	.060	.073	.081	-.207	-.186	.178	<u>.424</u>
V6245	-.008	.074	-.065	.003	-.061	-.244	.178	.174
V6292	.012	-.006	-.163	-.258	<u>.467</u>	.037	-.174	.326
V7069	-.090	.019	-.011	.012	<u>.708</u>	-.080	.045	-.103
V7070	-.103	.098	.077	.051	<u>.669</u>	.006	.014	-.101
V7071	-.014	-.036	.031	.037	<u>.433</u>	.054	-.012	-.056
V7099	-.036	.125	-.184	.064	.161	-.003	-.067	<u>.480</u>
V7100	-.063	.026	-.044	.050	.251	.073	-.245	<u>.401</u>
V7101	.096	-.073	-.015	<u>-.573</u>	.233	-.021	-.229	-.105
V7102	-.182	-.109	.041	<u>.431</u>	-.284	-.094	.104	.211
WW	.112	.115	-.023	-.147	-.083	.031	.153	.244

# See Appendix A for a statement of the item.

V5162) asked if the task was "almost always done by the same person, or by some other arrangement." The second item (V5160 and V5163) determined if the task was done by the same individual (male or female spouse), shared by the spouses, or diffused among one spouse and the children, one spouse and others, or simply others. The laundry items (V5159 and V5160) were more strongly correlated with factor one (.85, .86 respectively), than the cleaning items (V5162 and V5163, .60, .67 respectively).

Scheduling Household Tasks. Twenty of the management items dealt with household responsibility and scheduling for seven household production activities. For six of the tasks, respondents were asked if "there was a regular schedule for doing this? Is there a regular schedule for who does this or when it is done?". These six items were highly correlated with factor two. As shown in Table 26, the tasks and factor two were correlated as follows: V5161 laundry, .70; V5164 cleaning the house, .70; V5170 grocery shopping, .67; V5158 cooking dinner, .60; V5173 outdoor cleaning and yardwork, .57; and V5167 writing checks and keeping track of bills, .51.

Household Food Production. Four items associated with household food production loaded on factor three. Two items determined the person responsible for grocery shopping (V5169), and if this task was always done by this person or some other arrangement (V5168). Both items were highly correlated with this factor (.80). Similarly, item V5156 ascertaining the arrangement for cooking dinner (.70), and item V5157 determining the individual(s) responsible for cooking dinner (.65) correlated with this factor as shown in Table 26.

Household Yard Work. The two items assessing the arrangement (V5171) and individual responsibility (V5172) for outdoor cleaning and yard work were substantially correlated with factor four (.81 and .84, respectively). These two items were answered by all households, while only those with children age 18 or younger responded to the other two items loading on factor four. Item V7101 dealt with the level of discussion on decisions affecting the family, while Item V7102 asked who would make the decision. Correlations between these items and factor four equalled  $-.57$  and  $.43$ , respectively.

Kim and Mueller (1978) assert that signs on the factor loadings have no "intrinsic" meaning, however, opposite signs indicate that the items are related to the factor in opposite directions (p. 77). Given that the scales on these two items are opposites, the different signs are not unusual. For item V7101, the lower numbers indicate open family communication, while conversely for item V7102 shared decision making is on the higher end of the scale.

The interpretation of this factor is questionable. Given the influence of the latter two items, one could assume that the yard work items were related not to a task dimension, but to a dimension related to household organizational style. Consequently the arrangement and responsibility for outdoor tasks may relate to a household communication/decision making style that ranges from egalitarian to domination by one individual.

Interpretation of this factor was further complicated by the low response rate to items V7101 and V7102 which yielded the initial factor analysis results unstable. Therefore, the decision was made to drop

these items from further modeling. Consequently, factor four was based only on the yard work doublet.

Individual Free Time Use. Of the four items loading on factor five, three related to free time use, while the fourth related to marital communication. As illustrated in Table 26, V7069 was the item most highly correlated with this factor (.71), followed by item V7070 (.67). These two items dealt with advance planning for free time on the weekend and during the week, respectively. Item V6292 assessing how often the couple would sit and talk with one another had a slightly stronger correlation (.47) with this factor than item V7071 (.43) which assessed how much of the respondent's free time was spent "doing what you'd really like to be doing." Because couples were the focus of this study, it can be assumed that some, if not all, leisure activities would involve the couple, and therefore communication would be a necessary component of this joint planning.

Household Financial Management. The two items assessing the arrangement (V5165) and responsibility (V5166) for "writing checks and keeping track of bills" were strongly correlated with factor six, .92 and .93 respectively. Because of this doublet, this factor was labeled "household financial management."

Preteen Child Care. Another doublet assessing the arrangement and responsibility for care of preteen children in the household loaded on factor seven. V5174 ascertaining the arrangement for child care, and V5175 assessing whether the responsibility was handled by one spouse, shared by the spouses, or diffused among the family or others were equally correlated with this factor, .79 and .78 respectively. Because

only those households with children age 12 or younger responded to this item, it represented only a segment of the sample. For this reason the decision was made to eliminate the factor from further modeling.

Decision Making Power. Five items loaded on factor eight which was labeled "decision making power." Item V7099 assessing the number of family rules in households with children age 18 or younger had the strongest correlation with this factor (.48), as shown in Table 26. Three of the items asked "who has more say in your family" about which relatives to see (V6242, .48), which couples are seen most often (V6241, .46), and how often the couple goes out for an evening (V6244, .42). Item V7100, which also was directed to households with children age 18 or younger, ascertained if the parents were strict about rule enforcement (.40).

Decision Making Power Regarding Wife's Employment. This was a single item dimension based on responses by each spouse to the "working wife" item created from two separate items. The "working wife" item did not significantly load on any factor; the single dimension factor score was arbitrarily included.

Based on the described item loadings on each of the eight factors, dimension scale scores were created for each individual. Since only items with loadings of .40 or more were included, the dimension scale scores were based on from two to six items. This did not apply to the "working wife" dimension scale score which was calculated on the basis of a single item. The resulting management dimension scores for each individual were entered as throughput in the subsequent analysis of the model.

### Specification of Output

Nineteen satisfaction items, including the two averages for "standard of living" and "job," were analyzed using principal components factor analysis. (Refer to Table 28 and Appendix A.) Varimax rotation was used to simplify the factor loadings structure and to increase interpretability. On the basis of the eigenvalue-one criterion, the rotated principal components factor analysis resulted in a five factor solution which accounted for 65.23% of the total variance (Table 27).

The factors were studied for interpretability. In addition, Catell's scree test (1966) was applied to a scatterplot of the eigenvalues. On the basis of the eigenvalue-one criterion, a five factor solution was considered. However, the scree test as well as the interpretability of the five factor solution suggested that six and seven factor solutions should be considered. Both solutions were considered; the seven factor solution resulted in clearly interpretable factors, as well as an increase in the variance explanation over that of the five factor solution.

The seven factor solution accounted for 73.47% of the total variance, as shown in Table 27. Table 28 illustrates the rotated factor loadings derived from this solution for the 19 satisfaction items. Substantial factor loadings equal to or greater than .45 were included in the dimension scale score construction, as well as the labeling of the factors. To aid the reader, these factor loading patterns have been underlined in Table 28. The factors were labeled as follows:

Table 27

Eigenvalues and Variance Explanation for Rotated  
Principal Components Factor Solutions for Output

Factor	Eigenvalue	19 Factors		7 Factors	
		Percent of Variance	Cumulative Percent of Variance	Percent of Variance	Cumulative Percent of Variance
1	5.730	30.16	30.16	41.05	41.05
2	2.274	11.97	42.13	16.29	57.34
3	1.892	9.96	52.09	13.56	70.90
4	1.394	7.34	59.43	9.99	80.89
5	1.102	5.80	65.23	7.89	88.78
6	.817	4.30	69.53	5.85	94.63
7	.749	3.94	73.47	5.36	99.99

Table 28

Output Factor Loadings for Rotated Principal Components Factor Matrix

Item Name#	Factors						
	1	2	3	4	5	6	7
V6068	-.034	<u>.802</u>	-.049	-.012	.284	-.022	.017
V6070	-.016	<u>.846</u>	.084	.134	.048	-.044	.042
V7072	-.191	.088	.009	<u>.773</u>	.311	.023	-.088
V7073	-.244	.061	.152	<u>.811</u>	.087	-.089	.058
V7074	-.093	.033	<u>.898</u>	.001	.116	-.037	.064
V7075	-.045	.023	<u>.867</u>	.099	.138	.021	-.004
V7076	-.100	.024	<u>.718</u>	.338	-.282	-.069	-.106
V7077	-.099	.061	.122	.209	<u>.765</u>	-.064	.012
V7078	.031	.386	-.025	.155	<u>.715</u>	-.055	-.150
V7079	-.170	.186	.243	<u>.565</u>	.029	-.235	-.133
V8069	.213	-.126	.007	-.078	-.102	.125	<u>.927</u>
V8070	<u>.576</u>	-.024	-.038	.011	-.421	.241	.116
V8072	<u>.793</u>	-.153	-.163	-.282	.114	.071	.101
V8073	<u>.833</u>	-.126	-.073	-.250	-.002	.192	.095
V8074	<u>.795</u>	-.058	-.037	-.147	-.069	.199	.050
V8075	.255	-.069	-.002	-.117	-.048	<u>.879</u>	.032
V8076	.442	-.179	-.078	-.111	-.135	<u>.657</u>	.191
SDL	-.374	<u>.651</u>	-.030	.128	.340	-.163	-.068
JOB	-.228	<u>.562</u>	.122	.130	-.315	-.117	-.224

# See Appendix A for a statement of the item.

Factor I	Satisfaction with Personal Belongingness
Factor II	Satisfaction with Economic Status
Factor III	Satisfaction with Family
Factor IV	Satisfaction with Household Production
Factor V	Satisfaction with Personal Autonomy
Factor VI	Satisfaction with Self-esteem
Factor VII	Satisfaction with Educational Attainment

Each factor and the supporting item loadings will be briefly discussed. Refer to Appendix A for a complete statement of the items. The correlation matrix for the factor analysis items is shown in Table B-2 in Appendix B.

Satisfaction with Personal Belongingness. Four items which relate to the concept of individual belongingness were correlated with factor one. Note from Table 28 that item V8073 had the strongest correlation (.83), followed closely by items V8074 (.79) and V8072 (.79). Item V8073 ascertained personal satisfaction with friends, while the other two items assessed satisfaction with neighbors (V8074) and family (V8072). The final item (V8070) loading on this factor determined satisfaction with free time activities. Because free time activities often revolve around family, friends, and neighbors, it is not unusual that satisfaction with these aspects of one's life relate to personal belongingness.

Satisfaction with Economic Status. The two items determining satisfaction with "standard of living" and "job," which resulted from the mean of two repetitive items (V6069 and V8068, V6071 and V8071, respectively), loaded with two other items on this factor. Item V6070 ascertaining satisfaction with "the extent to which you are achieving

success and getting ahead" was strongly correlated with this factor (.85), as was item V6068 assessing satisfaction with family income (.80). Given that self worth is often measured in economic terms, it is not surprising that success, income, job, and standard of living combined into a single dimension.

Satisfaction with Family. The three items loading on this factor were applicable only to households with children age 18 or younger. These items assessed personal satisfaction with the amount of time spent with children (V7074, .90), the amount of time the whole family spent together (V7075, .87), and the success of the children (V7076, .72).

Satisfaction with Household Production. As illustrated in Table 28, three items loaded substantially on factor four. Labeled as "satisfaction with household production," the items inquired about personal satisfaction with the main meal of the day (V7073, .81), the usual cleanliness of the home (V7072, .77), and personal "health and energy -- to do the things you want to do" (V7079, .56). Each of these items relate to the ability to maintain a stable and secure environment.

Satisfaction with Personal Autonomy. The ability to control one's life is often determined by available free time and money. Items V7077 and V7078 ascertaining personal satisfaction with the "amount of free time you have to do the things you want to do," and the "amount of money you have to do the things you want to do" were strongly correlated with factor five (.77 and .71, respectively). Thus, this factor was labeled "satisfaction with personal autonomy."

Satisfaction with Self-esteem. Another doublet determined factor six which was identified as "satisfaction with self-esteem." These items assessed personal satisfaction with club and organization participation (V8075, .88), as well as social position within the community (V8076, .66). For many people, such social recognition contributes to the need for personal self-esteem.

Satisfaction with Educational Attainment. Factor seven is based on a single item which loaded strongly (.93) on this factor. As shown in Table 28, item V8069 determining satisfaction with the "amount of education you have received" was the only item correlated with this factor.

Dimension scale scores were calculated for each individual for each of the seven factors. An additional score was calculated from the average of the two items assessing satisfaction with "life as a whole." The resulting eight dependent variables were the basis of the subsequent model analysis.

#### Testing the Model for Specification Bias

With the factor analysis complete for the management and satisfaction items, the specification of the systems model of household management could be finalized. As shown in Table 29, the model specification was based on variables representing the individual, the household, and the spouse. However, the question of specification bias in the model remained unanswered. Application of regression analysis and the calculation of F ratios to test for significantly improved explanation was necessary to confirm the specification of the model for

Table 29

Systems Model of Family Resource Management Variables-----  
Input Variables  
-----DemandsIndividual:  
(Husband & Wife)

Household:

Work time

Age of youngest child  
Maximum household sizeResourcesIndividual:  
(Husband & Wife)

Household:

Age  
Education  
Personal Maintenance  
Time  
Nonwork Time  
Household Work Time  
1980 IncomePaid Help  
1980 Total Family Income  
Net Worth  
Equipment/Technology  
Housing Tenure-----  
Throughput Variables  
-----Individual:  
(Husband & Wife)Household Maintenance Dimension Score  
Household Production Dimension Score  
Household Food Production Dimension Score  
Household Yard Work Dimension Score  
Individual Free Time Use Dimension Score  
Household Financial Management Dimension Score  
Preteen Child Care Dimension Score (OMITTED)  
Decision Making Power Dimension Score  
Decision Making Power: Wife's Employment Plans Dimension Score

Table 29 (Continued)

---

**Output Variables**

---

**Individual:  
(Husband and Wife)**

**Satisfaction with Personal Belongingness Dimension Score**  
**Satisfaction with Economic Status Dimension Score**  
**Satisfaction with Family Dimension Score**  
**Satisfaction with Household Production Dimension Score**  
**Satisfaction with Personal Autonomy Dimension Score**  
**Satisfaction with Self-esteem Dimension Score**  
**Satisfaction with Educational Attainment Dimension Score**  
**Satisfaction with Life Dimension Score**

---

subsequent analysis.

To control for specification bias, it was necessary to compare a formulation of the model based on individual, household, and spouse variables, with another formulation based only on individual and household variables. Both husband and wife share the same household characteristics, however there were distinct individual input and throughput variables. The prediction of output based on the full model, or the predictor variables of the household, individual, and spouse was represented by the following regression equation:

$$Y_{8i} = a + bI_{7h} + bI_{7i} + bI_{7s} + bT_{8i} + bT_{8s}$$

where

$Y_{8i}$  = Output defined as eight satisfaction dimension scores for the individual

$a$  = Constant

$b$  = Regression coefficient

$I_{7h}$  = Seven household input variables in the model

$I_{7i}$  = Seven individual input variables in the model

$I_{7s}$  = Seven spouse input variables in the model

$T_{8i}$  = Eight individual throughput factor scores in the model

$T_{8s}$  = Eight spouse throughput factor scores in the model

This formulation of the model included all variables in the model specification (Table 29). However, the alternate formulation, where only the predictor variables for the household and the individual were considered, was represented by the following regression equation:

$$Y_{8i} = a + bI_{7h} + bI_{7i} + bT_{8i}$$

where

$Y_{8i}$  = Output defined as eight satisfaction factor scores for the individual

$a$  = Constant

$b$  = Regression coefficient

$I_{7h}$  = Seven household input variables in the model

$I_{7i}$  = Seven individual input variables in the model

$T_{8i}$  = Eight individual throughput factor scores in the model

The latter equation, which includes fewer variables, is referred to as the restricted equation. Using both equations, the eight criterion variables for the husband and wife were regressed on the full and restricted models using a backward stepwise elimination procedure. This resulted in 32 equations; 16 equations were calculated for the wife and 16 were calculated for the husband.

Note from Table 30 the squared multiple correlations, or  $R^2$ , for the restricted and full models, as well as the associated degrees of freedom for each of the eight criterion variable pairs for the male and female spouses. The F ratios, degrees of freedom, and probability that the full model was superior to the restricted model also is shown in Table 30.

For four of the 16 equation pairs, the full model resulted in an increase in the variance explanation over the restricted model, given the same number of independent variables in both equations. Although the increase in the variance explanation was not substantively large,

Table 30

F Ratios of Differences Between R<sup>2</sup>S for Restricted and Full Models for Testing the Marginal Value of the Spouse's Predictor Variables

Criterion Variables	Restricted Model #		Full Model ##		F	df
	R <sup>2</sup>	df	R <sup>2</sup>	df		
<b>Husbands' Satisfaction With:</b>						
Belongingness	.0127	1, 242	.0260	1, 235	--	--
Economic Status	.2197	4, 239	.2300	6, 231	3.099	1, 231**
Family	.2714	4, 239	.2714	4, 232	a	--
Household Production	.1189	4, 239	.1309	5, 231	3.197	1, 231**
Personal Autonomy	.2276	7, 236	.2434	8, 228	4.752	1, 228***
Self-esteem	.0958	4, 239	.1083	4, 232	a	--
Educational Attainment	.1810	7, 236	.1478	3, 233	--	--
Life	.1200	7, 236	.1387	7, 229	a	--
<b>Wives' Satisfaction With:</b>						
Belongingness	.0926	4, 245	.1167	7, 229	2.081	3, 229**
Economic Status	.1601	6, 243	.1321	3, 233	--	--
Family	.2542	3, 246	.2542	3, 233	--	--
Household Production	.1479	6, 243	.2137	11, 225	3.767	5, 225****
Personal Autonomy	.3008	6, 243	.3049	6, 230	a	--
Self-esteem	.0969	4, 245	.1025	5, 231	1.450	1, 231*
Educational Attainment	.1584	3, 246	.1891	5, 231	4.371	2, 231***
Life	.1545	3, 246	.1944	9, 227	1.876	6, 227**

#Individual and household predictor variables

##Individual, household, and spouse predictor variables

a Full model has higher R<sup>2</sup> with same degrees of freedom

\* p < .25

\*\* p < .10

\*\*\* p < .05

\*\*\*\* p < .01

an absolute gain did occur. Furthermore, this gain occurred given the same number of variables in the final equations after the backward stepwise elimination. Consequently, the decision was made that in fact the full model was superior to the restricted model for these four equation pairs. Inclusion of the individual, household, and spouse variables did improve the explanation of variance in the satisfaction variables over the equations which omitted the spouse variables.

For eight of the remaining 12 equation pairs, the F ratio indicated that the full model was statistically superior to the restricted model with a probability of .25 or less. For seven of the eight models, the probability of the F ratio equalled .10 or less.

The prediction of satisfaction remained constant, regardless of the set of predictor variables included, for two of the remaining four equation pairs. Although the full model did not increase the explanation of variance, neither did it reduce the variance explanation. In only two equation pairs, satisfaction with educational attainment for the husbands and satisfaction with economic status for the wives, did the explanation of variance decline with the full model over the restricted model.

In conclusion, of the 16 equation pairs for which the squared multiple correlations were compared, the full model increased the explanation of variance over the restricted model for 12 of the equation pairs. For eight of the 12 equations, the increase was statistically significant ( $p < \text{or} = .25$ ), while for the other four an absolute gain did occur. Based on this analysis, the full model including the individual, household, and spouse variables was judged

superior to the restricted model. Consequently, all subsequent analysis of the systems model of management was based on full models. In other words, these findings suggest that future modeling efforts for couples should include input and throughput variables representative of the individual, the spouse, and any shared household variables.

#### Summary of the Findings Related to Model Specification

In an effort to operationalize the systems model of family resource management, preliminary empirical analysis was necessary. Results of the principal components analysis yielded an eight factor solution. Because the factor labeled "preteen child care" represented a small segment of the sample, this factor was eliminated from further modeling. The item assessing decision making power regarding the wife's employment did not load significantly on any factor. Because of interest in this issue, the decision was made to include this single item dimension. Consequently, eight dimension scale scores were calculated for each individual and entered the model as throughput.

Principal components analysis of the 19 satisfaction items yielded a seven factor solution representing satisfaction with various intrinsic and extrinsic aspects of life. Dimension scale scores were calculated for the husband and wife and entered the model as the dependent variables. Another scale score was calculated from the average of two items assessing "satisfaction with life." This resulted in a total of eight dependent variables for both male and female spouses.

Multiple regression analyses and calculation of F ratios were used

to determine the marginal value of the spouse's input and throughput variables in the prediction of output for the other spouse. Results supported the inclusion of input and throughput variables for both spouses in the model when predicting satisfaction for one spouse. Because of the interrelationships among the resources, demands, and managerial behavior of the individual, spouse, and household, this result is not surprising.

Consequently, the systems model of family resource management was operationalized to include the components of input and throughput for both spouses in the prediction of output for one spouse. This model was subsequently analyzed for the relative individual effects of the predictors, as well as the causal relationships among the input, throughput, and output variables.

#### Objective II: The Relative Effects of the Predictor Variables

Given the finalized specification of the model which resulted from Objective I, the purpose of Objective II was to further evaluate that model using regression analysis to test the marginal value of throughput to contribute to the ability of input to explain output. A secondary purpose of Objective II was to use the results of the regression analysis to consider the relative individual effects of the input and throughput variables to explain output.

Testing the Marginal Value of Throughput

The testing of the marginal value of throughput was based on the application of regression analysis to full and restricted models and the calculation of F ratios. The prediction of output based on the restricted model was represented by the following regression equation:

$$Y_{8i} = a + bI_{7h} + bI_{7i} + bI_{7s}$$

where:

$Y_{8i}$  = Output defined as eight satisfaction dimension scores  
for the individual

$a$  = Constant

$b$  = Regression coefficient

$I_{7h}$  = Seven household input variables in the model

$I_{7i}$  = Seven individual input variables in the model

$I_{7s}$  = Seven spouse input variables in the model

The alternate formulation, or full model, predicted output on the basis of input and throughput. This model was represented by the following regression equation:

$$Y_{8i} = a + bI_{7h} + bI_{7i} + bI_{7s} + bT_{8i} + bT_{8s}$$

where:

$Y_{8i}$  = Output defined as eight satisfaction dimension scores  
for the individual

$a$  = Constant

$b$  = Regression coefficient

$I_{7h}$  = Seven household input variables in the model

- I<sub>7i</sub> = Seven individual input variables in the model  
 I<sub>7s</sub> = Seven spouse input variables in the model  
 T<sub>8i</sub> = Eight individual throughput variables in the model  
 T<sub>8s</sub> = Eight spouse throughput variables in the model

Using both equations, the eight criterion variables for the husband and the wife were regressed on the restricted and the full models using a backward stepwise elimination procedure. This resulted in 32 equations; 16 equations were calculated for the husband and 16 equations were calculated for the wife. F ratios were calculated for each pair of equations for each criterion variable for the male and female spouses.

Table 31 contains the squared multiple correlations, or  $R^2$ , for the restricted and full models, as well as the associated degrees of freedom for each criterion variable. The F ratios, degrees of freedom, and probability that the full model was superior to the restricted model also is shown in Table 31. For 14 of the 16 equation pairs, the F ratio indicated that the full model was statistically superior to the restricted model, with a probability of .10 or less. For 10 of those 14 equations, the probability of the F ratio equalled .01 or less. For the two remaining equation pairs, the full model resulted in a lower  $R^2$  than for the restricted model. (See the models for husbands' satisfaction with educational attainment and wives' satisfaction with economic status in Table 31.)

Based on this analysis, the full model including input and throughput was judged superior to the restricted model which excluded throughput. These findings support the systems approach to management,

Table 31

F Ratios of Differences Between R<sup>2</sup> for Restricted and Full Models for Testing the Marginal Value of Throughput

Criterion Variables	Restricted Model#		Full Model##		F	df
	R <sup>2</sup>	df	R <sup>2</sup>	df		
<b>Husbands' Satisfaction</b>						
With:						
Belongingness	.0	0, 243	.0260	1, 235	6.261	1, 235**
Economic Status	.1741	1, 242	.2300	5, 231	4.192	4, 231***
Family Household	.2355	1, 242	.2714	4, 232	3.810	3, 232**
Production	.0726	4, 239	.1309	5, 231	15.496	1, 231***
Personal						
Autonomy	.1806	5, 238	.2434	8, 228	6.308	3, 228***
Self-esteem	.0614	2, 241	.1083	4, 232	6.096	2, 232***
Educational						
Attainment	.1713	6, 237	.1478	3, 233	--	--
Life	.0719	2, 241	.1387	7, 229	3.552	5, 229***
<b>Wives' Satisfaction</b>						
With:						
Belongingness	.0218	1, 242	.1167	7, 229	4.10	6, 229***
Economic Status	.1416	5, 238	.1321	3, 233	--	---
Family Household	.2419	2, 241	.2542	3, 233	3.852	1, 233*
Production	.0510	3, 240	.2137	11, 225	5.821	8, 225***
Personal						
Autonomy	.2622	5, 238	.3049	6, 230	14.112	1, 230***
Self-esteem	.0615	4, 239	.1025	5, 231	10.566	1, 231***
Educational						
Attainment	.1784	4, 239	.1891	5, 231	3.031	1, 231*
Life	.0711	6, 237	.1944	9, 227	11.586	3, 227***

#Individual, spouse, and household input variables.

##Individual, spouse, and household input variables and individual and spouse throughput variables.

\*p<.10

\*\*p<.05

\*\*\*p<.01

since the inclusion of throughput, as measured to represent management, improved the explanation of variance in the prediction of output. This was true when output was defined as individual satisfaction with various aspects of life.

#### The Explanation of Satisfaction: The Relative Effects of Input and Throughput

A secondary component of Objective II was to explore the relative individual effects of the independent variables in the prediction of output. Based on preliminary analysis, the full model including input and throughput for the husband and the wife, was determined to be the statistically superior specification of the model for the systems approach to management. Using this model, each of the eight dependent variables measuring satisfaction with some aspect of life were regressed on seven household variables, seven individual variables for both the husband and the wife, and eight managerial variables for both the husband and the wife. This resulted in 37 predictor variables in each model equation; 21 of the variables represented input while 16 represented throughput.

The eight dependent variables were based on the dimension scores generated for each spouse. The factors were identified as satisfaction with personal belongingness, economic status, family, household production, personal autonomy, self-esteem, educational attainment, and life. The mean and standard deviation for these variables are shown in Table 32.

The 21 input variables represented shared household variables, as

Table 32

Mean and Standard Deviation for Criterion Variables in the Regression Models

Criterion Variable (Scale Information)	Male Spouses N=374		Female Spouses N=374	
	$\bar{X}$	s	$\bar{X}$	s
-----				
Satisfaction with:				
Personal Belongingness (4 items; 1=satisfaction, 7=dissatisfaction)	2.97	1.17	2.98	1.19
Economic Status (4 items; 1=dissatisfaction, 7=satisfaction)	3.94	0.42	4.05	0.49
Family (3 items; 1=dissatisfaction, 10=satisfaction)	5.89	1.46	6.03	1.51
Household Production (3 items; 1=dissatisfaction, 10=satisfaction)	7.92	1.71	6.65	1.53
Personal Autonomy (2 items; 1=dissatisfaction, 10=satisfaction)	5.64	1.84	5.66	1.97
Self-esteem (2 items; 1=satisfaction, 7=dissatisfaction)	3.35	1.11	3.31	1.22
Educational Attainment (1 item; 1=satisfaction, 7=dissatisfaction)	3.34	1.41	3.65	1.56
Life (1 item; 1=satisfaction, 7=dissatisfaction)	2.68	0.96	2.69	0.99
-----				

well as individual variables. Household variables included the maximum household size during the year; the age of the youngest child present in the household; 1980 total family income before taxes and other deductions; net worth status; items of household technology used for household tasks, yard work, and entertainment; the incidence of paid help for household and yard work, other than child care; and housing tenure. All of these variables were measured on a continuous scale except for housing tenure. This categorical variable was dummy coded for inclusion in the models (own: no=0, yes=1; rent: no=0, yes=1; omitted category: neither rents or owns). The mean and standard deviation for these variables are shown in Table 33.

Input variables entered for each spouse included age, education, and 1980 personal income before taxes and other deductions. Additionally, the four time classifications of work time, personal maintenance time, household work time, and nonwork time entered the equations for both husbands and wives. These seven variables were each measured on a continuous scale. The mean and standard deviation for these variables are shown in Table 34.

The 21 input variables represented the individual and the household as well as demands and resources. The resources could be classified as both human and material.

The throughput variables included managerial activities related to household maintenance, household production scheduling, household food production, household yard work, household financial management, decision making power, decision power related to the wife's plans to be employed outside the home, and individual use of free time. Dimension

Table 33

Mean and Standard Deviation for Household Input Predictor Variables,  
Excluding Housing Tenure

Variable	$\bar{X}$	s	N
(Scale)			
Maximum Household Size during the year (2-11)	3.62	1.52	374
Age of Youngest Child (1-19)	12.49	6.68	374
1980 Total Family Income (0-99,995+)	\$31,463	\$18,584	323
Net Worth Status (1=positive, 3=negative)	1.12	0.40	368
Household Technology (0-25)	17.09	3.07	330
Incidence of Paid Help (1=none, 4=regular and occasional help)	1.48	0.85	299

Table 34

Mean and Standard Deviation for Individual Input Predictor Variables

Variable (Units of Measurement)	Male Spouses			Female Spouses		
	- X	s	# N	- X	s	# N
Age (Years)	47.23	14.42	374	44.25	13.75	374
Education (Years)	13.20	3.41	373	12.57	2.59	374
Work Time (Minutes Per Week)	2456.57	1271.85	270	1161.22	1194.18	283
Personal Maintenance Time (Minutes Per Week)	4384.99	646.65	270	4473.93	658.70	283
Household Work Time (Minutes Per Week)	922.98	622.18	270	2142.91	941.69	283
Nonwork Time (Minutes Per Week)	2231.26	923.72	270	2234.81	815.71	283

#

Variation in N due to missing responses.

scores for each of these eight factors entered the equations for both spouses. The mean and standard deviation for these factors are shown in Table 35.

The criterion variables were regressed on the predictor variables using a backward stepwise elimination procedure. With this procedure, all independent variables initially enter the equation. In sequential steps, independent variables are removed and the equation is re-estimated until all variables that do not significantly contribute to the explanation of variance are removed. This procedure provides an examination of all variables of interest, but includes only those that significantly contribute to variance explanation in the final equation (Hair, Anderson, Tatham, and Grablovsky, 1979).

The final regression equation for each of the dependent variables will be considered. Correlation matrices for the relationships among the independent variables (Table B-3) and the relationships among the independent and dependent variables (Table B-4) are shown in Appendix B. Discussion of each satisfaction variable will consider the equations for both the husbands and the wives.

Discussion will focus on the unstandardized and the standardized regression coefficients. Unstandardized regression coefficients, or  $b$ 's, reflect the change in the criterion variable given a one unit change in the predictor variable, with all other predictor variables held constant. When the same predictor variable(s) are significant for the dependent variable models for the husband and the wife, the regression coefficients can be compared to determine their relative magnitude. Comparison of the standardized coefficients, or betas,

Table 35

Mean and Standard Deviation for Throughput Predictor Variables in the Regression Models

Predictor Variable (Scale Information)	Male Spouses			Female Spouses		
	X	s	#	X	s	#
Household Maintenance (4 items; 1=1 person responsible, 3= shared responsibility)	1.62	0.67	371	1.62	0.67	371
Household Production Scheduling (6 items; 1=regular schedule, 5=no regular schedule)	3.00	1.25	363	3.00	1.25	363
Household Food Production (4 items; 1=1 person responsible, 3= shared responsibility)	1.46	0.58	370	1.46	0.58	370
Household Yard Work (2 items; 1=1 person responsible, 3= shared responsibility)	1.95	0.89	364	1.95	0.89	364
Individual Free Time (4 items; 1=couple talk often, almost always plan free time, all of free time spent as you like it; 4/5= couple never talk, almost never plan free time, none of free time spent as you like it)	2.58	0.57	273	2.64	0.63	283

#  
Variation in N due to missing responses.

Table 35 (continued)

Predictor Variable (Scale Information)	Male Spouses			Female Spouses		
	X	s	#	X	s	#
Household Financial Management (2 items; 1=1 person responsible, 3=shared responsibility)	1.33	0.62	370	1.33	0.62	370
Decision Making Power (5 items; 1=husband almost always decides; many strictly enforced family rules, 5=wife almost always decides, few unenforced rules)	3.12	0.68	298	3.02	0.67	303
Decision Making Power: Wife's Plans for Employment (1 item; 1=husband almost always decides, 5=wife almost always decides)	3.91	1.13	290	3.86	1.15	294

#  
Variation in N due to missing responses.

yields information on the relative magnitude of the influence of the predictor variables within an equation. In other words, the beta (B) reflects the average standard deviation change in the criterion variable given a change of one standard deviation in the predictor variable, with all other predictor variables held constant.

Satisfaction with Personal Belongingness. For the husbands, the regression of satisfaction with personal belongingness on the predictor variables yielded an  $R^2$  of .0260 which was statistically significant at the .05 level (Table 36). Although statistically significant, this simple regression had little substantive meaning. Less than three percent of the variance in the husbands' satisfaction with personal belongingness could be explained by the linear combination of the predictor variables.

Only one predictor, managerial activities related to the individual free time use of the wife, significantly contributed to the prediction of the husbands' satisfaction with personal belongingness. The individual free time use factor reflected advance planning for free time use as well as marital communication. This throughput variable was positively related to the husbands' satisfaction as well as the satisfaction of the wives'.

The individual free time use factor is, in effect, reverse scaled, i.e. high planning, communication, and satisfaction with free time use equals one. The dimension scale score for satisfaction with personal belongingness is similarly scaled: one represented satisfaction, while seven represented dissatisfaction. The positive relationship between individual free time use of the wife and husbands' and wives'

Table 36

Results of Output, Defined as Satisfaction  
With Personal Belongingness, Regressed on Input and Throughput

Criterion Variables	Predictor Variables	b	B	t	R <sup>2</sup>	F
Husbands' Satisfaction With Personal Belongingness					.0260	6.261*
	Free Time Use, Wife	.2985	.1611	2.502*		
Wives' Satisfaction With Personal Belongingness					.1167	4.321***
	Work Time, Husband	3.723E-04#	.1943	2.106*		
	Individual Free Time Use, Wife	.4623	.2448	3.838***		
	Nonwork Time, Husband	3.207E-04#	.2485	2.147*		
	Nonwork Time, Wife	-1.705E-04#	-.1167	-1.736		
	Age of Youngest Child	.0252	.1412	2.012*		
	Own Home	-.5121	-.1300	-2.036*		
	Work Time, Husband	2.940E-04	.3137	2.378*		

# Scientific notation: move the decimal to the left as noted.

\*  $p < .05$

\*\*  $p < .01$

\*\*\*  $p < .001$

satisfaction suggests that the amount of free time planning, marital communication, and satisfaction with free time use as reported by the wife is directly related to satisfaction with personal belongingness for both spouses. This relationship supports management theory. Comparison of the regression coefficients, however, indicated a stronger influence of this variable on the wives' reported satisfaction than on the husbands' (.46 and .30, respectively).

An  $R^2$  of .1167 indicated that slightly more than 10% of the variance in the wives' satisfaction with personal belongingness was attributable to this linear combination of variables. With an F value of 4.321, the  $R^2$  was considered statistically significant at the .05 level. Six other predictor variables in addition to individual free time use of the wife were considered statistically significant ( $p < \text{or} = .10$ ) in the prediction of the wives' satisfaction with personal belongingness (Table 36).

Nonwork time of the wife and home ownership (no = 0; yes = 1) both had essentially the same negative effect on the prediction of satisfaction with personal belongingness. Given the scaling on the satisfaction with personal belongingness dimension scale (1=satisfaction), the results suggest that home ownership would increase wives' satisfaction with personal belongingness. The inverse relationship between nonwork time of the wife and satisfaction with personal belongingness implies that satisfaction of the wife would increase with increases in her nonwork time. Given that the personal belongingness factor represented individual satisfaction with friends, family, neighbors, and free time activities, this relationship might

have been expected. Both variables represented input; nonwork time of the wife was identified as an individual variable, while home ownership was a household characteristic.

Age of youngest child, husband's household work time, nonwork time, and work time each had a significantly stronger effect on the prediction of wives' satisfaction with personal belongingness. However, the interpretation of these relationships suggests that an increase in the husband's household work time, nonwork time, and work time as well as an increase in the age of the younger child would be associated with decreasing satisfaction with personal belongingness (7=dissatisfaction) for the wife. Comparison of the beta coefficients indicated that the effect of the work time of the husband on this criterion variable was two times that of age of the youngest child. The former was classified as an individual input variable, while the latter was a household characteristic.

It is interesting that the wives' satisfaction with personal belongingness was directly reflected in the husbands' activities vis-a-vis the husbands' time use. It is curious that increasing the involvement of the husband in household work would decrease the wife's satisfaction with personal belongingness. The inverse relationship between the husband's nonwork and work activities and the wife's satisfaction with personal belongingness might be expected, especially if the husband's nonwork activities do not involve the wife.

Satisfaction with Economic Status. The linear combination of predictor variables explained 23% of the variance in husbands' satisfaction with economic status. The  $R^2$  of .2300 was statistically

significant at or beyond the the .001 level (Table 37). Both input and throughput variables were significant predictors of husbands' satisfaction with economic status (1= dissatisfaction, 7=satisfaction).

Two input variables remained in the equation as significant predictors. Total family income represented a material resource as an input to the family system, while the incidence of paid help represented an input of human resources. Income had a strong positive effect on husbands' economic satisfaction; paid help was inversely related to husbands' satisfaction with economic status. This relationship suggests that the infusion of someone else's human resources, in return for material resources (payment), actually decreased the husbands' satisfaction with economic status. This payment, in effect, reduces the husband's wealth, which might explain the associated decline in satisfaction with economic status.

The regression coefficients shown in Table 37 indicate a negative influence of the throughput variables on husbands' satisfaction with economic status. However, these effects must be considered relative to the scales on the individual variables.

The decision making power of the husband had the strongest negative effect of the three throughput variables. A household in which the wife has decision making power and there are few, leniently enforced, household rules would decrease the husband's satisfaction with economic status. Conversely, an increase in the husbands' decision making power would be expected to increase his satisfaction with economic status.

An increase in the husbands' and wives' reported planning of

Table 37

Results of Output, Defined as Satisfaction with Economic Status, Regressed on Input and Throughput

Criterion Variables	Predictor Variables	b	B	t	R <sup>2</sup>	F
Husbands' Satisfaction With Economic Status					.2300	13.801***
	Decision making power, husband	-.1762	-.1278	-2.191*		
	Individual free time use, wife	-.1615	-.1083	-1.760		
	Paid household help	-.1173	-.1062	-1.736		
	Individual free time use, husband	-.1838	-.1108	-1.834		
	Family income	2.254E-05#	.4449	7.115***		
Wives' Satisfaction With Economic Status					.1321	11.823***
	Individual free time use, wife	-.2360	-.1741	-2.788**		
	Equipment/Technology	.0332	.1191	1.789		
	Family Income	1.051E-05	.2281	3.366***		

#Scientific notation: move the decimal to the left as noted.

\* p < .05

\*\* p < .01

\*\*\* p < .001

individual free time use and marital communication would be associated with an increase in the husbands' satisfaction with economic status. This variable, whether associated with the husband or the wife, had an almost equal effect on the husbands' satisfaction.

Both input and throughput variables remained in the equation for the prediction of the wives' satisfaction with economic status. An  $R^2$  of .1321 with an F value of 11.823 was considered statistically significant at or beyond the .001 level for the wives (Table 37). The linear combination of the three predictor variables explained slightly more than 13% of the variance in reported satisfaction with economic status for the female spouses.

Both input variables, ownership of equipment/technology and total family income, had a positive influence on wives' satisfaction with economic status. Of the independent variables, total family income was comparatively the strongest predictor and had the greatest probability of influencing satisfaction with economic status for the wives. The positive effect of family income was almost twice as strong as the effect of ownership of items of equipment/technology. Review of the unstandardized regression coefficients indicates that the positive effect of family income was more than twice as strong for husbands as for wives (Table 37).

Although negative regression coefficients are associated with the predictor individual free time use of the wife, the interpretation of this effect parallels that for the husbands. An increase in the wife's reported planning of free time activities, marital communication, and satisfaction with free time use would be associated with an increase in

the wife's satisfaction with economic status.

Satisfaction with Family. The regression of satisfaction with family on the predictor variables yielded an  $R^2$  of .2714 ( $p < or = .001$ ). In other words, the four significant variables explained almost 30% of the variance in the husbands' satisfaction with family. This criterion variable was relevant only for those families with children age 18 or younger.

As shown in Table 38, two throughput variables had a negative association with husbands' satisfaction with family (1=dissatisfaction, 10=satisfaction). Household financial management for the wives and individual free time use for the husbands had relatively the same effect on the prediction of output (-.10 and -.11, respectively). These results suggest that the husbands' satisfaction with family would be expected to increase as the responsibility for "writing checks and keeping track of bills" is handled by only one member of the couple, and not a shared responsibility. As the husbands reported increased levels of planning for free time use, frequent marital communication, and satisfaction with leisure their satisfaction with family also would be expected to increase.

Comparison of the beta coefficients indicated, however, that age of youngest child had a negative effect which was more than four times as strong as the influence of these two throughput variables, given that other predictor variables were held constant. Perhaps this latter influence is the easiest to explain. As the age of the youngest child increases, the satisfaction with family decreases, or vice versa. This influence might be attributed to the ability of the husbands to

Table 38

Results of Output, Defined as Satisfaction with Family,  
Regressed on Input & Throughput

Criterion Variables	Predictor Variables	b	B	t	R <sup>2</sup>	F
Husbands' Satisfaction With Family					.2714	21.606***
	Household Financial Management, Wife	-.2403	-.1026	-1.822		
	Household Yard Work, Wife	.2020	.1234	2.196*		
	Individual Free Time Use, Husband	-.2763	-.1077	-1.914		
	Age of Youngest Child	-.1043	-.4790	-8.476***		
Wives' Satisfaction With Family					.2542	26.471***
	Individual Free Time Use, Wife	-.2476	-.1035	-1.797		
	Household Yard Work, Wife	.2119	.1249	2.195*		
	Age of Youngest Child	-.1107	-.4899	-8.529***		

\*p &lt; .05

\*\*p &lt; .01

\*\*\*p &lt; .001

influence children as they age, or the effects of an "empty nest."

One throughput variable, household yard work for the wives, had a positive effect on the husbands' satisfaction with family. This relationship suggests that as the responsibility for yard work is diffused among the family and is not maintained solely by either spouse, the husbands' satisfaction with family would be expected to increase. As shown in Table 38, this variable had a similar effect on the wives' satisfaction with family. Perhaps this variable reflects more expressive family attributes than the instrumental task of completing yard work. Comparison of the unstandardized regression coefficients (Table 38) indicates that the influence of this predictor variable was approximately equal for the male and female spouses.

Similarly, individual free time use for the wife had relatively the same influence on wives's satisfaction with family, as individual free time use for the husband had on husbands' satisfaction with family. The findings suggest that the wives' satisfaction with family would increase as they reported increased levels of planning for free time use, frequent marital communication, and satisfaction with free time use.

Age of youngest child also had a relatively strong negative effect on wives' satisfaction with family. With other predictor variables held constant, the negative influence of this variable on the satisfaction with family for the male and female spouses was essentially equal. This variable also had the greatest probability ( $p < \text{or} = .001$ ) of influencing satisfaction for either spouse.

2

An R of .2542 indicated that this linear combination of predictor

variables accounted for 25% of the variance in wives' satisfaction with family. The equation was statistically significant at the .001 level,  $F = 26.471$ . This criterion variable, however, was relevant only for those families with children age 18 or younger.

Satisfaction with Household Production. Less than 15% of the variance in husbands' satisfaction with household production was attributable to this linear combination of predictor variables. As shown in Table 39, the regression yielded an  $R^2$  of .1309; the  $F$  of 6.958 was significant at the .001 level.

This dependent variable reflected satisfaction with the main meal of the day, the cleanliness of the house, and personal health and energy. Individual free time use, as reported by the wife and the husband, had a significant effect on husbands' satisfaction with household production (1=dissatisfaction, 10=satisfaction). Increased levels of planning of free time use during the week and on weekends, frequent marital communication, and satisfaction with leisure activities as reported by both spouses would likely increase husbands' satisfaction with household production. Comparison of the standardized regression coefficients indicated that individual free time use of the husband had a slightly stronger effect than individual free time use of the wife. These were the only throughput variables to remain in the equation.

Two individual, input variables also had a negative effect on husbands' satisfaction with household production. Age of the husband had the stronger impact, followed by work time of the husband. It is not surprising that age and committed time to work are inversely

Table 39

Results of Output, Defined as Satisfaction with Household Production, Regressed on Input and Throughput

Criterion Variables	Predictor Variables	b	B	t	R <sup>2</sup>	F
Husbands' Satisfaction With Household Production					.1309	6.958***
	Individual Free Time Use, Wife	-.3163	-.1171	-1.788		
	Individual Free Time Use, Husband	-.6350	-.2113	-3.241**		
	Age, Husband	-.0254	-.2148	-2.971**		
	Family Income	1.126E-05#	.1227	1.924		
	Work Time, Husband	-2.157E-04#	-.1609	-2.162*		
Wives' Satisfaction With Household Production					.2137	5.559***
	Decision Power Regarding Wife's Employment, Wife	.1377	.1031	1.699		
	Household Maintenance, Wife	-.3669	-.1596	-2.643**		
	Household Work Time Husband	-3.876E-04#	-.1575	-2.269*		

Table 39 (continued)

Criterion Variables	Predictor Variables	b	B	t	R <sup>2</sup>	F
	Individual Free Time Use, Wife	-.6015	-.2480	-3.857***		
	Decision Making Power, Wife	-.3249	-.1421	-2.303*		
	Individual Free Time Use, Husband	-.3718	-.1379	-2.187*		
	Education, Husband	-.0622	-.1387	-1.971*		
	Age of Youngest Child	-.0392	-.1713	-2.492*		
	Family Income	1.004E-05#	.1219	1.675		
	Own Home	.5288	.1045	1.682		
	Work Time, Husband	-2.837E-04#	-.2357	-3.220**		

# Scientific notation; move the decimal to the left as noted.

\*p<.05

\*\*p<.01

\*\*\*p<.001

related to one's satisfaction with household production and personal energy.

Total family income, before taxes and deductions, was the only positive influence on husbands' satisfaction with household production. This variable was classified as a material resource shared within the household. Family income also was positively related to the wives' satisfaction with household production. Comparison of the unstandardized regression coefficients (Table 39) indicates that the positive effect was stronger for husbands than wives.

For the wives, the regression of satisfaction with household production on the predictor variables yielded an  $R^2$  of .2137, which was statistically significant at or beyond the .001 level (Table 39). Of the 11 significant variables included in the equation, six represented input, while five represented throughput. This is in contrast to the husbands' equation which included three input variables and only two throughput variables.

Of the five throughput variables, only one, the wife's decision power regarding her employment was positively correlated with satisfaction with household production. However, the scales of the individual variables relative to wives' satisfaction with household production (1=dissatisfaction, 10=satisfaction) must be considered. Individual free time use by the husband, decision making power of the wife, household maintenance by the wife, and individual free time use by the wife each had a progressively stronger impact on the prediction of output. See the standardized regression coefficients shown in Table 39.

The positive effect of wife's decision making power regarding employment on her satisfaction with household production suggests that satisfaction would increase as the responsibility for decision making shifts away from the husband (1) toward shared decision making (3) or toward the wife as decision maker (5). In other words, the wife will be more apt to express satisfaction with household production if she had a voice in her employment decision.

Conversely, as the decision making power of the wife regarding social activities shifts toward shared decision making (3) or toward the wife as decision maker (5), in conjunction with few family rules and weak enforcement, the wives' satisfaction with household production would be expected to decline. In other words, the wife will likely express more satisfaction with household production if the husband has more influence in making decisions about social activities.

The negative association with the wife's household maintenance dimension score suggests that the wife's satisfaction with household production increases as the responsibility for laundry and cleaning is not routinely shared within the household. This relationship may be opposite what would be expected, i.e. that the wife would welcome additional assistance with household chores. However, rigid standards for household tasks may preclude such sharing of household responsibilities.

Individual free time use, as reported by the wife and the husband, had a significant effect on the wife's satisfaction with household production. Increasing the level of planning of free time use during the week and on weekends, frequent couple communication, and

satisfaction with leisure activities, as reported by both spouses, would likely increase the wife's satisfaction with household production. Comparison of the standardized regression coefficients indicated that individual free time use of the wife had a slightly stronger effect than individual free time use of the husband. This relationship was consistent with the prediction of husbands' satisfaction with household production.

It is interesting to note that the significant input variables equally represented the husband and the household. None of the wife's input variables were significant in this equation. The husbands' education, household work time, and work time each had a progressively stronger negative effect on the wives' satisfaction with household production, with all other predictors held constant. The inverse relationship between husbands' work time and wives' household production satisfaction is not surprising. As the husband commits more time to work, there is less time available for household production activities.

As expected, both 1980 family income and home ownership had a positive effect on the wives' satisfaction with household production. It is surprising that age of youngest child had a negative effect on this dependent variable. Perhaps it can be explained by the wife's expected contribution to meal preparation and cleaning as the children age and her own energy declines. Also, older children require less personal care but increasing amounts of other household production, to which they may or may not contribute.

Individual free time use by the husband and the wife, the work

time of the husband, and total family income each influenced satisfaction with household production for the male and female spouses. Whereas the magnitude of the influence varied (see the unstandardized regression coefficients, Table 39), the predictors did have the same effect regardless of the sex of the spouse.

Satisfaction with Personal Autonomy. As illustrated in Table 40, the regression of husbands' satisfaction with personal belongingness on this linear combination of predictors yielded an  $R^2$  of .2434. The associated F value of 9.167 was statistically significant at or beyond the .001 level. Given these results, almost 25% of the variance in the husbands' satisfaction with personal autonomy (1=dissatisfaction, 10=satisfaction) was explained by the eight variables remaining in the equation. This criterion variable reflected satisfaction with available free time and money.

Only two variables, individual free time use by the husband and the wife, represented throughput in this equation. Of the two, husbands' individual use of free time had a slightly stronger impact. Although the regression coefficients are negative, the interpretation of this effect suggests that increased planning of free time, frequent marital communication, and satisfaction with use of free time as reported by both male and female spouses would be associated with an increase in husbands' satisfaction with personal autonomy.

Both individual and household input variables were significant predictors of husbands' satisfaction with personal autonomy. None of the wives' individual input variables were included in the equation.

Husband's education, nonwork time, household work time, and work

Table 40

Results of Output, Defined as Satisfaction with  
Personal Autonomy, Regressed on Input and Throughput

Criterion Variables	Predictor Variables	b	B	t	R <sup>2</sup>	F
Husbands' Satisfaction With Personal Autonomy					.2434	9.167***
	Household Work Time, Husband	-8.051E-04	-.2727	-3.281**		
	Individual Free Time Use, Wife	-.3915	-.1344	-2.180*		
	Nonwork Time, Husband	-3.679E-04#	-.1848	-1.726		
	Individual Free Time Use, Husband	-.6125	-.1890	-3.056**		
	Education, Husband	-.0650	-.1206	-1.805		
	Family Income	1.723E-05#	.1741	2.555*		
	Own Home	.7551	.1242	2.076*		
	Work Time, Husband	-7.394E-04#	-.5114	-4.387****		

Table 40 (continued)

Criterion Variables	Predictor Variables	b	B	t	R <sup>2</sup>	F
Wives' Satisfaction With Personal Autonomy					.3049	16.814***
	Individual Free Time Use, Wife	-.6667	-.2142	-3.757***		
	Household Work Time, Wife	-3.305E-04#	-.1584	-1.993*		
	Family Income	1.653E-05#	.1564	2.717**		
	Own Home	.8707	.1341	2.358*		
	Age, Wife	.0365	.2555	3.948***		
	Work Time, Wife	-4.874E-04#	-.2962	-3.637***		

#Scientific notation; move the decimal to the left as noted.

\*p(.05

\*\*p(.01

\*\*\*p(.001

time each had a progressively stronger negative effect on the prediction of satisfaction with personal autonomy. Note from Table 40 the size of the standardized coefficient associated with work time of the husband relative to the other variables included in the equation. The inverse relationship between work time, household work time, and personal autonomy is not surprising. The more time committed to any activity, the less feeling of control over one's life. Education and nonwork time, however, might be expected to correlate positively with personal autonomy. Perhaps because nonwork time includes time committed to organizational activities, this too could infringe on one's feelings of control over time and money.

The two household input variables were positively related to the prediction of personal autonomy. As expected, both family income and home ownership contributed to the prediction of husbands' satisfaction with personal autonomy.

For the wives, the regression of satisfaction with personal autonomy on the predictor variables yielded an  $R^2$  of .3049 which was statistically significant at or beyond the .001 level (Table 40). These findings can be interpreted to mean that approximately 30% of the variance in wives' satisfaction with personal autonomy was attributable to this linear combination of predictor variables.

As was true for the husbands' equation, input variables were the predominant predictors of the wives' satisfaction with autonomy. The throughput variable, individual free time use by the wife, was negatively correlated with output. However, interpretation of this dimension scale score suggests that increases in individual scheduling

of free time as well as frequent marital communication would be associated with an increase in wives' satisfaction with personal autonomy. Management theory would suggest that planning facilitates control over life; the relationship implied here supports that proposition.

Three individual input variables related to the wife remained in the equation. Age of the wife had a positive influence on output, while the wife's household work time and work time had a negative effect. Comparison of the standardized regression coefficients indicated that the influence of work time of the wife was almost twice that of the wife's household work time, with other predictors held constant. The effect of these variables was anticipated. Available free time and money would be expected to increase with age. Conversely, time committed to household work or work outside the home constraints personal freedom.

Both household input variables, total family income and home ownership, positively influenced the prediction of satisfaction with personal autonomy. One would expect these economic indicators to relate to personal autonomy. Home ownership had a slightly stronger influence on the prediction of satisfaction with personal autonomy for the wives than for the husbands (.87 and .76, respectively). Conversely, family income had a slightly stronger influence on the husbands' satisfaction with personal autonomy than the wives' satisfaction.

Satisfaction with Self-esteem. Slightly more than 10% of the variance in husbands' satisfaction with self-esteem was attributable to

the linear combination of variables shown in Table 41. The  $R^2$  of .1083 and the  $F$  value of 7.041 indicated that the equation was significant at or beyond the .001 level. Of the four variables remaining in the equation, two represented throughput, one represented individual input, and the other one represented household input.

Individual free time use by the wife was the only variable which had a positive influence on the prediction of husbands' satisfaction with self-esteem (1=satisfaction, 7=dissatisfaction). Interpretation of the effect of this dimension scale score suggests that as the wife reported more planning of free time, more time spent talking with the husband, and more satisfaction with leisure activities, the husband's satisfaction with self-esteem would likely increase.

Household maintenance activities of the wife had a negative association with the husbands' satisfaction with self-esteem. This latter throughput variable reflected the responsibility and arrangements for doing household laundry and cleaning. Interpretation of the effect of this dimension scale score suggests that as the wife reported more diffusion of these household tasks among family members, there would be an associated increase in the husbands' satisfaction with self-esteem.

It is unclear why these variables influenced satisfaction with self-esteem which reflected satisfaction with club and organization participation, as well as social position within the community. Perhaps the association focuses on the wife's time use and community involvement relative to her husband.

The two input variables were inversely correlated with the

Table 41

Results of Output, Defined as Satisfaction with  
Self-esteem, Regressed on Input and Throughput

Criterion Variables	Predictor Variables	b	B	t	R <sup>2</sup>	F
Husbands' Satisfaction With Self-esteem					.1083	7.041***
	Household Maintenance, Wife	-.1794	-.1076	-1.727		
	Individual Free Time Use, Wife	.3195	.1816	2.854**		
	Nonwork Time, Husband	-1.886E-04#	-.1568	-2.50*		
	Family Income	-1.021E-05#	-.1709	-2.67**		
Wives' Satisfaction With Self-esteem					.1025	5.278***
	Individual Free Time Use, Wife	.3479	.1800	2.693**		
	Individual Free Time Use, Husband	.2330	.1084	1.662		
	Age of Youngest Child	.0366	.2003	2.252*		
	Education, Wife	-.0721	-.1532	-2.313*		
	Age, Husband	-.0221	-.2609	-2.864**		

#Scientific notation; move the decimal to the left as noted.

\*p<.05

\*\*p<.01

\*\*\*p<.001

husbands' satisfaction with self-esteem. However, given the reverse scaling of the criterion variable (1=satisfaction), the effect is not unusual. One would expect that as family income increased, the possibilities for satisfying organizational activities and community status would likewise increase. The data support this hypothesis. Similarly, a positive relationship between the time committed to nonwork activities (which by definition included organizational, social, and recreational activities) and satisfaction with self-esteem would be expected. The inverse relationship also supported this proposition.

The linear combination of variables explained slightly more than 10% of the variance in the wives' satisfaction with self-esteem. As shown in Table 41, the  $R^2$  for this equation equalled .1025; based on an F value of 5.278 the equation was significant at or beyond the .001 level. Predictor variables included throughput, individual input, and household input.

Individual free time use of the wife and the husband were significant predictors included in this equation. Individual free time use of the wives had a stronger positive effect than the husbands' individual free time use. Also, the former variable had a greater probability of being a significant predictor than the latter (Table 41). These predictor variables reflected the scheduling of free time, satisfaction with leisure activities, and marital communication. In other words, an increase in these variables would be associated with an increase in the wife's satisfaction with self-esteem. Perhaps this association reflects the benefit of planning, as a positive

relationship existed between these throughput variables and self-esteem based on organization participation and community social position.

Three input variables remained in the equation as significant predictors of wives' satisfaction with self-esteem. The data suggest that increases in the age of youngest child would be associated with a decline in the wife's satisfaction with self-esteem. One might expect increased participation in organizational and community activities as the children increase in age, however the data do not support an associated increase in satisfaction with self-esteem.

Findings reported in Table 41 suggest that as the education of the wife and the age of the husband increase, the wife's satisfaction with self-esteem would likely increase. The effect of the age of the husband was stronger than the education of the wife, assuming all other predictors were held constant. The relationships between these variables and output were congruent with what had been anticipated; satisfaction with self-esteem, when defined as community and social position, would be expected to be positively related with the education and age of spouses.

Satisfaction with Educational Attainment. Husbands' satisfaction with educational attainment was regressed on the linear combination of predictor variables yielding an  $R^2$  of .1478. An F value of 13.466 was significant at or beyond the .001 level. These results, illustrated in Table 42, indicated that approximately 15% of the variance in the prediction of husbands' satisfaction with educational attainment was attributable to three input variables remaining in the equation.

Two of the individual input variables, household work time of the

Table 42

Results of Output, Defined as Satisfaction with Educational Attainment, Regressed on Input and Throughput

Criterion Variables	Predictor Variables	b	B	t	R <sup>2</sup>	F
Husbands' Satisfaction With Educational Attainment					.1478	13.466***
	Household Work Time, Husband	3.954E-04#	.1747	2.603**		
	Education, Husband	-.1463	-.3547	-5.758***		
	Work Time, Husband	2.054E-04#	.1854	2.722**		
Wives' Satisfaction With Educational Attainment					.1891	10.772***
	Household Maintenance Wife	.2487	.1059	1.741		
	Income, Wife	2.298E-05#	.1203	1.697		
	Education, Husband	.0894	.1951	2.537*		
	Education, Wife	-.3212	-.5324	-6.645***		
	Household Work Time, Wife	2.789E-04#	.1630	2.364*		

#Scientific notation; move the decimal to the left as noted.

\*p<.05

\*\*p<.01

\*\*\*p<.001

husband and work time of the husband, were positively related with the prediction of husbands' satisfaction with educational attainment (satisfaction=1; dissatisfaction=7). Interpretation of these findings suggest that increases in the husband's household work time and work time would be accompanied by a decrease in the husband's satisfaction with educational attainment. Comparison of the beta coefficients indicated that the husband's work time would have a slightly stronger influence than the husband's household work time (.19 and .17, respectively).

Changes in the husbands' actual educational level were directly associated with the prediction of satisfaction with educational attainment. In other words, as educational attainment increased, the reported satisfaction level also increased, or vice versa.

For the wives, the regression of satisfaction with educational attainment on the predictor variables yielded an  $R^2$  of .1891 which was statistically significant at or beyond the .001 level. Thus, this linear combination of five predictor variables explained almost 20% of the variance in the prediction of output (Table 42).

Similar to the model for the prediction of husbands' satisfaction with educational attainment, the actual educational attainment of the wives was directly related to the prediction of wives' satisfaction (satisfaction=1, dissatisfaction=7). However the education of the husband had an inverse effect on the wife's satisfaction; findings suggest that an increase in the husband's education would be accompanied by a decline in the wife's satisfaction with educational attainment.

Additionally, the 1980 income of the wife before taxes and deductions and the household work time of the wife were related to the wives' satisfaction with educational attainment. Findings, shown in Table 42, suggest that increases in either of these variables would be associated with a decline in the wife's satisfaction with educational attainment. Because personal income and educational attainment may be directly correlated, it is unusual that this predictor variable would have an inverse effect on the prediction of satisfaction with educational attainment.

Household work time was a significant predictor of satisfaction with educational attainment for both spouses. A comparison of the unstandardized regression coefficients indicated that household work time of the husbands had a stronger influence on husbands' satisfaction with educational attainment, than did the wives' household work time on the prediction of wives' satisfaction. In both models, time spent in household work had an inverse effect on satisfaction with educational attainment.

Only one throughput variable, the household maintenance dimension score for the wives, remained in this equation. Interpretation of this effect suggests that diffusion of the laundry and cleaning tasks among family members would be associated with a decline in the wives' reported satisfaction with educational attainment. The explanation of this effect is unclear.

Satisfaction with Life. Husbands' satisfaction with life was regressed on the linear combination of predictor variables yielding an  $R^2$  of .1387. The F value of 5.266 was significant at or beyond the .001

level. These results, shown in Table 43, suggest that approximately 14% of the variance in husbands' satisfaction with life was attributable to this combination of variables.

Only one of the seven significant variables represented throughput. Individual use of free time for the wife had a relatively strong positive influence on the satisfaction with life among male spouses. Increases in the level of planning of free time use during the week and on weekends, frequent couple communication, and satisfaction with leisure activities as reported by the wife would increase the husband's satisfaction with life.

The input variables were equally divided between those representing the individual and those representing the household. The husbands' nonwork time, household work time, and work time were positively associated with the prediction of husbands' satisfaction with life (satisfaction=1; dissatisfaction=7). Of these three, the latter had the strongest effect. Interpretation of these effects suggests that an increase in the time allocated to any of these categories would be accompanied by a decline in the husbands' satisfaction with life. In other words, an increase in the time committed to any of these categories would necessitate an adjustment of other time allocations, which could precipitate the husbands' dissatisfaction.

Household net worth, maximum size of household during the year, and 1980 total family income before taxes and deductions were the significant household input variables. As expected, increases in net worth or total family income were associated with an increase in the

Table 43

Results of Output, Defined as Satisfaction with Life,  
Regressed on Input and Throughput

Criterion Variables	Predictor Variables	b	B	t	R <sup>2</sup>	F
Husbands' Satisfaction With Life	Net Worth	.3503	.1455	2.285*	.1387	5.266***
	Household Work Time, Husband	2.958E-04#	.1911	2.115*		
	Individual Free Time Use, Wife	.2991	.1960	3.099**		
	Nonwork Time, Husband	1.980E-04#	.1899	1.680		
	Maximum Size of Household	-.0873	-.1374	-2.054*		
	Family Income	-8.892E-06#	-.1716	-2.613**		
	Work Time, Husband	2.551E-04#	.3367	2.608**		

Table 43 (continued)

Criterion Variables	Predictor Variables	b	B	t	R <sup>2</sup>	F
Wives' Satisfaction With Life					.1944	6.088***
	Household Work Time, Husband	5.372E-04#	.3365	2.054*		
	Individual Free Time Use, Wife	.4387	.2788	4.439**		
	Nonwork Time, Husband	5.411E-04#	.5031	2.155*		
	Decision Power Regarding Wife's Employment, Husband	.0908	.1033	1.713		
	Decision Making Power, Wife	.1967	.1325	2.181*		
	Individual Free Time Use, Husband	.1882	.1076	1.684		
	Personal Maintenance Time, Husband	4.367E-04#	.2843	1.828		
	Own Home	-.5850	-.1782	-2.891**		
	Work Time, Husband	4.585E-04#	.5871	1.882		

#Scientific notation; move the decimal to the left as noted.

\* p(<.05

\*\* p(<.01

\*\*\* p(<.001

husbands' satisfaction with life. Similarly, an increase in the size of the household was associated with increased satisfaction. Family income had a slightly stronger effect than net worth or size of household; family income also had a higher probability of inclusion in the model.

The model of wives' satisfaction with life included a more equal distribution of input and throughput variables. Of the nine significant predictor variables, four variables represented throughput. The  $R^2$  associated with this regression equation equalled .1944, indicating that almost 20% of the variance in wives' satisfaction with life was attributable to this linear combination of variables. An F value of 6.088 indicated that the equation was significant at or beyond the .001 level.

The husband's decision making power related to the wife's employment plans and the wife's decision making power had a similar effect on the prediction of the wife's satisfaction with life. Results suggest that the wife will report a greater satisfaction with life if the decision making power is shared equally or rests with the husband. With both variables, a shift toward decision power for the wife would be accompanied by greater dissatisfaction with life.

Individual free time use by the wife had a stronger effect on output than the husband's individual free time use. The former variable had the higher probability of inclusion in the model. The effect of these variables was similar. Increased scheduling of free time activities, frequent couple communication, and satisfying leisure activities were associated with increases in the wife's satisfaction

with life.

Each of the individual input variables included in the wives' model of satisfaction with life was associated with the husband. The husband's personal maintenance time, household work time, nonwork time, and work time each had a progressively stronger effect on the wives' satisfaction with life, all other predictors held constant. A comparison of the standardized regression coefficients indicated that the effect of work time of the husband was more than twice as strong as the effect of personal maintenance time of the husband (Table 43). Findings suggest that an increase in the time committed to any of these categories by the husband would be associated with increased dissatisfaction with life for the wife. It is interesting that the prediction of wives' satisfaction with life is so dependent on the husbands' life, vis-a-vis his time use in all categories.

Home ownership (no = 0; yes = 1) was the only material resource which affected the wives' satisfaction with life. Ownership of a home increased the wife's satisfaction with life.

The models for male and female spouses had four variables in common: husbands' household work time, nonwork time, and work time, and individual free time use for the wife. Each of these variables had a substantially stronger influence on life satisfaction for the female spouses than for the male spouses. See the unstandardized regression coefficients shown in Table 43.

#### Summary of the Regression Analysis Results

To support the second objective of this research, the eight

criterion variables for the male and female spouses were regressed on the 37 predictor variables representing input and throughput.

Calculation of the F ratio for significantly improved explanation indicated that the full model, including input and throughput, was the statistically superior model specification. These findings support the systems approach to management, since the inclusion of throughput, as measured to represent managerial behavior, improved the explanation of variance in the prediction of output.

Further analysis of the relative individual effects of the input and throughput variables revealed that 28 of the 37 predictor variables remained in at least one of the 16 models when backward stepwise elimination regression procedures were used. Refer to Table 29 for a complete listing of the model variables.

Of the 21 input variables, only two variables representing input were eliminated from all equations. Personal maintenance time of the wife was not a significant predictor in any of the regression models. Strober and Weinberg (1980) report that at least one research study supported the contention that women reduce sleep time as other aspects of their life become more demanding. However, research reported by Nickols and Fox (1983) indicated that husband's or wife's employment or occupational status, family income, age of younger child, or area of residence were not significant predictors of the wife's personal care time. It is interesting that the personal maintenance time of the husband was a significant predictor of the wife's satisfaction with life. Findings suggest an inverse relationship between the husband's personal maintenance time and the wife's satisfaction with life.

The second nonsignificant variable was the husbands' personal income. In contrast, the wives' personal income was associated with satisfaction with educational attainment. The more the wife earned the less satisfied she was with her education. Total family income was a significant predictor of satisfaction for both husbands and wives. However, it was significant in more equations for the husbands than the wives. Perhaps the husband's identity with total family income took precedence over his identity with personal income. Husbands' mean income was four times greater than mean income of the wives, and roughly two-thirds of mean total family income.

Eight throughput variables for both male and female spouses entered the equations, for a total of 16 variables representing throughput. Two of the dimension scores, scheduling of household production and household food production, were not significant predictors in any equation for husbands or wives. These dimension scores focused on the arrangement and responsibility for cooking dinner and grocery shopping, as well as the scheduling of these and four other household tasks. These results are curious. Because a schedule represents a standing plan, it was expected that the household production scheduling dimension score would have been a significant predictor.

The household maintenance dimension score and the household yard work dimension score, as measured for the wives, were significant predictors of satisfaction for the husbands and the wives. The household financial management dimension score for the wives was a significant predictor of husbands' satisfaction with family. These

same dimension scores for the husbands were not significant predictors. This raises several issues. First, the measures of throughput may not have been as representative for the husbands as for the wives. Second, are the wives' throughput measures more important than the husbands' in the prediction of output for either spouse? Or, is the model fundamentally not as representative for male spouses as for female spouses?

Only three throughput dimensions, individual free time use, decision making power, and decision making power regarding the wife's employment plans, were significant predictors as measured for husbands and wives. These dimensions should be considered for their representativeness as empirical measures of management theory and for their usefulness in future research applications.

Only the measures of husbands' and wives' individual free time use were significant predictors of satisfaction for husbands as well as wives. The wives' measure of individual free time use was a significant predictor of all criterion variables except husbands' satisfaction with family and the satisfaction with educational attainment for both spouses. The measure for husbands was a significant predictor of four dimensions of life satisfaction for the husbands and three dimensions for the wives. The individual free time use variable reflected planning for free time during the week and on weekends, satisfaction with free time use (evaluation), and frequency of marital communication. It is unclear whether it is the substantive meaning of this dimension which is critical -- the planning and use of free time -- or whether it is the underlying measurement of planning

and communication.

The factors representing husband's and wife's decision making power relative to the wife's employment plans were predictors of satisfaction for both spouses. This factor for the husband affected the wife's satisfaction with life, while the wife's measure affected her satisfaction with household production. These same aspects of life satisfaction for the wife were affected by the factor representing wife's decision making power about social activities. The decision making power of the husband affected his satisfaction with economic status.

How do these throughput variables affect the wives' satisfaction with household production and life? Findings imply that the wife will express greater satisfaction with household production if her employment plans were not controlled by the husband. On the other hand, the wives reported greater satisfaction with household production if they did not control decisions about social activities. Measures representing the husband's and the wife's decision making power had similar effects on the wife's satisfaction with life. Results suggest that the wife will report a greater satisfaction with life if the decision making power is shared among the couple or influenced by the husband. A shift toward decision control by the wife would be accompanied by a decline in life satisfaction.

These results are not surprising. One would expect the wife to express more satisfaction with her household work and personal energy if she was involved in the decision to work outside the home. Gross, Crandall, and Knoll (1980) state that "acceptability is highest when

the solution chosen serves the goals of those affected by it as well as the goals of the decision maker" (p. 135). Although group decisions generally are more time consuming, it is not surprising that the wife would express greater satisfaction with shared decision making as opposed to the situation where either spouse "almost always decides." Furthermore, the husbands reported less satisfaction with economic status when the wife was the decision maker and there were few, leniently enforced, household rules.

The individual effects of the input and throughput variables may not be clearly understood. Yet some patterns emerged. Of the input variables considered, family income, husband's work time, husband's nonwork time, home ownership, and age of youngest child were the most common predictors of output. Results also support the importance of planning, communicating, and decision making on the prediction of output for male and female spouses.

#### Objective III: Testing The Model for Causal Relationships

The third objective of this research was to test the model of family resource management for causal relationships among the composite variables of input, throughput, and output using path analysis. The systems approach to management theorizes that input, when processed by the throughput or managerial subsystem, results in output. The empirical test of this proposition that a causal relationship exists between input and throughput to result in output was based on the final models resulting from the preliminary regression analyses. These 16 models included only those input and throughput variables which made a

significant contribution to the explanation of variance in the prediction of satisfaction for the male and female spouses.

Variables included in these models were combined into the respective input and throughput composite variables by multiplying the respective individual variables by their unstandardized beta weights and then summing the results into the composite measures. The composite measures were based on from one to five individual variables, depending on the number of significant predictors in each equation. Because input represented demands, human resources, and material resources, composite variables were generated for each of these categories. The path analysis included these four composite variables and the satisfaction dimension scores for the male and female spouses.

The interpretation of path analysis requires a strong caveat. Although path analysis is used to analyze what are assumed to be existing theoretical causal relationships, it does not support causality. In other words, path analysis does not "prove" causation. Path analysis provides support for the hypothesized theoretical relationships.

Discussion of the findings will focus on direct, indirect, and total effects. Direct effects reflect the direct influence of one variable on another, while the indirect effects reflect the effect of one variable on another as mediated by one or more intervening variables. The total effect reflects the combined direct and indirect effects of one variable on another. The total effect is also referred to as the effect coefficient (Pedhazur, 1982).

Separate path analysis models were calculated for the male and

female spouses for each of the eight dependent variables. Models supporting each of these variables will be considered individually. Discussion of the path analyses results will be limited to (1) the relative size of the total effects of the composite variables and (2) the relative size of the direct and indirect effects. Independent effects of the predictors were considered with the discussion of the regression analysis results and will not be considered again. The reader is cautioned to consider the scales on the individual variables when interpreting the effects within a model.

#### Satisfaction with Personal Belongingness

The path analysis models of satisfaction with personal belongingness for the male and female spouses are illustrated in Figure 4. Standardized regression coefficients for the reduced-form and structural equations on which the models were based are shown in Table 44. The causal model for the explanation of husbands' satisfaction with personal belongingness included only the direct positive effect of throughput. The  $R^2$  of .0260 indicated that less than three percent of the variance was captured in this model.

As illustrated in Figure 4, the model for wives' satisfaction with personal belongingness included a full component of demands, human resources, material resources, and throughput. Throughput had the strongest direct effect on the output of wives' satisfaction with personal belongingness. The direct effect of throughput was stronger than that of demands ( $p_{54} = .23$ ;  $p_{51} = -.15$ ), and was roughly twice as strong as the influence of human and material resources ( $p_{52} = .11$ ;  $p_{53}$

Husbands' Model

V1 Demands

V2 Human Resources

V3 Material Resources

V4 Throughput  $P_{54} = .161$  → V5 Output

Wives' Model

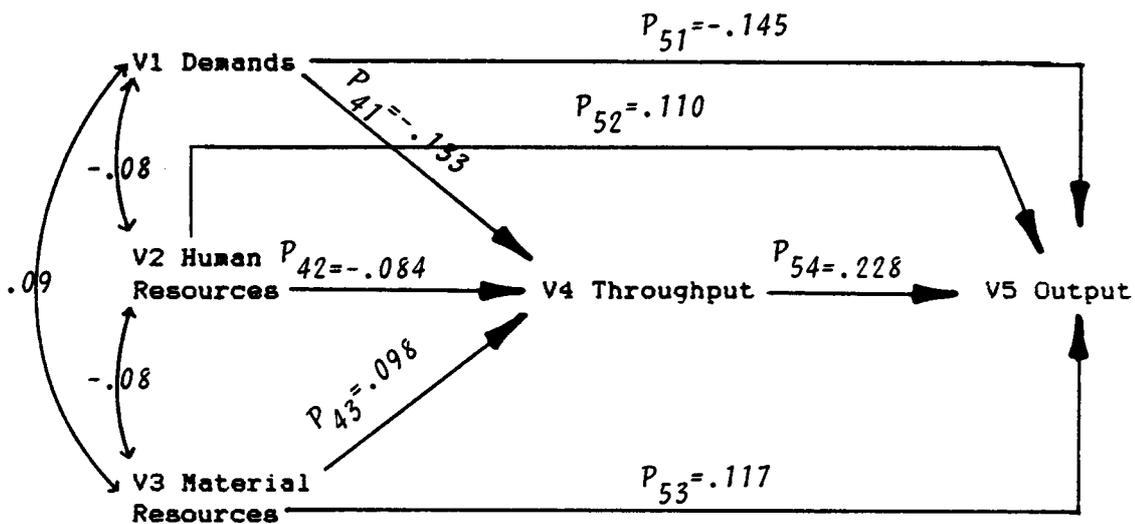


FIGURE 4

Path Coefficients for Models of Satisfaction With Personal Belongingness

Table 44

Standardized Regression Coefficients for  
Reduced-form and Structural Equations of a Path Analysis Model of  
Satisfaction with Personal Belongingness

Predetermined Variables	Equation + Dependent Variables		
	(1) Throughput	(2) Output	(3) Output
<b>Husbands' Model</b>			
Demands	--	--	--
Human Resources	--	--	--
Material Resources	--	--	--
Throughput			.161
	2		
R		.0260**	
<b>Wives' Model</b>			
Demands	-.133	-.176	-.145
Human Resources	-.084	.091	.110
Material Resources	.098	.139	.117
Throughput			.228
	2		
R	.0364*	.0634***	.1136***

\* p &lt; .05

\*\* p &lt; .01

\*\*\* p &lt; .001

= .12). The direct effects of demands, human resources, and material resources were consistently larger than the indirect effects of those variables mediated by throughput (Table 45).

#### Satisfaction with Economic Status

Path coefficients for the models of satisfaction with economic status for the male and female spouses are shown in Figure 5. Standardized regression coefficients for the reduced-form and structural equations on which the models were based are shown in Table 46.

The causal model for the explanation of husbands' satisfaction with economic status included human resources, material resources, and throughput. The  $R^2$  of .1879 suggests that less than 20% of the variance in the explanation of husbands' satisfaction with economic status was captured in this model (Table 46). Material resources were clearly the dominant influence on husbands' satisfaction with economic status. The indirect effects of material and human resources when mediated by throughput were minimal relative to the direct effect of these variables on output (Table 47).

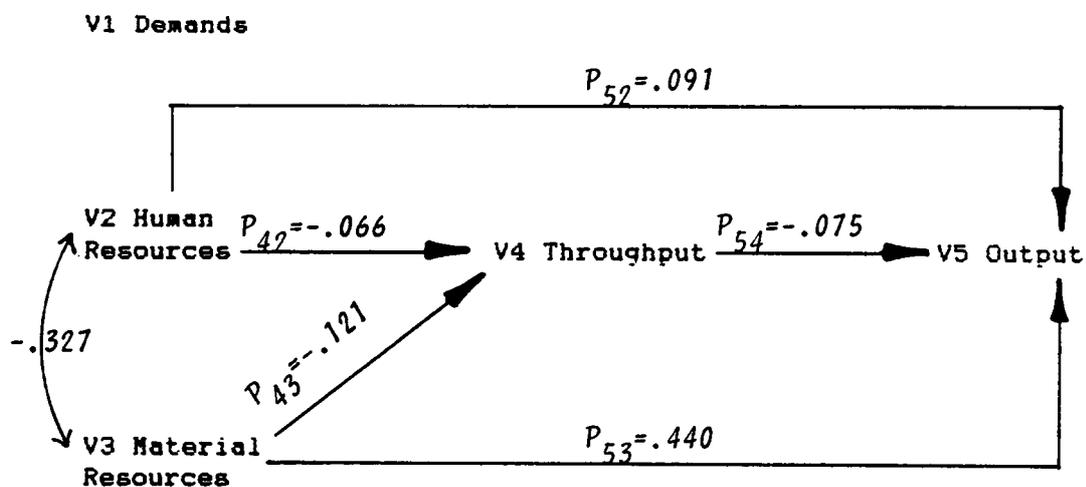
The wives' model accounted for less than 15% of the variance in the prediction of satisfaction with economic status. The  $R^2$  of .1387 was significant at or beyond the .001 level (Table 46). As illustrated in Figure 5, the wives' model included only material resources and throughput. The direct effect of material resources was almost twice that of throughput in the prediction of output. The effect of material resources when mediated by throughput accounted for less than 10% of

Table 45

Interpretation of Effects in a Path Analysis Model of Satisfaction  
With Personal Belongingness

Criterion Variable	Total Effect	Indirect Effect	Percent <u>Indirect</u> Total	Direct Effect	Percent <u>Direct</u> Total
<u>Predetermined Variables</u>					
<u>Husbands' Model</u>					
None					(p(.10))
<u>Wives' Model</u>					
<u>Throughput</u>					
Demands	-.133			-.133	
Human Resources	-.084			-.084	
Material Res.	.098			.098	
<u>Output</u>					
Demands	-.176	-.031	17.61	-.145	82.39
Human Resources	.091	-.019	-20.88	.110	120.88
Material Res.	.139	.022	15.83	.117	84.17
Throughput	.228			.228	

Husbands' Model



Wives' Model

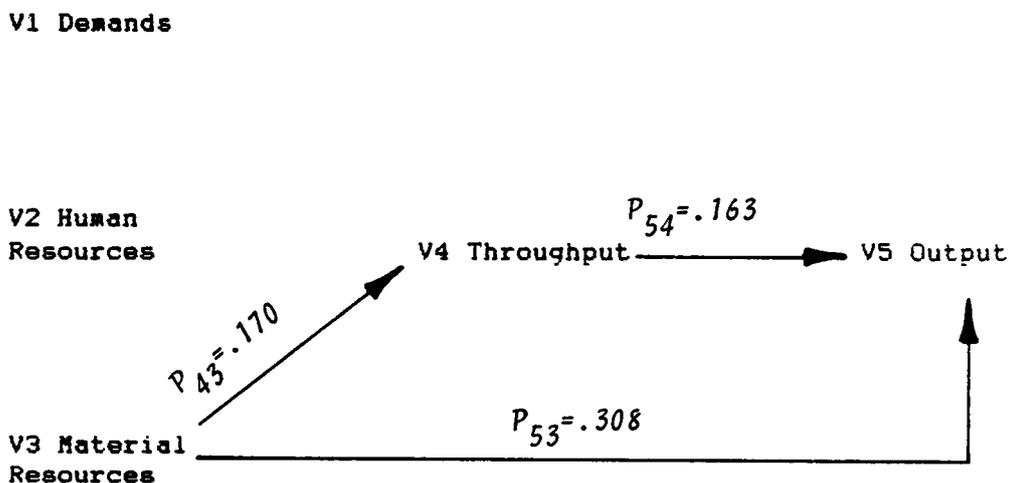


FIGURE 5

Path Coefficients for Models of Satisfaction With Economic Status

Table 46

Standardized Regression Coefficients for  
Reduced-form and Structural Equations of a Path Analysis Model of  
Satisfaction with Economic Status

Predetermined Variables	Equation + Dependent Variables		
	(1) Throughput	(2) Output	(3) Output
<b>Husbands' Model</b>			
Demands	--	--	--
Human Resources	-.066	.096	.091
Material Resources	-.121	.449	.440
Throughput			-.075
	2		
R	.0138	.1823**	.1879***
<b>Wives' Model</b>			
Demands	--	--	--
Human Resources	--	--	--
Material Resources	.170	.336	.308
Throughput			.163
	2		
R	.0288**	.1128***	.1387***

\* p < .05

\*\* p < .01

\*\*\* p < .001

Table 47

Interpretation of Effects in a Path Analysis Model of Satisfaction  
With Economic Status

Criterion Variable	Total Effort	Indirect Effort Via Throughput	Percent <u>Indirect</u> Total	Direct Effects	Percent <u>Direct</u> Total
-----------------------	-----------------	--------------------------------------	-------------------------------------	-------------------	-----------------------------------

Predetermined  
Variables

---

Husbands' Model

Throughput

Demands	--			--	
Human Resources	-.066			-.066	
Material Resources	-.121			-.121	

Output

Demands	--	--	--	--	--
Human Resources	.096	.005	5.21	.091	94.79
Material Resources	.449	.009	2.00	.440	98.00
Throughput	-.075			-.075	

Wives' Model

Throughput

Demands	--			--	
Human Resources	--			--	
Material Resources	.170			.170	

Output

Demands	--	--	--	--	--
Human Resources	--	--	--	--	--
Material Resources	.336	.028	8.33	.308	91.67
Throughput	.163			.163	

---

the total effect of this variable (Table 47).

### Satisfaction with Family

The path analysis models of satisfaction with family for the male and female spouses are illustrated in Figure 6. Standardized regression coefficients for the reduced-form and structural equations on which the models were based are shown in Table 48.

The causal model for the explanation of husbands' satisfaction with family included only demands and throughput, yet accounted for approximately 25% of the variance in the criterion variable ( $R^2 = .2539$ ,  $p < \text{or} = .001$ ). The indirect effect of demands as mediated by throughput was a very weak influence relative to the direct effect of demands (Table 49). Accordingly, almost 100 percent of the total effect was attributable to the direct effect of demands.

The causal model of wives' satisfaction with family closely resembled that of the husbands. The model included only demands and throughput, and accounted for approximately 26% of the variance in the criterion variable. The  $R^2$  of .2625 was significant at or beyond the .001 level. Similar to the husbands' model, the influence of demands was roughly two and one-half times stronger than that of throughput on wives' satisfaction with family ( $\beta_{51} = .47$ ;  $\beta_{54} = -.18$ ).

As shown in Table 49, when the effect of demands was mediated by throughput, the result was a negligible influence ( $\beta_{41\ 54} = .01$ ). Consequently, 97% of the total effect of the variables was attributable to the direct effect of demands.

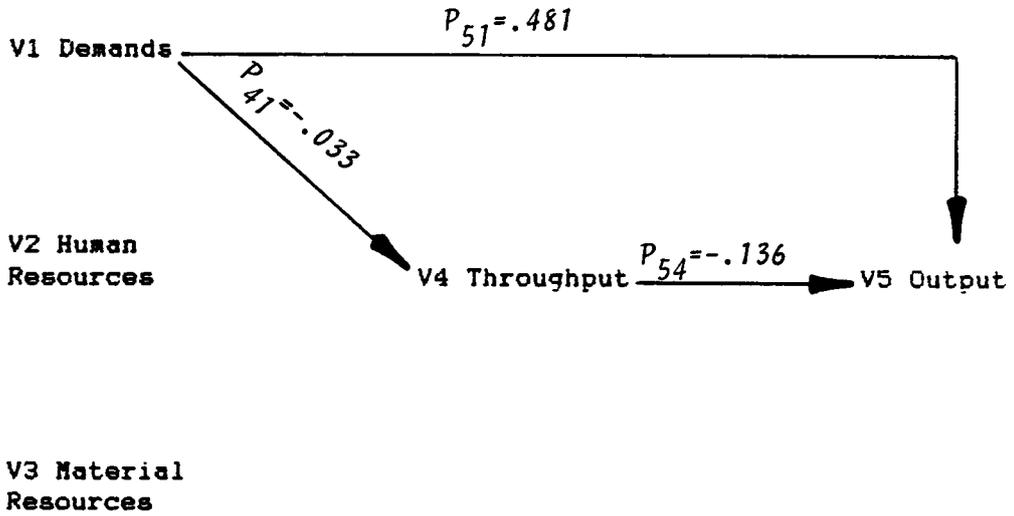
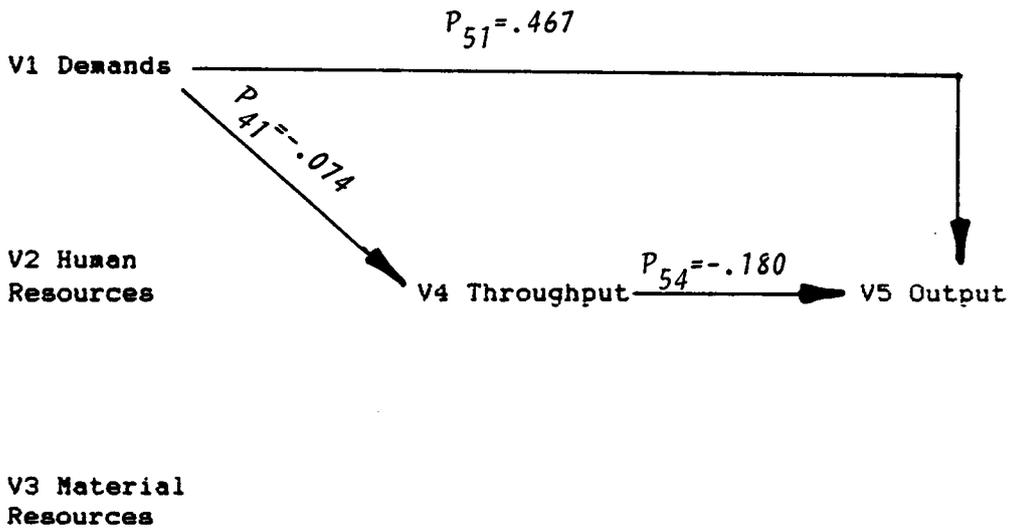
Husbands' ModelWives' Model

FIGURE 6

Path Coefficients for Models of Satisfaction With Family

Table 48

Standardized Regression Coefficients for  
Reduced-form and Structural Equations of a Path Analysis Model of  
Satisfaction with Family

Predetermined Variables	Equation + Dependent Variables		
	(1) Throughput	(2) Output	(3) Output
-----			
Husbands' Model			
-----			
Demands	-.033	.485	.481
Human Resources	--	--	--
Material Resources	--	--	--
Throughput			-.136
	2		
R	.0011	.2355***	.2539***
Wives' Model			
-----			
Demands	-.074	.480	.467
Human Resources	--	--	--
Material Resources	--	--	--
Throughput			-.180
	2		
R	.0054	.2305***	.2625***
-----			

\* p &lt; .05

\*\* p &lt; .01

\*\*\* p &lt; .001

Table 49

Interpretation of Effects in a Path Analysis Model of Satisfaction  
With Family

Criterion Variable	Total Effect	Indirect Effect Via Throughput	Percent Indirect Total	Direct Effect	Percent Direct Total
<u>Husbands' Model</u>					
Throughput					
Demands	-.033			-.033	
Human Resources	--			--	
Material Res.	--			--	
Output					
Demands	.485	.004	0.82	.481	99.18
Human Resources	--	--	--	--	--
Material Res.	--	--	--	--	--
Throughput	-.136			-.136	
<u>Wives' Model</u>					
Throughput					
Demands	-.074			-.074	
Human Resources	--			--	
Material Res.	--			--	
Output					
Demands	.480	.013	2.71	.467	97.29
Human Resources	--	--	--	--	--
Material Res.	--	--	--	--	--
Throughput	-.180			-.180	

### Satisfaction with Household Production

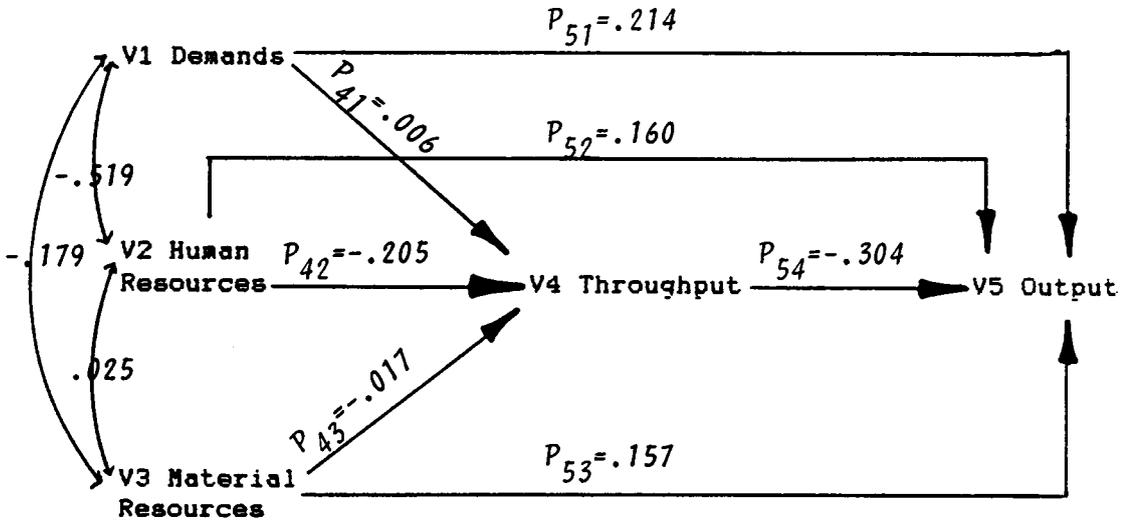
Both the male and female spouses' causal models of satisfaction with household production included a full model of demands, human resources, and material resources (Figure 7). Standardized regression coefficients for the reduced-form and structural equations on which the models were based are shown in Table 50.

The  $R^2$  of .1494 ( $p < \text{or} = .001$ ) indicated that approximately 15% of the variance in husbands' satisfaction with household production was attributable to this combination of variables. When the effects of the exogeneous variables were mediated by throughput, the indirect effects of the human and material resources were weak relative to the direct effects (Table 51). Accordingly, the total effects were primarily attributable to the direct effects.

An  $R^2$  of .1824 ( $p < \text{or} = .001$ ) indicated that slightly more than 18 percent of the variance in wives' satisfaction with household production was explained by this combination of variables. The model for the prediction of satisfaction with household production for the wives accounted for slightly more variance than that of the model for the husbands. Throughput had the strongest direct effect, by far, of any of the variables.

Demands and human resources primarily contributed to the total effect indirectly; each was responsible for roughly 70% of the respective total effects of demands and human resources (Table 51). This was in contrast to the model for the husbands where the majority of the total effect of demands and human resources was attributable to direct effects. In other words, for the wives the effect of demands

Husbands' Model



Wives' Model

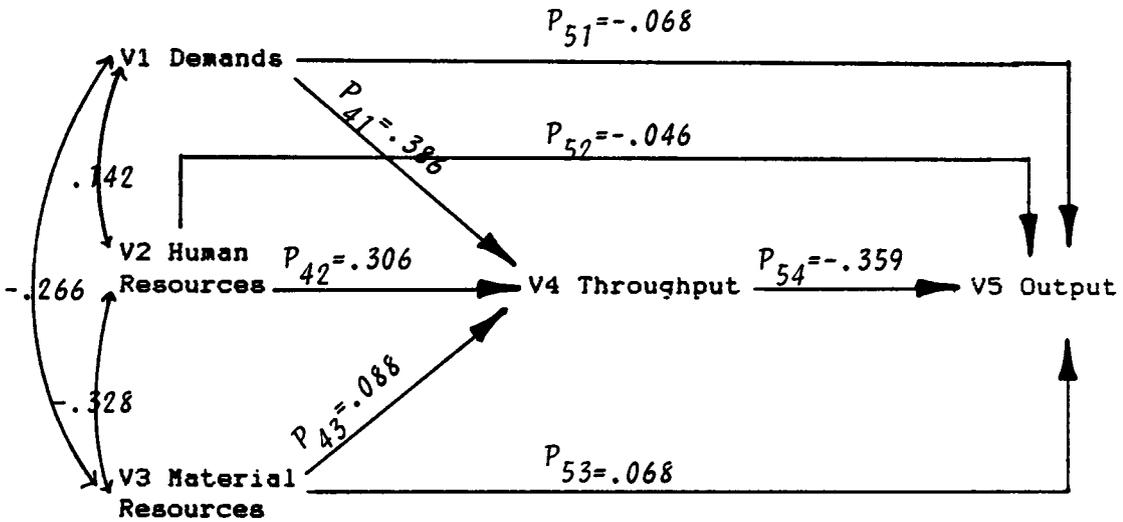


FIGURE 7

Path Coefficients for Models of Satisfaction With Household Production

Table 50

Standardized Regression Coefficients for  
Reduced-form and Structural Equations of a Path Analysis Model of  
Satisfaction with Household Production

Predetermined Variables	Equation + Dependent Variables		
	(1) Throughput	(2) Output	(3) Output
-----			
Husbands' Model			
-----			
Demands	.006	.213	.214
Human Resources	-.205	.222	.160
Material Resources	-.017	.162	.157
Throughput			-.304
	2		
R	.0441*	.0612**	.1494***
Wives' Model			
-----			
Demands	.386	-.207	-.068
Human Resources	.306	-.156	-.046
Material Resources	.088	.037	.068
Throughput			-.359
	2		
R	.2487***	.0855***	.1824***
-----			

\* p &lt; .05

\*\* p &lt; .01

\*\*\* p &lt; .001

Table 51

Interpretation of Effects in a Path Analysis Model of Satisfaction  
With Household Production

Criterion Variable	Total Effect	Indirect Effect Via Throughput	Percent Indirect Total	Direct Effect	Percent Direct Total
<u>Husbands' Model</u>					
Throughput					
Demands	.006			.006	
Human Resources	-.205			-.205	
Material Res.	-.017			-.017	
Output					
Demands	.213	-.001	-.47	.214	100.47
Human Resources	.222	.062	27.93	.160	72.07
Material Res.	.162	.005	3.09	.157	96.91
Throughput	-.304			-.304	
<u>Wives' Model</u>					
Throughput					
Demands	.386			.386	
Human Resources	.306			.306	
Material Res.	.088			.088	
Output					
Demands	-.207	-.139	67.15	-.068	32.85
Human Resources	-.156	-.110	70.51	-.046	29.49
Material Res.	.037	-.031	-83.78	.068	183.78
Throughput	-.359			-.359	

and human resources in combination with throughput was stronger than the direct effect of these input variables on output. Material resources contributed entirely through direct effects.

### Satisfaction with Personal Autonomy

The path analysis models of satisfaction with personal autonomy for the male and female spouses are illustrated in Figure 8. Standard regression coefficients for the reduced-form and structural equations on which the models were based are shown in Table 52. Models for male and female spouses included a full component of variables.

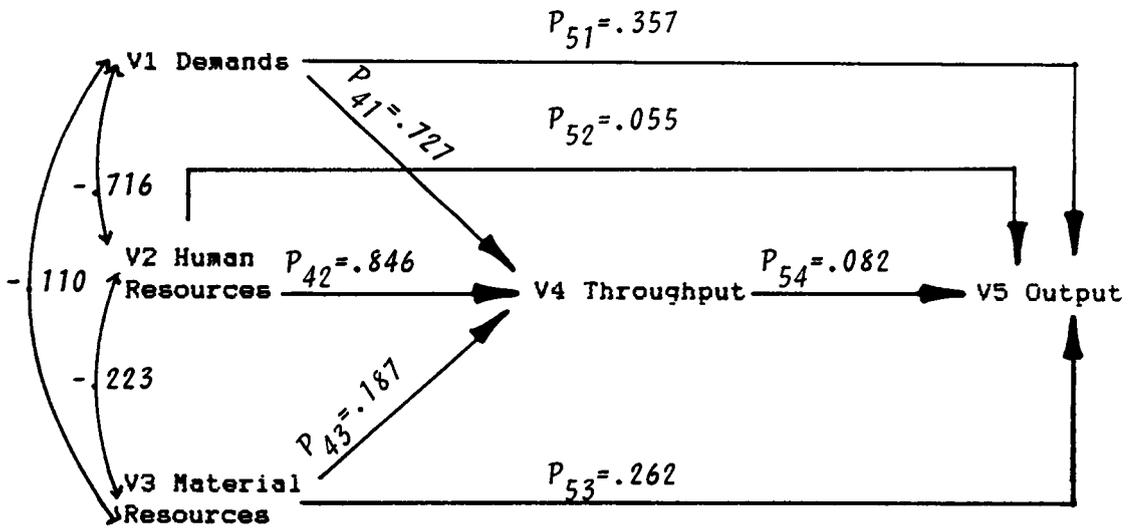
2

The  $R^2$  of .1553 ( $p < \text{or} = .001$ ) indicated that slightly more than 15% of the variance in husbands' satisfaction with personal autonomy was attributable to the model variables (Table 52). Demands had the strongest effect of the exogeneous variables ( $r = .42$ ); the effect was five times that of throughput ( $r = .08$ ). Material resources had a stronger effect on the husbands' satisfaction with personal autonomy than human resources (Table 53).

Indirect effects of the exogeneous variables when mediated by throughput were not consistent. Both demands and material resources contributed primarily through direct effects. But the indirect contribution of human resources to the total effect was greater than the direct influence. In other words, the effect of human resources in conjunction with throughput was stronger than the unique effect of human resources.

One-fourth of the variance in wives' satisfaction with personal autonomy was captured in the causal model illustrated in Figure 8. The

Husbands' Model



Wives' Model

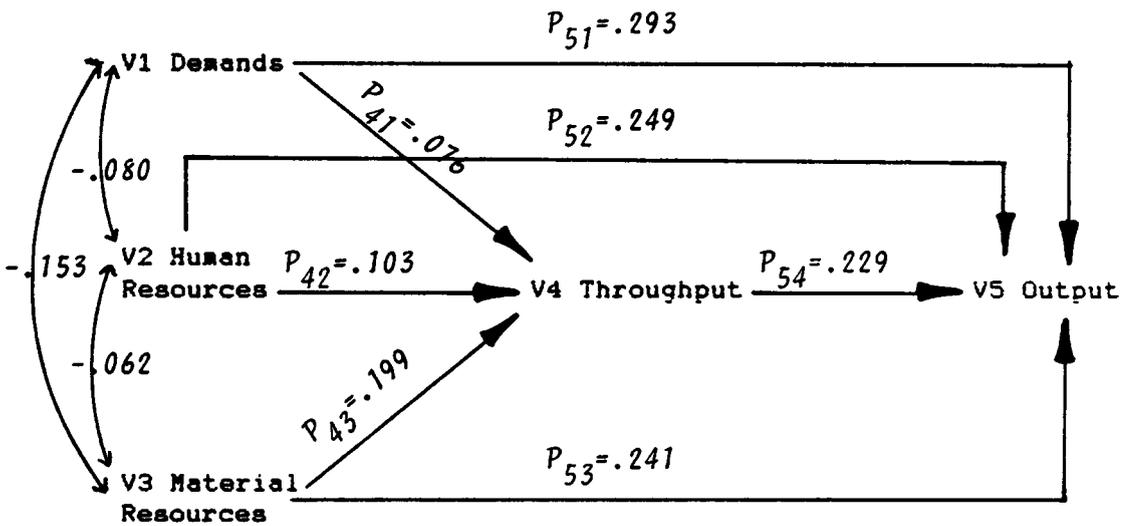


FIGURE 8

Path Coefficients for Models of Satisfaction With Personal Autonomy

Table 52

Standardized Regression Coefficients for  
Reduced-form and Structural Equations of a Path Analysis Model of  
Satisfaction with Personal Autonomy

Predetermined Variables	Equation + Dependent Variables		
	(1) Throughput	(2) Output	(3) Output
<b>Husbands' Model</b>			
Demands	.727	.416	.357
Human Resources	.846	.125	.055
Material Resources	.187	.277	.262
Throughput			.082
	2		
R	.2984***	.1506***	.1553***
<b>Wives' Model</b>			
Demands	.076	.311	.293
Human Resources	.103	.273	.249
Material Resources	.199	.287	.241
Throughput			.229
	2		
R	.0476**	.2026***	.2524***

\* p &lt; .05

\*\* p &lt; .01

\*\*\* p &lt; .001

Table 53

Interpretation of Effects in a Path Analysis Model of Satisfaction  
With Personal Autonomy

Criterion Variable	Total Effect	Indirect Effect Via Throughput	Percent <u>Indirect</u> Total	Direct Effect	Percent <u>Direct</u> Total
<u>Predetermined Variable</u>					
<u>Husbands' Model</u>					
Throughput					
Demands	.727			.727	
Human Resources	.846			.846	
Material Res.	.187			.187	
Output					
Demands	.416	.059	14.18	.357	85.82
Human Resources	.125	.070	56.00	.005	44.00
Material Res.	.277	.015	5.42	.262	94.58
Throughput	.082			.082	
<u>Wives' Model</u>					
Throughput					
Demands	.076			.076	
Human Resources	.103			.103	
Material Res.	.199			.199	
Output					
Demands	.311	.018	5.79	.293	94.21
Human Resources	.273	.024	8.79	.249	91.21
Material Res.	.287	.046	16.03	.241	83.97
Throughput	.229			.229	

<sup>2</sup>  
 R of .2524 was significant at or beyond the .001 level of probability (Table 52). Demands, human resources, material resources, and throughput had almost equal total effects on the wives' satisfaction with personal autonomy (Table 53). Demands had a slightly stronger total influence than the other variables ( $r = .31$ ); throughput had the least effect ( $r = .23$ ).

15

45

When mediated by throughput, the indirect effects of demands and human resources were weak relative to the stronger indirect effect of material resources (Table 53). Consequently, the total effects were primarily attributable to the direct effects of demands and human resources. The direct effect of material resources also was substantial. However, slightly over 16% of the total effect of material resources was attributable to the indirect or combined effects of material resources and throughput.

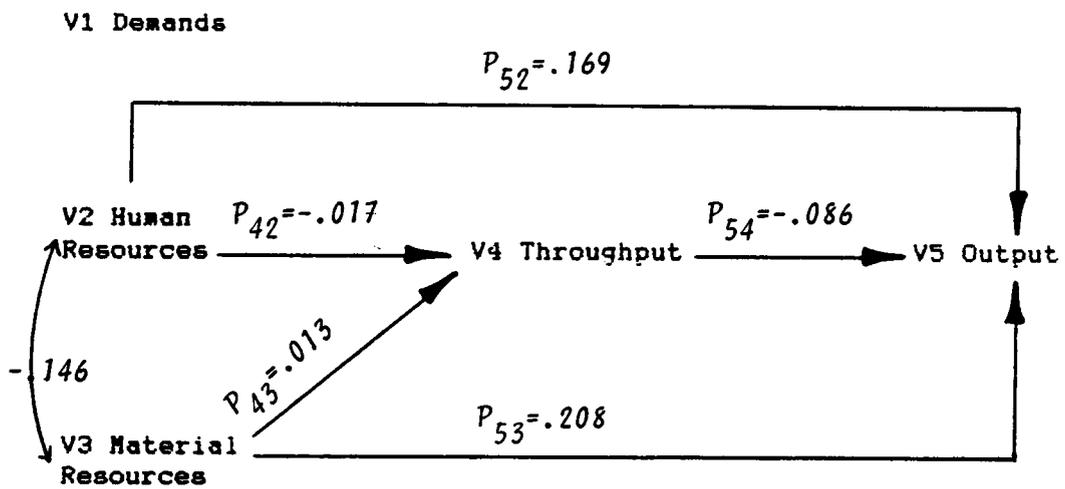
#### Satisfaction with Self-esteem

The causal models for the prediction of satisfaction with self-esteem among male and female spouses are shown in Figure 9. The husbands' model did not include demands as an exogeneous variable, while the wives' model did not include material resources as an exogeneous variable. Standardized regression coefficients for the reduced-form and structural equations on which the models were based are shown in Table 54. The <sup>2</sup>R of .0688 ( $p < \text{or} = .001$ ) implies that less than 10% of the variance in husbands' satisfaction with self-esteem was attributable to the model variables.

Material resources ( $r = .21$ ) had a slightly stronger total

35

Husbands' Model



Wives' Model

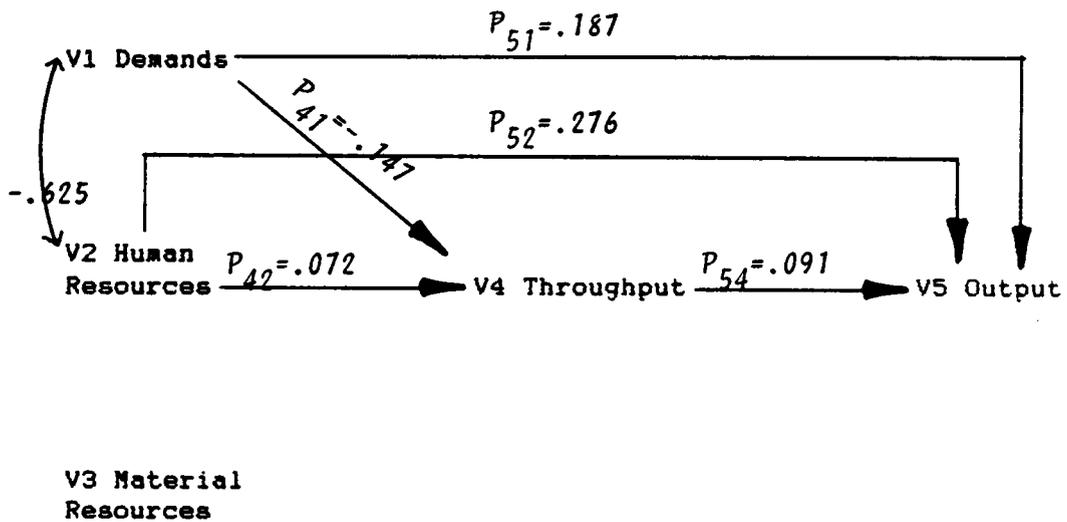


FIGURE 9

Path Coefficients for Models of Satisfaction With Self-esteem

Table 54

Standardized Regression Coefficients for  
Reduced-form and Structural Equations of a Path Analysis Model of  
Satisfaction with Self-esteem

Predetermined Variables	Equation + Dependent Variables		
	(1) Throughput	(2) Output	(3) Output
<b>Husbands' Model</b>			
Demands	--	--	--
Human Resources	-.017	.170	.169
Material Resources	.013	.207	.208
Throughput			-.086
	2		
R	.0005	.0614***	.0688***
<b>Wives' Model</b>			
Demands	-.147	.174	.187
Human Resources	.072	.283	.276
Material Resources	--	--	--
Throughput			.091
	2		
R	.0399**	.0487***	.0567***

\* p &lt; .05

\*\* p &lt; .01

\*\*\* p &lt; .001

effect on the husbands' satisfaction with self-esteem than human resources ( $r = .17$ ). The total effect of throughput, on the other hand, was roughly half that associated with the human or material resources ( $r = -.09$ ). When the intervention of throughput was considered, both human and material resources had a negligible indirect effect on output. Almost 100% of the total effect of the input variables was attributable to the direct effects (Table 55).

Whereas material resources were the dominant factor influencing husbands' satisfaction with self-esteem, human resources were the dominant factor influencing wives' satisfaction with self-esteem. As shown in Table 54, the causal model for the explanation of wives' satisfaction with self-esteem explained less than six percent of the variance in output ( $R^2 = .0567$ ,  $p < or = .001$ ).

The direct effect of throughput ( $p = .09$ ) on output was half that of demands and one-third that of human resources. The indirect effects of demands and human resources via throughput were very weak relative to the direct effects. Consequently, roughly 100% of the total effects were attributable to the direct effects.

#### Satisfaction with Educational Attainment

Path coefficients for the causal modeling of satisfaction with educational attainment for male and female spouses are illustrated in Figure 10. Standardized regression coefficients for the reduced-form and structural equations on which the models were based are shown in Table 56. Only one equation yielded results for the husbands' modeling

Table 55

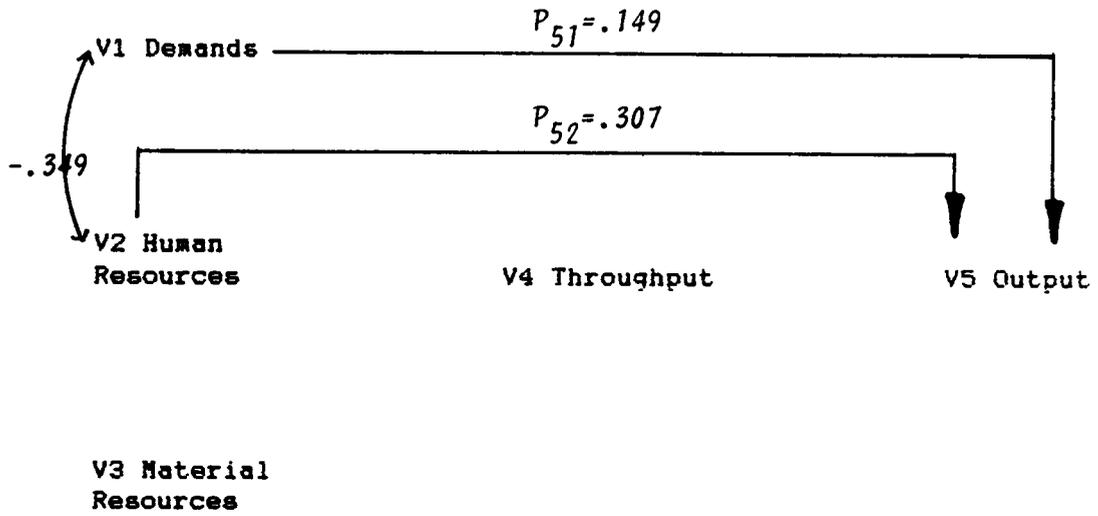
Interpretation of Effects in a Path Analysis Model of Satisfaction  
With Self-Esteem

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Criterion Variable	Total Effect	Indirect Effect Via Throughput	Percent <u>Indirect</u> Total	Direct Effect	Percent <u>Direct</u> Total
<u>Predetermined Variable</u>					
<u>Husbands' Model</u>					
Throughput					
Demands	--			--	
Human Resources	-.017			-.017	
Material Res.	.013			.013	
Output					
Demands	--	--	--	--	
Human Resources	.170	.001	0.59	.169	99.41
Material Res.	.207	-.001	-0.48	.208	100.48
Throughput	-.086			-.086	
<u>Wives' Model</u>					
Throughput					
Demands	-.147			-.147	
Human Resources	.072			.027	
Material Res.	--			--	
Output					
Demands	.174	-.013	-7.47	.187	107.47
Human Resources	.283	.007	2.47	.276	97.53
Material Res.	--	--	--	--	--
Throughput	.091			.091	

---

Husbands' Model



Wives' Model

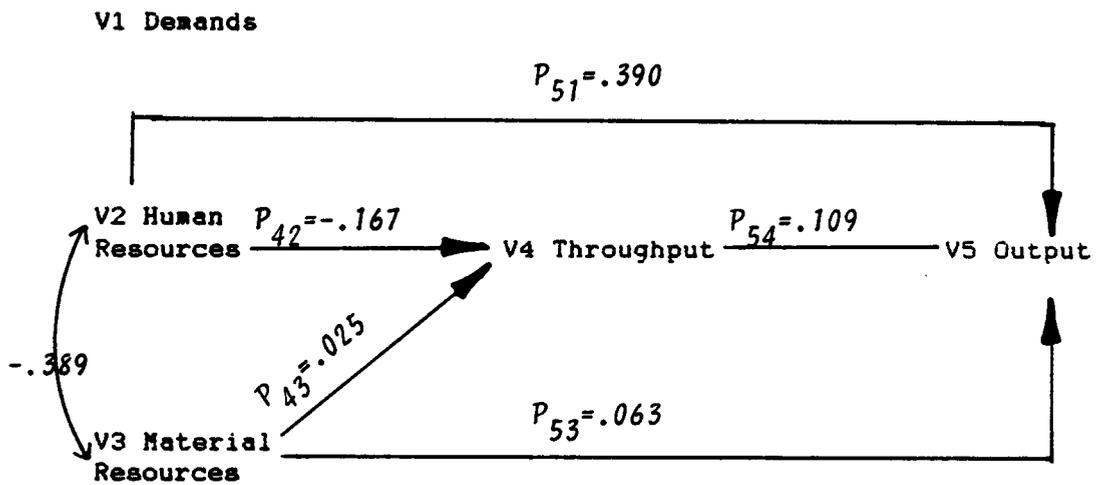


FIGURE 10

Path Coefficients for Models of Satisfaction With Educational Attainment

Table 56

Standardized Regression Coefficients for  
Reduced-form and Structural Equations of a Path Analysis Model of  
Satisfaction with Educational Attainment

Predetermined Variables	Equation + Dependent Variables		
	(1) Throughput	(2) Output	(3) Output
<b>Husbands' Model</b>			
Demands	--	.149	--
Human Resources	--	.307	--
Material Resources	--	--	--
Throughput			--
	2		
R		.0845***	
<b>Wives' Model</b>			
Demands	--	--	--
Human Resources	-.167	.371	.390
Material Resources	.025	.065	.063
Throughput			.109
	2		
R	.0317**	.1234***	.1348***

\* p &lt; .05

\*\* p &lt; .01

\*\*\* p &lt; .001

of satisfaction with educational attainment. The influence of human resources was twice as strong as that of demands when predicting husbands' satisfaction with educational attainment.

2

The  $R^2$  of .1348 ( $p < \text{or} = .001$ ) indicated that less than 15% of the variance in wives' satisfaction with educational attainment was attributable to the model variables (Table 56). Variables included human and material resources, as well as throughput.

The total effects of human resources was substantially larger than that of material resources or throughput (Table 57). Human resources had the strongest direct effect of the three variables ( $p = .39$ ); this effect was more than three times that of throughput ( $p = .11$ ). The indirect effects of human and material resources when considered via throughput were negligible. Consequently, the total effects were almost completely attributable to the direct influence of the resources.

### Satisfaction with Life

The path analysis models of satisfaction with life for the male and female spouses are shown in Figure 11. Both models include a full complement of all model variables. Standardized regression coefficients for the reduced-form and structural equations on which the models were based are shown in Table 58. Results indicated that the model variables accounted for over 30% of the husbands' variance in satisfaction with life ( $R^2 = .3162$ ,  $p < \text{or} = .001$ ).

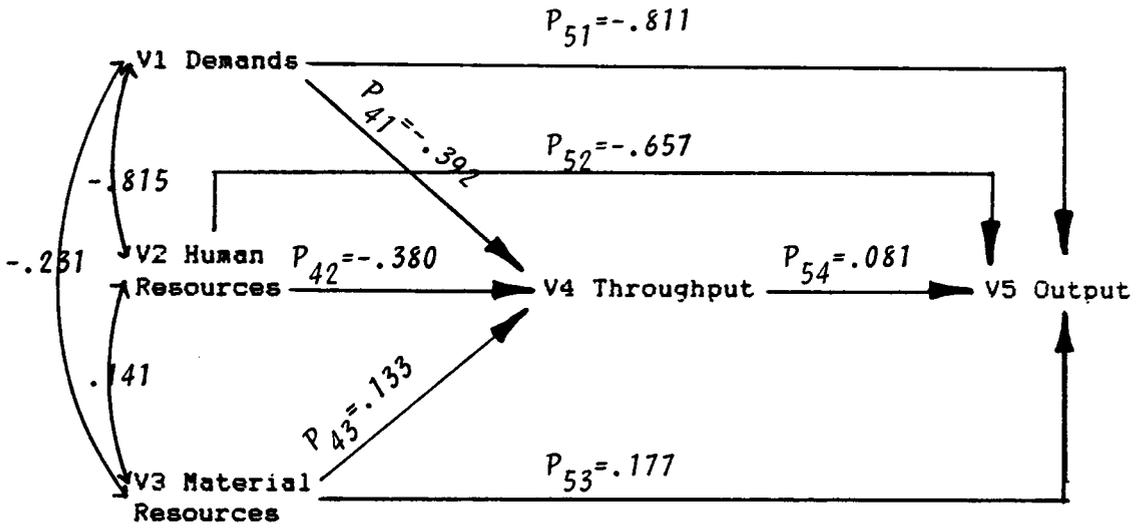
There were extreme differences in the effects of the model variables on the prediction of husbands' satisfaction with life (Table

Table 57

Interpretation of Effects in a Path Analysis Model of Satisfaction  
With Educational Attainment

Criterion Variable	Total Effect	Indirect Effect Via Throughput	Percent <u>Indirect</u> Total	Direct Effect	Percent <u>Direct</u> Total
<u>Husbands' Model</u>					
Throughput					
Demands	--			--	
Human Resources	--			--	
Material Resources	--			--	
Output					
Demands	.149			.149	100.00
Human Resources	.307			.307	100.00
Material Resources	--			--	
<u>Wives' Model</u>					
Throughput					
Demands	--			--	
Human Resources	-.167			-.167	
Material Res.	.025			.025	
Output					
Demands	--	--	--	--	--
Human Resources	.371	-.019	-5.12	.390	105.12
Material Res.	.065	.002	3.08	.063	96.92
Throughput	.109			.109	

Husbands' Model



Wives' Model

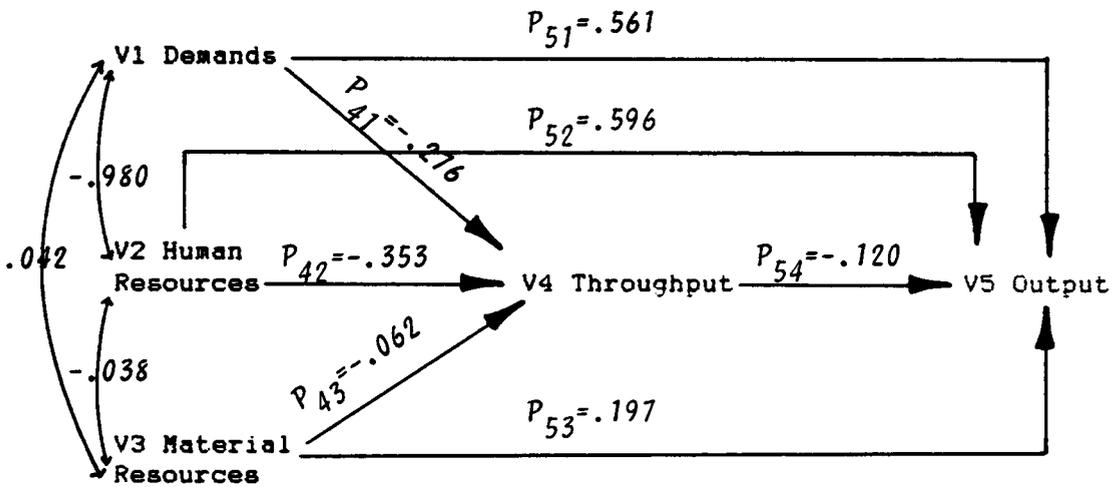


FIGURE 11

Path Coefficients for Models of Satisfaction With Life

Table 58

Standardized Regression Coefficients for  
Reduced-form and Structural Equations of a Path Analysis Model of  
Satisfaction with Life

Predetermined Variables	Equation + Dependent Variables		
	(1) Throughput	(2) Output	(3) Output
<b>Husbands' Model</b>			
Demands	-.392	-.843	-.811
Human Resources	-.380	-.688	-.657
Material Resources	.133	.188	.177
Throughput			.081
	2		
R	.0827***	.3102***	.3162***
<b>Wives' Model</b>			
Demands	-.276	.594	.561
Human Resources	-.353	.638	.596
Material Resources	-.062	.204	.197
Throughput			-.120
	2		
R	.0133	.0588**	.0730***

\* p &lt; .05

\*\* p &lt; .01

\*\*\* p &lt; .001

59). Throughput had the weakest effect of the four variables ( $p =$   
 $.08$ ). The direct effect of material resources was more than twice as  
strong ( $p = .18$ ) as that of throughput, while the direct effect of  
demands was 10 times as strong ( $p = -.81$ ). Relative to the direct  
effects, the indirect effects were considerably weaker. Consequently,  
the total effects were primarily attributable to the direct effects of  
the variables, particularly the input variables, with little  
contribution via throughput. The percentage contribution of the  
indirect effects relative to the total effects was six percent or  
less.

2

The  $R^2$  of .0730 for the model of wives' satisfaction with life was  
significant at or beyond the .001 level (Table 58). The total effect of  
throughput ( $r = -.12$ ) was considerably less than that of demands or  
human resources ( $r = .59$ ;  $r = .64$ , respectively). When the effect  
of the mediation of throughput was considered, the indirect effects of  
the input variables were relatively weak. Less than seven percent of  
the total effects were attributable to the indirect effects of the  
input variables (Table 59).

Two trends were apparent from the results of the modeling of  
husbands' and wives' satisfaction with life. First, demands and human  
resources had the largest total effects on the prediction of output.  
Second, material resources and throughput had relatively weaker total  
effects. For both spouses, throughput had the weakest effect as a  
predictor of output.

Table 59

Interpretation of Effects in a Path Analysis Model of Satisfaction  
With Life

Criterion Variable	Total Effect	Indirect Effect Via Throughput	Percent <u>Indirect</u> Total	Direct Effect	Percent <u>Direct</u> Total
<u>Husbands' Model</u>					
Throughput					
Demands	-.392			-.392	
Human Resources	-.380			-.380	
Material Res.	.133			.133	
Output					
Demands	-.843	-.032	3.80	-.811	96.20
Human Resources	-.688	-.031	4.51	-.657	95.49
Material Res.	.188	.011	5.85	.177	94.15
Throughput	.081			.081	
<u>Wives' Model</u>					
Throughput					
Demands	-.276			-.276	
Human Resources	-.353			-.353	
Material Res.	-.062			-.062	
Output					
Demands	.594	.033	5.56	.561	94.44
Human Resources	.638	.042	6.58	.596	93.42
Material Res.	.204	.007	3.43	.197	96.57
Throughput	-.120			-.120	

### Summary of the Path Analysis Results

Results of the path analysis lend some support to the systems theory approach to management. For husbands, the models explained from three to 32% of the variance in satisfaction with various aspects of life. For wives, the models explained from six to 26% of the variance in satisfaction with various aspects of life.

In the majority of the models, the total effect was attributable to the direct effects. Management theory would suggest that the indirect effects should have been stronger. According to the theory, input, when processed by throughput, results in output. Results of the path analysis models do not support such a proposition. Perhaps this is attributable to the measurement of throughput; 15 of the 16 models included a throughput variable.

Models for three of the criterion variables, satisfaction with household production, personal autonomy, and life, included a full complement of input and throughput variables. The household production dimension score represented satisfaction with the main meal of the day, the usual cleanliness of the house, and personal health and energy. The personal autonomy dimension score represented satisfaction with available free time and discretionary income.

For both spouses throughput was a strong influence on satisfaction with household production. However, for the prediction of personal autonomy, throughput was the weakest predictor relative to the effects of demands and material resources. Similarly, throughput was the weakest predictor of satisfaction with life relative to the effects of demands and human resources on the prediction of satisfaction with

life.

These findings are marginally consistent with those reported by Heck (1983) using the 1975-76 data of the Time Use Longitudinal Panel Study. Using probit analysis, Heck reported that only the full empirical equations of input, throughput, and output were significant for the prediction of satisfaction with "amount of free time," "amount of money," and "amount of clean clothes." Throughput was a significant contributor to the explanation of variance only in the latter equation.

## CHAPTER VI

### SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summaries of the purpose, procedures, and findings of this research study are presented in this chapter. Conclusions based on the findings are discussed; recommendations are suggested.

#### Summary

This study was designed to operationalize and empirically test a systems model of family resource management using data from the 1975-81 Time Use Longitudinal Panel Study. An operational model (Figure 2) based on the systems approach to management as hypothesized by Maloch and Deacon (1966, 1970), Deacon and Firebaugh (1975, 1981), and Gross, Crandall, and Knoll (1973, 1980) was proposed. The research was organized around three specific objectives. Following a description of the sample, each objective, related methodology, and associated findings will be summarized.

#### Description of the Sample

Couples (N=374) participating in the 1980-81 data collection for the University of Michigan, Institute for Social Research Time Use Longitudinal Panel Study were the focus of this study. Mean age of male spouses was 47.23 years, while the mean age of female spouses was 44.25 years. Husbands reported slightly higher levels of education than wives (13.2 and 12.57 years, respectively). Three out of 10 households were composed of only the couple, while six out of 10

reported a child age 18 or younger living in the household. Mean age of children was 8.37 years.

Total family income for 1980 equalled a mean of \$31,463. Given the levels of educational attainment and age of the respondents, it is not surprising that husbands' mean income (\$21,806) far exceeded that of the wives (\$5,410). Nearly nine out of 10 households reported a positive net worth and home ownership. Homes were well stocked with an average of 17.09 items (from 25 considered) of equipment/technology used for the completion of household chores, yard work, and entertainment. Over half of the respondents (57.22%) reported no regular paid help with household or yard work, excluding child care, over the past year.

Based on the synthetic week time budgets, both husbands and wives spent the majority of their time on personal maintenance activities (73.08 and 74.57 mean hours, respectively). Husbands' mean time commitments for the other areas included 40.94 hours in work time, 37.19 hours of nonwork time, and 15.38 hours of household work time. Wives reported 19.35 hours in work time, 37.25 hours per week in nonwork time, and 35.73 hours in household work time. Spouses, on the average, spent almost an equal amount of time on nonwork activities. Similarly, their committed time to work, both inside and outside the home, was almost equal. Husbands spent a mean of 56.32 hours in work time; mean total work time for the wives equalled 55.08 hours. Limited work time of the wives also accounts for the lower average earnings.

Results of the sample suggest middle age, middle class economic stability. Whereas attrition may have skewed the sampling on this

longitudinal study, the 1975-76 study was designed as a national probability sample representative of housing units in the U.S., exclusive of military reservations (Juster, Hill, Stafford, and Parsons, 1983).

#### Objective I: Specification of the Model

The first objective of the research study was to operationalize a systems model of family resource management for empirical testing on the basis of theoretical and empirical considerations. A comprehensive literature review which considered the historical development of the systems framework, as well as extant research provided theoretical and empirical support for the model specification. The proposed operational model (Figure 2) resulted from this analysis. However, the application of the operational model to the available data required additional empirical analysis.

Specification of Input. All input variables specified in the operational model were either contained directly in the data set or were created from the manipulation of existing data set items. Input variables could be classified as unique to the male or female spouse or as common variables shared within the household. Education is an example of the former, while total family income is an example of the latter. Thus, input data were designated as belonging in one of three sets: the husband's, the wife's, or shared within the household. Throughput and output were specified as unique to each spouse, with no shared household measures.

Specification of Throughput. Following some data recoding and

cleaning, 34 items which conceptually represented throughput (planning, implementing, communicating, and decision making) were factor analyzed using principal components analysis. For the purposes of this analysis spouses were included as individuals, regardless of sex, for a total of 748 responses. Varimax rotation was used to simplify the factor structure and to increase interpretability. On the basis of the eigenvalue-one criterion, application of Catell's scree test to a scatterplot of the eigenvalues, and factor interpretability, an eight factor structure was chosen as the appropriate solution. This solution accounted for 51.61% of the total variance. A ninth dimension based on the "working wife" item was added.

Dimension scale scores were calculated as the mean of the items with factor loadings equal to or greater than .40. The resulting dimension scale scores for each individual were entered as throughput in the subsequent analysis of the model. Items with factor loadings equal to or greater than .40 also were used in the labeling of the factors. Consequently, the factors were labeled as follows:

Factor I	Household Maintenance
Factor II	Household Production Scheduling
Factor III	Household Food Production
Factor IV	Household Yard Work
Factor V	Individual Free Time Use
Factor VI	Household Financial Management
Factor VII	Preteen Child Care
Factor VIII	Decision Making Power
Factor IX	Decision Making Power Regarding the

### Wife's Employment

Because the factor labeled "Preteen Child Care" represented a small segment of the sample, this factor was eliminated from further modeling. The factor labeled "Decision Making Power Regarding the Wife's Employment" represented a single item which did not significantly load on any factor, but was of interest. For this reason the factor was added. The remaining seven factors were based on from two to six items.

The item loadings on which the labeling of the factors was based did not generally support the expectations of the researcher. The items representing throughput were selected from the data set because they conceptually represented planning, implementing, communicating, and decision making within the household. Family resource management theory posits that these components are critical to the managerial subsystem. Because there were multiple items conceptually associated with each of these managerial components, a factor structure representing these components was expected. Results did not support this expectation.

Only the factors labeled "Household Production Scheduling" and "Decision Making Power" followed this pattern. Six items ascertaining the regularity of scheduling and responsibility for six household tasks were highly correlated with the former factor. Because scheduling represents the extent of planning, or standing plans, for task completion, this factor could be thought to represent this dimension of throughput. Two items loading on the factor labeled "Decision Making Power" assessed the number of rules and associated parental rule enforcement among households with children age 18 or younger. The

other three items loading on this factor ascertained which spouse "has more say in your family" about various social activities. Whereas rules could be interpreted as standing plans, the remaining items loading on this factor were associated with decision making behavior within the household.

A task orientation, rather than association with a throughput component, seemed to dominate the loadings on the other factors. The household maintenance factor (Factor I) considered arrangement and responsibility for household laundry and cleaning; other factors considered grocery shopping and cooking dinner (Factor III), yard work (Factor IV), bill paying and check writing (Factor VI), and care of preteen children (Factor VII). For each of these tasks, a three item sequence ascertained the task scheduling, arrangement, and responsibility. As explained, the scheduling items loaded on the same factor; the remaining two items loaded with the task on single factor dimensions.

Two plausible explanations of this should be considered. First, perhaps the arrangement and responsibility for these tasks within the household really do represent unique managerial situations, which are not similar across tasks. If so, then measuring managerial activity through applied activities may prove useful in future research. And second, although the items conceptually represented managerial concepts, perhaps they did not truly measure those concepts. As stated earlier, the measurement of throughput has eluded researchers for some time. The explanation is not clear. However, the results of the subsequent regression analysis to determine the individual relative

effects of the input and throughput variables provided additional insight.

The factor labeled "Individual Free Time Use" included items assessing the planning of free time use, evaluation of free time use, and frequency of marital communication. Because leisure activities often involve the spouse, level of marital communication may be a necessary component of such joint planning. Or, the free time use and marital communication may be readily apparent indicators of the underlying spousal relationship. Nickols and Abdel-Ghany (1983) report that the spouse's leisure time is a significant, positive predictor of time spent in leisure activities by husbands and wives. As will be considered later, this factor was a significant predictor of output for both husbands and wives.

Specification of Output. Items ascertaining satisfaction with different aspects of life were selected from the data set to represent output. Family resource management theory identifies satisfaction with the degree to which a demand has been met, or the degree of resource use as a concomitant of output.

Following some data recoding and cleaning, 19 satisfaction items, including the two averages for "standard of living" and "job," were factor analyzed using principal components analysis. For the purposes of this analysis spouses were included as individuals, regardless of sex, for a total of 748 responses. Varimax rotation was used to simplify the factor structure and to increase interpretability. On the basis of the eigenvalue-one criterion, application of Catell's scree test to a scatterplot of the eigenvalues, and factor interpretability,

a seven factor structure was chosen as the appropriate solution. This solution accounted for 73.47% of the total variance.

Dimension scale scores were calculated as the mean of the factor loadings equal to or greater than .45. The resulting dimension scale scores for each individual were entered as output in the subsequent analysis of the model. Factor loadings equal to or greater than .45 also were used in the labeling of the factors. Consequently, the factors were labeled as follows:

Factor I	Satisfaction with Personal Belongingness
Factor II	Satisfaction with Economic Status
Factor III	Satisfaction with Family
Factor IV	Satisfaction with Household Production
Factor V	Satisfaction with Personal Autonomy
Factor VI	Satisfaction with Self-esteem
Factor VII	Satisfaction with Educational Attainment

The seven factors were based on from one to four items. An additional dimension score was calculated from the average of the two items assessing satisfaction with "life as a whole." The resulting eight dimension scores served as the dependent variables in the subsequent model analysis.

One of the perceived advantages of this study was the specification of the model in a context broader than a single output (i.e. financial management, household management, etc.). Instead, the operational model included measures of input and throughput which were applicable to various kinds of output. Likewise, output was operationalized on the basis of satisfaction with various aspects of

life. The seven factor structure resulting from the factor analysis and the additional dimension of satisfaction with life represented both intrinsic and extrinsic needs of the individual. In fact, the dimension scores can be interpreted to support Maslow's hierarchy of needs (1970).

The familiar triangular model representing the five stages of human personality development was proposed by Abraham Maslow (1970) who theorized that an individual progresses from the lowest level of physiological needs to the final need for self-actualization. This ultimate state of personality development is contingent on the satisfaction of all earlier needs. Consideration of Maslow's hierarchy is germane to the findings associated with the specification of satisfaction as output.

Physiological needs are the lowest level of the hierarchy, including the needs for water, food, warmth, and sexual contact. Factor IV, "Satisfaction with Household Production," represented the respondent's satisfaction with the main meal of the day, the usual cleanliness of the house, and personal health and energy. Each of these items loading on this factor relate to the physiological needs of the individual.

The second level of Maslow's hierarchy focuses on the need for safety. Included in this level are the needs for personal physical and psychological security resulting from a stable and structured environment where the individual feels free from danger. Although there are other interpretable dimensions for this level of need, the fear of financial failure is a modern day threat. The factor labeled

"Satisfaction with Economic Status" combined aspects of success, income, job, and standard of living into a single dimension. Because self worth is often measured in economic terms, this satisfaction dimension could be considered here, or with the higher level need for self-esteem.

The need for belongingness and love through strong relationships with one or more individuals is the third level of Maslow's hierarchy. Both the factors labeled "Satisfaction with Personal Belongingness" and "Satisfaction with Family" relate to this dimension of Maslow's theory. The former factor ascertained satisfaction with friends, neighbors, family, and free time activities. The latter factor was applicable only to households with children under age 18, and assessed satisfaction with time spent with children, time spent together by the whole family, and success of children.

The fourth level of the hierarchy considers the need for individual esteem, as defined by the need for approval and recognition, as well as a feeling of control over one's life. At least three of the satisfaction factors can be associated with this level of personality development. The factors include "Satisfaction with Self-esteem," "Satisfaction with Autonomy," and "Satisfaction with Educational Attainment." The first of the factors assessed satisfaction with club and organizational participation, as well as social position within the community; social recognition contributes to the need for personal self-esteem. The factor labeled "Satisfaction with Autonomy" reflected personal satisfaction with available free time and available money for discretionary spending; both relate to the ability to control one's

life.

Factor VII, "Satisfaction with Educational Attainment" was based on a single item determining satisfaction with the amount of education received. Because satisfaction with educational attainment may be associated with self-esteem, this factor was included in this level. Maslow considered the need for "intellectual achievement" and did not include it within the five step hierarchy of needs. However, he did recognize this cognitive need as a higher order need.

The ultimate level of personality development was identified by Maslow (1970) as self-actualization. Fulfillment of this need is contingent on satisfaction of the other needs. This concept is similar to that of the determination of life satisfaction. Research indicates that global determinations of life satisfaction are based on satisfaction with "domains" of life which contribute to life satisfaction (Andrews and Withey, 1976; Campbell, Converse, and Rogers, 1976). Given this analogy, the dimension score identified as "Satisfaction with Life" could be considered an approximation of the individual's perception of self-actualization.

And in fact, when the dimension "Satisfaction with Life" was regressed on the individual dimension scores for the other seven factors, the linear combination of variables explained 51.75% of the total variance. The  $R^2$  of .5175, with an associated F of 113.383 was significant at or beyond the .001 level.

Certainly the application of Maslow's hierarchy (1970) to the explanation of the satisfaction factors provided a convenient order for discussion. However, the application goes beyond this approach. This

study was designed to operationalize and empirically test a broadly defined systems model of family resource management. The specification of the model was intentionally broad-based to facilitate the consideration of the theory in an equally broad-based application. By definition, the process of family resource management is not limited to any particular category of resources or demands. The theory does not imply the compartmentalization of life into sectors which can, or cannot, be managed. Analysis of the model relative to the individual's satisfaction with various aspects of life tested not only the structure of the model but also indirectly tested the hypothesized broad applicability of the theory.

Testing the Model for Specification Bias. With the identification of the input, throughput, and output variables completed, specification bias within the model had to be considered. Specifically, should the systems model of family resource management include input and/or throughput variables for both spouses when predicting satisfaction for one spouse? Or, should the model include only those variables relevant to the individual spouse? Multiple regression analyses and calculation of F ratios were used to determine the marginal value of the spouse's input and throughput variables in the prediction of output for the other spouse.

Results supported the inclusion of input and throughput variables for both spouses in the model when predicting satisfaction for one spouse. All subsequent analysis of the systems model of management was based on the full model which included the individual, household, and spouse variables. In other words, these findings suggest that future

modeling efforts for couples should include input and throughput variables representative of the individual, the spouse, and any shared household variables. This finding is consistent with that of Williams (1985) who also considered the application of the systems model of management to couples and concluded that information from both members of the couple should be included when modeling the systems approach to management for either spouse.

Objective II: Determining the Relative Individual  
Effects of Input and Throughput

The second objective of this research was to test the model using regression analysis to determine the relative individual effects of the input and throughput variables in the prediction of output as well as the marginal value of throughput to contribute to the explanation of output, according to the following mathematical equations:

$$\text{Output} = f(\text{Input})$$

$$\text{Output} = f(\text{Input}, \text{Throughput})$$

The mathematical equations represent the restricted and full models, respectively, which were calculated for each of the eight dependent variables to determine the marginal value of throughput. Backward stepwise elimination regression procedures were utilized. Calculation of the F ratio for significantly improved explanation indicated that the full model, including input and throughput for both spouses, was the statistically superior model specification. This finding supports the systems approach to management since the inclusion of throughput, as measured to represent managerial behavior, improved

the explanation of variance in the prediction of output.

Given the statistical support for the model specification including input and throughput for the individual and the spouse in the prediction of output for one spouse, the relative individual effects of the predictor variables could be explored. The eight criterion variables for the male and female spouses were regressed on the 37 predictor variables representing input and throughput. Results indicated that 28 of the 37 variables remained in at least one of the 16 models when backward stepwise elimination regression procedures were used.

Of the 21 input variables, two were not significant predictors of satisfaction in any equation. The two variables represented resources: personal maintenance time of the wife and husband's personal income. Family income, husband's work time, husband's nonwork time, home ownership, and age of the youngest child were the most common predictors of output. Of these input variables, both husband's work time and age of the youngest child were considered demands.

Of the 16 throughput variables considered in the equations, two variables were not significant in the prediction of output for husbands or wives. Neither the husbands' nor wives' throughput measures for scheduling of household production or household food production were significant predictors of satisfaction. Only the measures of individual free time use, decision making power, and decision making power regarding the wife's employment plans for both husbands and wives were significant throughput predictors. Other predictor measures for one spouse were significant, but were not significant for both

spouses.

Conceptually, these three throughput dimensions represent planning, communicating, and decision making. Management theory identifies these concepts as essential to managerial behavior. Results related to these factors suggest that both husbands and wives prefer a shared decision making situation as opposed to decision making power vested in either spouse. Greater satisfaction also was associated with households where planning occurred regularly and the couple frequently talked to one another. These findings, although tentative, support management theory.

Results of the regression analysis consistently supported the broad-based specification of the output measure. Models for each of the eight criterion variables, for husbands and wives, were statistically significant at or beyond the .05 level. However, there were consistent differences in the models by sex. For five of the eight criterion variables, the  $R^2$  representing the percentage of total variance explained was higher for the wives' model than the husbands' model. For only three models, satisfaction with family and satisfaction with economic status, family and self-esteem, did the explanation of variance in the linear model for husbands exceed that of the wives' model.

#### Objective III: Testing for the Causal Relationships

The third objective of the research was to use path analysis to test the model for causal relationships among the composite variables of input, throughput, and output, according to the following

mathematical equations:

$$\text{Output} = f(\text{Input})$$

$$\text{Throughput} = f(\text{Input})$$

$$\text{Output} = f(\text{Input}, \text{Throughput})$$

The empirical test of the theoretical proposition that a causal relationship exists between input and throughput to result in output was based on the final models resulting from the preliminary backward stepwise elimination procedures. Unique models for each of the criterion variables were calculated for male and female spouses.

Significant predictor variables remaining in the final regression equations were combined as composite variables representing demands, human resources, material resources, and throughput. Variables included in these models were combined into the particular composite variables by multiplying the respective individual variables by their unstandardized beta weights and then summing the products. The recursive model considered only the relationships among input (demands, human resources, and material resources), throughput, and output; feedback was not considered.

Results of the path analysis provide some support for the theoretical proposition that output is a function of input and throughput. Findings suggest that input is partially mediated by throughput but not totally so, as indicated by the theory. Specifically, the indirect effects of input as mediated by throughput were consistently weaker, for both husbands and wives, than the direct effects of input on output. Had the path analysis strongly supported the theoretical proposition, the reverse would have been true.

Whereas the path models reflected the preliminary regression analyses, the differences in the predictability of the models by gender also was similar. For only three models, husbands' satisfaction with economic status, self-esteem, and life, did the explanation of variance in the husbands' models exceed that of the wives. All 16 models were significant at or beyond the .05 level. These findings also support the broad conceptualization of family resource management as applicable to intrinsic as well as extrinsic demands.

Models for three of the criterion variables, satisfaction with household production, with personal autonomy, and with life, included a full complement of input (demands, human and material resources) and throughput variables for husbands and wives. These models supported the theorized model relationships and specification. Furthermore, the criterion variables ranged from the mundane, satisfaction with household production, to the esoteric, satisfaction with life, providing further support for the broad conceptualization of management.

### Conclusions

The following conclusions were derived from the results of this research:

1. Results of the sample description support the representativeness of the sample population on which this study was based.

Therefore, results can reasonably be generalized to other similar populations.

2. The factor structure resulting from the analysis of the management items was surprising. Only two factors, "Household Production Scheduling" and "Decision Making Power," followed the expected pattern of loading on a factor which conceptually represented planning, implementing, communicating, or decision making within the household. A household production task orientation, rather than association with a throughput component, seemed to dominate the other factors. However, the results supported the existence of identifiable, interpretable structures underlying the items. This structure represented the concepts essential to a measure of throughput as well as household demands which are met as a result of input and throughput.
3. Results of the factor analysis of the satisfaction items yielded a factor structure which could be categorized according to Maslow's five stages of human needs. These results support the existence of an identifiable, interpretable structure underlying the items. In addition, the structure provided an opportunity for testing the systems model of management in the context of the diversity of demands with which an individual, or household, must cope.
4. When modeling the systems approach to management for couples, input and throughput variables for both spouses should be considered when predicting output for either spouse. Results of the tests of increased explanation of variance support this conclusion. In other words, this finding suggests that future modeling efforts for couples should include input and throughput

variables representative of the individual, the spouse, and any shared household variables.

5. Throughput, or a measure of managerial behavior, improved the explanation of variance for male and female spouses when regression analyses and tests for increased explanation of variance were used. This finding supports the systems approach to management, since the inclusion of throughput, as measured to represent managerial behavior, improved the explanation of variance in the prediction of output.
6. Analysis of the individual effects of the input and throughput variables in the prediction of output generally supported the model specification and relationships. Only two input variables, personal maintenance time of the wives and personal income of the husbands, failed to remain in any equation as significant predictors of output. Household production scheduling and household food production were the only throughput variables which were consistently nonsignificant, as measured for husbands or wives, in the prediction of output.
7. Family income, husband's work time, husband's nonwork time, home ownership, and age of the youngest child were the most common predictors of output. Of these input variables, both husband's work time and age of the youngest child were considered demands. These findings support the model specification and relationships.
8. Only three throughput dimensions, individual free time use, decision making power, and decision making power regarding the

wife's employment plans, were significant predictors as measured for husbands and wives. Conceptually, these three dimensions represented planning, communicating, and decision making.

Management theory identifies these concepts as essential to managerial behavior.

9. Results of the path analysis provide some support for the theorized causal relationship that output is a function of input and throughput. The effect of input was partially mediated by throughput. However, the direct effects of input on output were consistently stronger than the indirect effects as mediated by throughput.
10. Results of the regression analysis and the path analysis support the superiority of the models to predict output for the wives. The explanation of variance for the wives generally exceeded that for the husbands.
11. Results of the regression analysis and the path analysis clearly verified the prediction of satisfaction as an output. These findings support the theorized relationships, i.e. satisfaction as an output of the systems approach to management. The diversity of the aspects of life satisfaction also support the hypothesized broad applicability of management theory.
12. Time use by both male and female spouses significantly affected the prediction of output.

#### Recommendations

Recommendations for future research include the following:

1. Results of this study indicated that family income, husbands' work time, husbands' nonwork time, home ownership, and age of the youngest child were the most common predictors of output. Future investigations of the systems approach to family resource management or related topics should consider these demands and resources.
2. Results of this study suggest that future efforts to measure managerial behavior may need to integrate management concepts within the context of a situation. First, the results provided support for the importance of the concepts of planning, communicating, and decision making within the managerial subsystem of throughput. Second, a task orientation pervaded the throughput factor structure, suggesting that perhaps the arrangement and responsibility for tasks within the household represent unique managerial situations. If so, measuring managerial activity through applied activities may prove useful in future research.
3. Results of this study support the inclusion of communication as a measure of throughput. Swift (1985) concurred, but suggested that communication may also function as feedback within the systems model. Future research should explore this relationship.
4. Efforts to clearly delineate and measure the concepts and/or behavior representative of the managerial subsystem should continue. Use of secondary data sets, based on large

- representative samples, could provide insight to the refinement of such a measure. However, the development of a reliable measure of such behavior, whether in a generic or applied approach, would contribute to a better understanding of household managerial behavior. Such an advancement also would contribute to the development of a diagnostic measure which could help individuals and families improve managerial behavior.
5. Future efforts to model the systems approach to family resource management should consider the role and specification of the personal subsystem within the family system. Since individual satisfaction or dissatisfaction with managerial behavior evolves from the personal subsystem, a linkage of these components of the model may prove fruitful. Past research focusing on the managerial subsystem often considered only the instrumental, or applied behavioral applications for the individual. Affective aspects of the development and maintenance of the individual within the context of a managerial system also should be considered.
  6. The role of community resources within the managerial system of the household should be considered in future modeling efforts. Management theorists assert that these resources are an important asset to the family, yet their role in household managerial activity has not been empirically considered.
  7. Results of this study suggest that the applicability of the systems model of management clearly varies by gender. The explanation of variance, when using regression analysis and path

analysis, was consistently higher for females than males. This relationship should be investigated in future research.

8. Past efforts to develop a comprehensive systems model of family resource management have considered only the general population. The unique managerial situations of special populations (i.e. single parent families, low income families, families with handicapped members, elderly families) also should be considered.
  9. Much of the current research in family resource management and family economics as well as sociology, economics, and other related fields has focused on the explanation of family time use as a dependent variable. Sufficient data have been collected, in conjunction with data on other household interests, to support the inclusion of time use as an independent variable in the explanation of related household activities.
  10. Factor analysis, multiple regression, path analysis, and other multivariate statistical techniques are valuable tools for evaluating the validity of household managerial concepts. However, researchers should continue to explore the application of new statistical tools for future investigations of the systems approach to family resource management or other related topics.
- Recommendations for educators include the following:
1. Three throughput dimensions, individual free time use, decision making power, and decision making power regarding the wife's employment plans, were significant predictors as measured for husbands and wives. The first dimension, as measured for the

wives, was a significant predictor in 13 of the 16 equations. Similarly, this dimension, when measured for the husbands, was a significant predictor for four criterion variables for the husbands and three criterion variables for the wives. Conceptually, this dimension represented planning and communicating; planning was measured relative to free time use. The other two dimensions, which were significant predictors of satisfaction as measured for husbands and wives, dealt with decision making.

Results related to these dimensions suggest that both husbands and wives prefer a shared decision making situation as opposed to decision making power vested in either spouse. Greater satisfaction also was associated with households where planning occurred regularly and the couple frequently talked to one another. These findings, although tentative, support management theory. Furthermore, the apparent importance of these concepts as a part of managerial behavior suggests that family resource management educators should focus on these concepts when training professionals, paraprofessionals, and the public.

2. This study tested the systems model of management in the context of satisfaction with eight aspects of life. These life dimensions could be generalized as representative of the five levels of human needs as proposed by Abraham Maslow (1970). All equations, when using regression analysis and path analysis, were statistically significant, although the explanation of variance for the wives exceeded that for the husbands. These findings

support the broad applicability of management theory to individual and household demands.

When the individual effects of the throughput variables were considered, two dimensions were nonsignificant predictors of satisfaction in all equations: household production scheduling and household food production activities. Both of these throughput variables relate to household work.

These findings suggest that family resource management should be taught in the holistic context which the systems approach highlighted. In other words, home management instruction should focus beyond the familiar task orientation to the application of the theory to the multiplicity of demands of everyday life. Theorists have advocated the broad applicability of family resource management; findings from this research provide empirical support for this position. Educators also should adopt this perspective as they train professionals, paraprofessionals, and the public.

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## Appendix A

### Selected Questions from the 1975-81 Time Use Longitudinal Panel Study

#### Questionnaire Numbering System and Corresponding Data Collection Wave

V1000 to V1999	Wave 1	February - April, 1981
V4000 to V4999	Wave 4	November - December, 1981
V5000 to V5999	Wave 1	February - April, 1981
V6000 to V6999	Wave 2	May - July, 1981
V7000 to V7999	Wave 3	August - September, 1981
V8000 to V8999	Wave 4	November - December, 1981

V1004 SEX OF R

-----  
Code sex of Respondent

- 1. MALE
- 2. FEMALE
- 9. NA

V1005 AGE OF R

-----  
Code age in years now

- CODE ACTUAL AGE (01-97)
- 97. 97 OR MORE
  - 98. D.K.
  - 99. N.A.

V1017 FANMBR2:SEX

-----  
Code sex of family member #2

USE SAME CODES AS V1004 EXCEPT:

- 1. MALE
- 2. FEMALE
- 9. NA
- 0. INAPPROPRIATE; NO OTHER FAMILY MEMBERS

V1018 FANMBR2:AGE

-----  
Code age of family member #2 in years now

USE SAME CODES AS V1005 EXCEPT:

- CODE ACTUAL AGE (01-97)
- 97. 97 OR MORE
  - 98. D.K.
  - 99. N.A.
  - 00. INAPPROPRIATE; NO OTHER FAMILY MEMBERS

V1024 FANMBR3:SEX

-----  
Code sex of family member #3

USE SAME CODES AS V1004 EXCEPT:

- 1. MALE
- 2. FEMALE
- 9. NA
- 0. INAPPROPRIATE; NO OTHER FAMILY MEMBERS

**V1025 FAMNBR3:AGE**

-----  
Code age of family member #3 in years now

USE SAME CODES AS V1005 EXCEPT:

CODE ACTUAL AGE (01-97)

97. 97 OR MORE

98. D.K.

99. N.A.

00. INAPPROPRIATE; NO OTHER FAMILY MEMBERS

**V1031 FAMNBR4:SEX**

-----  
Code sex of family member #4

USE SAME CODES AS V1004 EXCEPT:

1. MALE

2. FEMALE

9. NA

0. INAPPROPRIATE; NO OTHER FAMILY MEMBERS

**V1032 FAMNBR4:AGE**

-----  
Code age of family member #4 in years now

USE SAME CODES AS V1005 EXCEPT:

CODE ACTUAL AGE (01-97)

97. 97 OR MORE

98. D.K.

99. N.A.

00. INAPPROPRIATE; NO OTHER FAMILY MEMBERS

**V1038 FAMNBR5:SEX**

-----  
Code sex of family member #5

USE SAME CODES AS V1004 EXCEPT:

1. MALE

2. FEMALE

9. NA

0. INAPPROPRIATE; NO OTHER FAMILY MEMBERS

**V1039 FAMNBR5:AGE**

-----  
Code age of family member #5 in years now

USE SAME CODES AS V1005 EXCEPT:

CODE ACTUAL AGE (01-97)

97. 97 OR MORE

98. D.K.

99. N.A.

00. INAPPROPRIATE; NO OTHER FAMILY MEMBERS

**V1045 FANBR6:SEX**  
-----

Code sex of family member #6

USE SAME CODES AS V1004 EXCEPT:

1. MALE
2. FEMALE
9. NA
0. INAPPROPRIATE; NO OTHER FAMILY MEMBERS

**V1046 FANBR6:AGE**  
-----

Code age of family member #6 in years now

USE SAME CODES AS V1005 EXCEPT:

CODE ACTUAL AGE (01-97)

97. 97 OR MORE
98. D.K.
99. N.A.
00. INAPPROPRIATE; NO OTHER FAMILY MEMBERS

**V1052 FANBR7:SEX**  
-----

Code sex of family member #7

USE SAME CODES AS V1004 EXCEPT:

1. MALE
2. FEMALE
9. NA
0. INAPPROPRIATE; NO OTHER FAMILY MEMBERS

**V1053 FANBR7:AGE**  
-----

Code age of family member #7 in years now

USE SAME CODES AS V1005 EXCEPT:

CODE ACTUAL AGE (01-97)

97. 97 OR MORE
98. D.K.
99. N.A.
00. INAPPROPRIATE; NO OTHER FAMILY MEMBERS

**V1059 FANBR8:SEX**  
-----

Code sex of family member #8

USE SAME CODES AS V1004 EXCEPT:

1. MALE
2. FEMALE
9. NA
0. INAPPROPRIATE; NO OTHER FAMILY MEMBERS

## V1060 FAMNBR8:AGE

-----  
Code age of family member #8 in years now

USE SAME CODES AS V1005 EXCEPT:

CODE ACTUAL AGE (01-97)

97. 97 OR MORE

98. D.K.

99. N.A.

00. INAPPROPRIATE; NO OTHER FAMILY MEMBERS

## V1066 FAMNBR9:SEX

-----  
Code sex of family member #9

USE SAME CODES AS V1004 EXCEPT:

1. MALE

2. FEMALE

9. NA

0. INAPPROPRIATE; NO OTHER FAMILY MEMBERS

## V1067 FAMNBR9:AGE

-----  
Code age of family member #9 in years now

USE SAME CODES AS V1005 EXCEPT:

CODE ACTUAL AGE (01-97)

97. 97 OR MORE

98. D.K.

99. N.A.

00. INAPPROPRIATE; NO OTHER FAMILY MEMBERS

## V4033 WAVE 2 MOVER IN #1-SEX

-----  
Code sex of mover in #1

1. MALE

2. FEMALE

9. NA

0. INAP; NO MOVER IN

## V4038 WAVE 2 MOVER IN #2-SEX

-----  
Code sex of mover in #2

USE SAME CODES AS V4033

1. MALE

2. FEMALE

9. NA

0. INAP; NO MOVER IN

## V4043 WAVE 2 MOVER IN #3-SEX

-----

Code sex of mover in #3

USE SAME CODES AS V4033

1. MALE
2. FEMALE
9. NA
0. INAP; NO MOVER IN

V4048 WAVE 2 MOVER OUT #1-SEX

-----

Code sex of mover out #1

USE SAME CODES AS V4033 EXCEPT:

1. MALE
2. FEMALE
9. NA
0. INAP; NO MOVER OUT

V4053 WAVE 2 MOVER OUT #2-SEX

-----

Code sex of mover out #2

USE SAME CODES AS V4033 EXCEPT:

1. MALE
2. FEMALE
9. NA
0. INAP; NO MOVER OUT

V4058 WAVE 2 MOVER OUT #3-SEX

-----

Code sex of mover out #3

USE SAME CODES AS V4033 EXCEPT:

1. MALE
2. FEMALE
9. NA
0. INAP; NO MOVER OUT

V4070 WAVE 3 MOVER IN #1-SEX

-----

Code sex of mover in #1

USE SAME CODES AS V4033 EXCEPT:

1. MALE
2. FEMALE
9. NA
0. INAP; NO MOVER IN

V4075 WAVE 3 MOVER IN #2-SEX

-----

Code sex of mover in #2

USE SAME CODES AS V4033 EXCEPT:

1. MALE
2. FEMALE
9. NA
0. INAP; NO MOVER IN

**V4080 WAVE 3 MOVER IN #3-SEX**  
-----

Code sex of mover in #3

USE SAME CODES AS V4033 EXCEPT:

1. MALE
2. FEMALE
9. NA
0. INAP; NO MOVER IN

**V4085 WAVE 3 MOVER IN #4-SEX**  
-----

Code sex of mover in #4

USE SAME CODES AS V4033 EXCEPT:

1. MALE
2. FEMALE
9. NA
0. INAP; NO MOVER IN

**V4090 WAVE 3 MOVER IN #5-SEX**  
-----

Code sex of mover in #5

USE SAME CODES AS V4033 EXCEPT:

1. MALE
2. FEMALE
9. NA
0. INAP; NO MOVER IN

**V4095 WAVE 3 MOVER OUT #1-SEX**  
-----

Code sex of mover out #1

USE SAME CODES AS V4033 EXCEPT:

1. MALE
2. FEMALE
9. NA
0. INAP; NO MOVER OUT

**V4100 WAVE 3 MOVER OUT #2-SEX**  
-----

Code sex of mover out #2

USE SAME CODES AS V4033 EXCEPT:

1. MALE
2. FEMALE
9. NA

0. INAP; NO MOVER OUT

V4105 WAVE 3 MOVER OUT #3-SEX

---

Code sex of mover out #3

USE SAME CODES AS V4033 EXCEPT:

1. MALE
2. FEMALE
9. NA
0. INAP; NO MOVER OUT

V4110 WAVE 3 MOVER OUT #4-SEX

---

Code sex of mover out #4

USE SAME CODES AS V4033 EXCEPT:

1. MALE
2. FEMALE
9. NA
0. INAP; NO MOVER OUT

V4123 WAVE 4 MOVER IN #1-SEX

---

Code sex of mover in #1

USE SAME CODES AS V4033 EXCEPT:

1. MALE
2. FEMALE
9. NA
0. INAP; NO MOVER IN

V4128 WAVE 4 MOVER OUT #1-SEX

---

Code sex of mover out #1

USE SAME CODES AS V4033 EXCEPT:

1. MALE
2. FEMALE
9. NA
0. INAP; NO MOVER OUT

V4133 WAVE 4 MOVER OUT #2-SEX

---

Code sex of mover out #2

USE SAME CODES AS V4033 EXCEPT:

1. MALE
2. FEMALE
9. NA
0. INAP; NO MOVER OUT

V4138 WAVE 4 MOVER OUT #3-SEX

-----  
 Code sex of mover out #3

USE SAME CODES AS V4033 EXCEPT:

1. MALE
2. FEMALE
9. NA
0. INAP; NO MOVER OUT

V4143 WAVE 4 MOVER OUT #4-SEX

-----  
 Code sex of mover out #4

USE SAME CODES AS V4033 EXCEPT:

1. MALE
2. FEMALE
9. NA
0. INAP; NO MOVER OUT

V5014 Do you (and your family) own or are you buying this  
 (house/apartment), or do you pay rent, or what?

- 
1. OWNS OR IS BUYING
  2. PAYS RENT
  3. NEITHER OWNS NOR PAYS RENT
  4. BOTH OWNS AND RENTS
  7. OTHER (SPECIFY):
  9. NA
  0. INAP, SPOUSE INTERVIEW

V5023 How do you feel about your life as a whole?

- 
1. TERRIBLE
  2. UNHAPPY
  3. MOSTLY DISSATISFIED
  4. MIXED (ABOUT EQUALLY SATISFIED AND  
 DISSATISFIED)
  5. MOSTLY SATISFIED
  6. PLEASED
  7. DELIGHTED
  8. (A) NO FEELINGS ABOUT; (B) NEVER THOUGHT  
 ABOUT IT
  9. NA; DK
  0. INAP, SPOUSE INTERVIEW

V5024 How do you feel about the income you (and your family)  
 have?

- 
1. TERRIBLE
  2. UNHAPPY
  3. MOSTLY DISSATISFIED
  4. MIXED (ABOUT EQUALLY SATISFIED AND  
 DISSATISFIED)

5. MOSTLY SATISFIED
6. PLEASED
7. DELIGHTED
8. (A) NO FEELINGS ABOUT; (B) NEVER THOUGHT ABOUT IT
9. NA; DK
0. INAP, SPOUSE INTERVIEW

V5025 How do you feel about your standard of living--the things you have like housing, car furniture, recreation, and the like?

- 
1. TERRIBLE
  2. UNHAPPY
  3. MOSTLY DISSATISFIED
  4. MIXED (ABOUT EQUALLY SATISFIED AND DISSATISFIED)
  5. MOSTLY SATISFIED
  6. PLEASED
  7. DELIGHTED
  8. (A) NO FEELINGS ABOUT; (B) NEVER THOUGHT ABOUT IT
  9. NA; DK
  0. INAP, SPOUSE INTERVIEW

V5026 ...the extent to which you are achieving success and getting ahead?

- 
1. TERRIBLE
  2. UNHAPPY
  3. MOSTLY DISSATISFIED
  4. MIXED (ABOUT EQUALLY SATISFIED AND DISSATISFIED)
  5. MOSTLY SATISFIED
  6. PLEASED
  7. DELIGHTED
  8. (A) NO FEELINGS ABOUT; (B) NEVER THOUGHT ABOUT IT
  9. NA; DK
  0. INAP, SPOUSE INTERVIEW

V5027 ...your job?

- 
1. TERRIBLE
  2. UNHAPPY
  3. MOSTLY DISSATISFIED
  4. MIXED (ABOUT EQUALLY SATISFIED AND DISSATISFIED)
  5. MOSTLY SATISFIED
  6. PLEASED
  7. DELIGHTED
  8. (A) NO FEELINGS ABOUT; (B) NEVER THOUGHT ABOUT IT

- 9. NA; DK
- 0. NOT EMPLOYED; INAP, SPOUSE INTERVIEW

V5122 Now, I would like you to think about your own income for last year, 1980. How much did you receive from wages and salaries on all jobs, including overtime, and from your own business and profession, before deductions in 1980?

-----  
 Code edited amount from "SAL" boxes  
 999 95. \$99,995 OR MORE  
 999 98. DK  
 999 99. NA  
 000 00. NONE; INAP; SPOUSE INTERVIEW

V5129 What would your total family income for 1980 be if you included the incomes of everyone in your family?

-----  
 999 95. \$99,995 OR MORE  
 999 98. DK  
 999 99. NA  
 000 00. NONE; INAP; SPOUSE INTERVIEW

V5130 Suppose you (and your family living there) were to sell all of your major possessions (including your home), turn all your investments and other assets into cash, and pay all of your debts. Would you have something left over, break even, or be in debt?

-----  
 1. HAVE SOMETHING LEFT OVER  
 2. BREAK EVEN  
 3. BE IN DEBT  
 8. DK  
 9. NA  
 0. INAP, SPOUSE INTERVIEW

V5134 What is the highest grade of school or year of college you completed?

-----  
 Code HIGHEST GRADE marked (00-19)

00. NONE  
 19. NINETEEN YEARS/GRADES OR MORE  
 98. DK  
 99. NA

V5156 Now we'd like to ask some questions about the way you and the members of your household schedule household chores. I am going to read a list of chores, and for each one please tell me if it is almost always done by the same person or whether there is some other arrangement. First, how about... cooking dinner? Is this almost always done

by the same person, or is there some other arrangement?

-----

1. ALMOST ALWAYS DONE BY THE SAME PERSON
3. OTHER ARRANGEMENT
9. NA
0. INAP, SPOUSE INTERVIEW; RESPONDENT DOES NOT LIVE WITH PERSON(S) AGE 6 OR OLDER

V5157 Who usually does this?/Which people usually do this?

-----

1. R
2. SPOUSE
3. R & SPOUSE
4. R & CHILD(REN)
5. SPOUSE & CHILD(REN)
6. R AND OTHER(S)
7. OTHER
8. SPOUSE AND OTHER(S)
9. NA;DK
0. INAP; SPOUSE INTERVIEW; RESPONDENT DOES NOT LIVE WITH PERSON(S) AGE 6 OR OLDER

V5158 Is there a regular schedule for doing this?/Is there a regular schedule for who does this or when it is done?

-----

1. YES
5. NO
8. DK
9. NA
0. INAP; SPOUSE INTERVIEW; RESPONDENT DOES NOT LIVE WITH PERSON(S) AGE 6 OR OLDER

V5159 How about doing laundry? Is this almost always done by the same person, or is there some other arrangement?

-----

1. ALMOST ALWAYS DONE BY THE SAME PERSON
3. OTHER ARRANGEMENT
9. NA
0. INAP; SPOUSE INTERVIEW; RESPONDENT DOES NOT LIVE WITH PERSON(S) AGE 6 OR OLDER

V5160 Who usually does this?/Which people usually do this?

-----

1. R
2. SPOUSE
3. R & SPOUSE
4. R & CHILD(REN)

5. SPOUSE & CHILD(REN)
6. R AND OTHER(S)
7. OTHER
8. SPOUSE AND OTHER(S)
9. NA;DK
0. INAP; SPOUSE INTERVIEW; RESPONDENT DOES NOT LIVE WITH PERSON(S) AGE 6 OR OLDER

V5161 Is there a regular schedule for doing this?/Is there a regular schedule for who does this or when it is done?  
-----

1. YES
5. NO
8. DK
9. NA
0. INAP; SPOUSE INTERVIEW; RESPONDENT DOES NOT LIVE WITH PERSON(S) AGE 6 OR OLDER

V5162 Cleaning the house? (Is this almost always...?)  
-----

1. ALMOST ALWAYS DONE BY THE SAME PERSON
3. OTHER ARRANGEMENT
9. NA
0. INAP; SPOUSE INTERVIEW; RESPONDENT DOES NOT LIVE WITH PERSON(S) AGE 6 OR OLDER

V5163 Who usually does this?/Which people usually do this?  
-----

1. R
2. SPOUSE
3. R & SPOUSE
4. R & CHILD(REN)
5. SPOUSE & CHILD(REN)
6. R AND OTHER(S)
7. OTHER
8. SPOUSE AND OTHER(S)
9. NA;DK
0. INAP; SPOUSE INTERVIEW; RESPONDENT DOES NOT LIVE WITH PERSON(S) AGE 6 OR OLDER

V5164 Is there a regular schedule for doing this?/Is there a regular schedule for who does this or when it is done?  
-----

1. YES
5. NO
8. DK
9. NA
0. INAP; SPOUSE INTERVIEW; RESPONDENT DOES NOT

## LIVE WITH PERSON(S) AGE 6 OR OLDER

V5165 Writing checks and keeping track of bills? (Is this almost always...?)

-----

1. ALMOST ALWAYS DONE BY THE SAME PERSON
3. OTHER ARRANGEMENT
9. NA
0. INAP; SPOUSE INTERVIEW; RESPONDENT DOES NOT LIVE WITH PERSON(S) AGE 6 OR OLDER

V5166 Who usually does this?/Which people usually do this?

-----

1. R
2. SPOUSE
3. R & SPOUSE
4. R & CHILD(REN)
5. SPOUSE & CHILD(REN)
6. R AND OTHER(S)
7. OTHER
8. SPOUSE AND OTHER(S)
9. NA;DK
0. INAP; SPOUSE INTERVIEW; RESPONDENT DOES NOT LIVE WITH PERSON(S) AGE 6 OR OLDER

V5167 Is there a regular schedule for doing this?/Is there a regular schedule for who does this or when it is done?

-----

1. YES
5. NO
8. DK
9. NA
0. INAP; SPOUSE INTERVIEW; RESPONDENT DOES NOT LIVE WITH PERSON(S) AGE 6 OR OLDER

V5168 Grocery shopping? (Is this almost always...?)

-----

1. ALMOST ALWAYS DONE BY THE SAME PERSON
3. OTHER ARRANGEMENT
9. NA
0. INAP; SPOUSE INTERVIEW; RESPONDENT DOES NOT LIVE WITH PERSON(S) AGE 6 OR OLDER

V5169 Who usually does this?/Which people usually do this?

-----

1. R
2. SPOUSE

3. R & SPOUSE
4. R & CHILD(REN)
5. SPOUSE & CHILD(REN)
6. R AND OTHER(S)
7. OTHER
8. SPOUSE AND OTHER(S)
9. NA;DK
0. INAP; SPOUSE INTERVIEW; RESPONDENT DOES NOT LIVE WITH PERSON(S) AGE 6 OR OLDER

V5170 Is there a regular schedule for doing this?/Is there a regular schedule for who does this or when it is done?  
-----

1. YES
5. NO
8. DK
9. NA
0. INAP; SPOUSE INTERVIEW; RESPONDENT DOES NOT LIVE WITH PERSON(S) AGE 6 OR OLDER

V5171 Outdoor cleaning and yard work? (Is this almost always..?)  
-----

1. ALMOST ALWAYS DONE BY THE SAME PERSON
3. OTHER ARRANGEMENT
9. NA
0. INAP; SPOUSE INTERVIEW; RESPONDENT DOES NOT LIVE WITH PERSON(S) AGE 6 OR OLDER

V5172 Who usually does this?/Which people usually do this?  
-----

1. R
2. SPOUSE
3. R & SPOUSE
4. R & CHILD(REN)
5. SPOUSE & CHILD(REN)
6. R AND OTHER(S)
7. OTHER
8. SPOUSE AND OTHER(S)
9. NA;DK
0. INAP; SPOUSE INTERVIEW; RESPONDENT DOES NOT LIVE WITH PERSON(S) AGE 6 OR OLDER

V5173 Is there a regular schedule for doing this?/Is there a regular schedule for who does this or when it is done?  
-----

1. YES

- 5. NO
- 8. DK
- 9. NA
- 0. INAP; SPOUSE INTERVIEW; RESPONDENT DOES NOT LIVE WITH PERSON(S) AGE 6 OR OLDER

V5174 How about care of your preteen child(ren)? (Is this almost always...?)

-----

- 1. ALMOST ALWAYS DONE BY THE SAME PERSON
- 3. OTHER ARRANGEMENT
- 9. NA
- 0. INAP; SPOUSE INTERVIEW; RESPONDENT DOES NOT LIVE WITH PERSON(S) AGE 6 OR OLDER

V5175 Who usually does this?/Which people usually do this?

-----

- 1. R
- 2. SPOUSE
- 3. R & SPOUSE
- 4. R & CHILD(REN)
- 5. SPOUSE & CHILD(REN)
- 6. R AND OTHER(S)
- 7. OTHER
- 8. SPOUSE AND OTHER(S)
- 9. NA;DK
- 0. INAP; SPOUSE INTERVIEW; RESPONDENT DOES NOT LIVE WITH PERSON(S) AGE 6 OR OLDER

V6012 In this interview, I need to update some information you had given us before and get your opinions on various topics. In addition, I will be asking you about how you spend your time. First, I have some questions about things you have in your home. I will read you a list of items people may have. For each one, please tell me whether you have any in working order. First, do you have a sewing machine?

a. Sewing machine?

-----

- 1. YES
- 5. NO
- 8. DK
- 9. NA
- 0. INAP; SPOUSE INTERVIEW

V6013 b. Vacuum cleaner?

-----

V6014 c. Garbage disposal?

-----

- V6015 d. Power drill?  
-----
- V6016 e. Power saw?  
-----
- V6017 f. Garden tractor?  
-----
- V6018 g. Power lawn mower?  
-----
- V6019 h. Power garden tools?  
-----
- V6022 n. Stereo system?  
-----
- V6023 n. Radio, including car radio?  
-----
- V6024 o. Portable tape recorder?  
-----
- V6025 p. Hand calculator?  
-----
- V6026 q. Home computer?  
-----
- V6027 r. Central air conditioning?  
-----
- V6029 a. Room air conditioner?  
-----
- V6034 t. Dishwasher?  
-----
- V6036 u. Refrigerator?  
-----
- V6041 v. Separate freezer?  
-----
- V6043 w. Microwave oven?  
-----
- V6045 x. Range or stove?  
-----
- V6048 y. Hot water heater?  
-----
- V6051 z. Clothes dryer?  
-----
- V6054 aa. Washing machine?  
-----
- V6056 bb. Black and white TV in your home?  
-----
- V6061 cc. Color TV in your home?  
-----
- V6067 How do you feel about your life as a whole?  
-----

1. TERRIBLE
2. UNHAPPY
3. MOSTLY DISSATISFIED
4. MIXED (ABOUT EQUALLY SATISFIED AND DISSATISFIED)
5. MOSTLY SATISFIED

6. PLEASED
7. DELIGHTED
8. (B) NEVER THOUGHT ABOUT IT
9. (A) NO FEELINGS ABOUT IT
0. INAP; RESPONDENT INTERVIEW

V6068 How do you feel about the income you and your family have?  
-----

1. TERRIBLE
2. UNHAPPY
3. MOSTLY DISSATISFIED
4. MIXED (ABOUT EQUALLY SATISFIED AND DISSATISFIED)
5. MOSTLY SATISFIED
6. PLEASED
7. DELIGHTED
8. (B) NEVER THOUGHT ABOUT IT
9. (A) NO FEELINGS ABOUT IT
0. INAP; RESPONDENT INTERVIEW

V6069 How do you feel about your standard of living--the things you have like housing, car, furniture, recreation, and the like?  
-----

1. TERRIBLE
2. UNHAPPY
3. MOSTLY DISSATISFIED
4. MIXED (ABOUT EQUALLY SATISFIED AND DISSATISFIED)
5. MOSTLY SATISFIED
6. PLEASED
7. DELIGHTED
8. (B) NEVER THOUGHT ABOUT IT
9. (A) NO FEELINGS ABOUT IT
0. INAP; RESPONDENT INTERVIEW

V6070 ...the extent to which you are achieving success and getting ahead?  
-----

1. TERRIBLE
2. UNHAPPY
3. MOSTLY DISSATISFIED
4. MIXED (ABOUT EQUALLY SATISFIED AND DISSATISFIED)
5. MOSTLY SATISFIED
6. PLEASED
7. DELIGHTED
8. (B) NEVER THOUGHT ABOUT IT
9. (A) NO FEELINGS ABOUT IT
0. INAP; RESPONDENT INTERVIEW

V6071 ...your job?

- 
1. TERRIBLE
  2. UNHAPPY
  3. MOSTLY DISSATISFIED
  4. MIXED (ABOUT EQUALLY SATISFIED AND DISSATISFIED)
  5. MOSTLY SATISFIED
  6. PLEASED
  7. DELIGHTED
  8. (B) NEVER THOUGHT ABOUT IT
  9. (A) NO FEELINGS ABOUT IT
  0. INAP; NOT EMPLOYED

V6241 Family decision making is something that may take up a portion of someone's time. In most families whether the husband or the wife has the most say about some decisions, even though they may talk it over first. I will read some items to you and I would like you to tell me who has more say in your family.

For instance, who usually has the most say about which couples you see most often--would you say you almost always decide, you mostly decide, your (husband/wife) mostly decides, or your (husband/wife) almost always decides?

-----

1. HUSBAND ALMOST ALWAYS
2. HUSBAND MOSTLY
3. BOTH EQUAL
4. WIFE MOSTLY
5. WIFE ALMOST ALWAYS
8. DEPENDS, DON'T KNOW
9. NA
0. INAP; R IS NOT MARRIED AND/OR IS NOT LIVING WITH SPOUSE

V6242 ...how about which relatives you see?  
 (PROBE IF NECESSARY TO GET SPECIFIC RESPONSE) (Do you/does your \_\_\_\_\_) decide almost always or just mostly?)

-----

1. HUSBAND ALMOST ALWAYS
2. HUSBAND MOSTLY
3. BOTH EQUAL
4. WIFE MOSTLY
5. WIFE ALMOST ALWAYS
8. DEPENDS, DON'T KNOW
9. NA
0. INAP; R IS NOT MARRIED AND/OR IS NOT LIVING WITH SPOUSE

V6243 ...(how) about which TV or radio programs you listen to or watch?

-----

1. HUSBAND ALMOST ALWAYS

2. HUSBAND MOSTLY
3. BOTH EQUAL
4. WIFE MOSTLY
5. WIFE ALMOST ALWAYS
8. DEPENDS, DON'T KNOW
9. NA
0. INAP; R IS NOT MARRIED AND/OR IS NOT LIVING WITH SPOUSE

V6244 ... (how) about how often you and your (husben/wife) go out for an evening?

-----

1. HUSBAND ALMOST ALWAYS
2. HUSBAND MOSTLY
3. BOTH EQUAL
4. WIFE MOSTLY
5. WIFE ALMOST ALWAYS
8. DEPENDS, DON'T KNOW
9. NA
0. INAP; R IS NOT MARRIED AND/OR IS NOT LIVING WITH SPOUSE

V6245 ... (how) about how much should be spent on major purchases like furniture and appliances?

-----

1. HUSBAND ALMOST ALWAYS
2. HUSBAND MOSTLY
3. BOTH EQUAL
4. WIFE MOSTLY
5. WIFE ALMOST ALWAYS
8. DEPENDS, DON'T KNOW
9. NA
0. INAP; R IS NOT MARRIED AND/OR IS NOT LIVING WITH SPOUSE

V6246 ... (how) about whether or not you should go to work or quit work?

-----

1. HUSBAND ALMOST ALWAYS
2. HUSBAND MOSTLY
3. BOTH EQUAL
4. WIFE MOSTLY
5. WIFE ALMOST ALWAYS
8. DEPENDS, DON'T KNOW
9. NA
0. INAP; R IS NOT MARRIED AND/OR IS NOT LIVING WITH SPOUSE; RESPONDENT/SPOUSE IS MALE

V6247 ... (how) about whether or not your wife should go to work or quit work?

-----

1. HUSBAND ALMOST ALWAYS
2. HUSBAND MOSTLY
3. BOTH EQUAL
4. WIFE MOSTLY
5. WIFE ALMOST ALWAYS
8. DEPENDS, DON'T KNOW
9. NA
0. INAP; R IS NOT MARRIED AND/OR IS NOT LIVING WITH SPOUSE; RESPONDENT/SPOUSE IS FEMALE

V6292 Now, some additional questions about your marriage. How often do you and your (husband/wife) sit down and talk with one another? Would you say very often, often, sometimes, rarely, or never?

-----

1. VERY OFTEN
2. OFTEN
3. SOMETIMES
4. RARELY
5. NEVER
8. DON'T KNOW
9. NA
0. INAP; RESPONDENT IS NOT LIVING WITH SPOUSE

V7069 Some people plan in advance how they'd like to spend their free time, while other people wait until they have free time before they decide what to do with it. Thinking about your free time on weekends, how often do you plan in advance how to spend it--almost always, most of the time, some of the time, or almost never.

-----

1. ALMOST ALWAYS
2. MOST OF THE TIME
3. SOME OF THE TIME
4. ALMOST NEVER
8. DK
9. NA

V7070 Now think about your free time during the week. How often do you plan in advance how to spend it--almost always, most of the time, some of the time, or almost never.

-----

1. ALMOST ALWAYS
2. MOST OF THE TIME
3. SOME OF THE TIME
4. ALMOST NEVER
8. DK
9. NA

V7071 How much of your free time do you spend doing what you'd really like to be doing--all of it, most of it, some of

it, not very much of it, or none of it?  
-----

1. ALL OF IT
2. MOST OF IT
3. SOME OF IT
4. NOT VERY MUCH OF IT
5. NONE OF IT
8. DK
9. NA

V7072 Now we have some questions about how you feel about some of the things in your household. Think of a scale from ten to zero where ten means you are completely satisfied with things as they are and zero means you are completely dissatisfied with them. You may answer any number in between.

Thinking of this scale, and of your own feelings, how satisfied are you with how clean your house usually is?  
-----

Code number given (00-10)

96. V7074-V7076 ONLY; NO CHILDREN UNDER 18 IN HOUSEHOLD
98. DK
99. NA

V7073 ...how good the main meal of the day is?  
-----

V7074 ...the amount of time you spend with your children?  
-----

V7075 ...the amount of time the whole family spends together?  
-----

V7076 ...how well your child(ren) (is/are) doing in life?  
-----

V7077 Speaking in general, how would you rate your satisfaction with the amount of free time you have to do the things you want to do?  
-----

V7078 ...the amount of money you have to do the things you want to do?  
-----

V7079 ...your health and energy--to do the things you want to do?  
-----

V7080 During the past 12 months, did you pay someone outside your household for any regular help with the housework, or with chores around the house and yard (not including babysitting)?  
-----

1. YES
5. NO
8. DK
9. NA
0. INAP; SPOUSE INTERVIEW

V7082 In addition to that, did you pay someone outside your household for any other help around the house during the past 12 months?

- 
1. YES
  5. NO
  8. DK
  9. NA
  0. INAP; SPOUSE INTERVIEW; 5, 8-9 IN 7080

V7084 Did you pay someone outside your household for any help with the housework or with chores around the house or yard during the past 12 months (not including babysitting)?

- 
1. YES
  5. NO
  8. DK
  9. NA
  0. INAP; SPOUSE INTERVIEW; 1, 8-9 IN 7080

V7099 Some families have lots of rules and other families don't have very many rules. Which kind of family do you have?

- 
1. LOTS OF RULES
  5. NOT VERY MANY RULES
  8. DK
  9. NA
  0. INAP; ALL OTHER FAMILIES; NO CHILDREN 18 OR YOUNGER

V7100 In some families parents are very strict about enforcing their rules. In other families parents are not very strict about enforcing their rules. Which kind of family do you have?

- 
1. RULES STRICTLY ENFORCED
  3. SOMETIMES/DEPENDS
  5. RULES NOT STRICTLY ENFORCED
  8. DK
  9. NA
  0. INAP; ALL OTHER FAMILIES; NO CHILDREN 18 OR YOUNGER

V7101 In general, when it's time to make a decision that will affect the family, does everyone discuss what to do, do just the parents discuss what to do, or is the matter not discussed?

- 
1. EVERYONE DISCUSSES

3. JUST THE PARENTS DISCUSS
5. MATTER NOT DISCUSSED
8. DK
9. NA
0. INAP; ALL OTHER FAMILIES; NO CHILDREN 18 OR YOUNGER

V7102 And which person or people actually make the decisions?  
Does one parent decide, do both parents decide, or does everyone decide together?

-----

1. ONE PARENT DECIDES
3. BOTH PARENTS DECIDE
5. EVERYONE DECIDES
8. DK
9. NA
0. INAP; ALL OTHER FAMILIES

V8067 Now I have some questions about the satisfaction certain things bring you in life. Think of a point scale ranging from 1 to 7. "1" means you feel completely satisfied with something and "7" means you feel completely dissatisfied. "4" means that you feel neutral or are equally satisfied and dissatisfied.  
Let's start with your life as a whole. How satisfied are you with your life as a whole?

-----

1. COMPLETELY SATISFIED
- 2.
- 3.
4. NEUTRAL
- 5.
- 6.
7. COMPLETELY DISSATISFIED
8. DK
9. NA

V8068 How satisfied are you with your standard of living?

-----

1. COMPLETELY SATISFIED
- 2.
- 3.
4. NEUTRAL
- 5.
- 6.
7. COMPLETELY DISSATISFIED
8. DK
9. NA

V8069 (How satisfied are you) with the amount of education you have received?

-----

1. COMPLETELY SATISFIED
- 2.
- 3.
4. NEUTRAL
- 5.
- 6.
7. COMPLETELY DISSATISFIED
8. DK
9. NA

V8070 (How satisfied are you) with your free time activities?  
-----

1. COMPLETELY SATISFIED
- 2.
- 3.
4. NEUTRAL
- 5.
- 6.
7. COMPLETELY DISSATISFIED
8. DK
9. NA

V8071 ASK IF R WORKS: (How satisfied are you) with your job?  
-----

Use same code as V8067 EXCEPT:

1. COMPLETELY SATISFIED
- 2.
- 3.
4. NEUTRAL
- 5.
- 6.
7. COMPLETELY DISSATISFIED
8. DK
9. NA
0. INAP; DOESN'T WORK

V8072 ASK IF R LIVES WITH OTHER FAMILY MEMBERS:  
(How satisfied are you) with your family living there?  
-----

Use same code as V8067 EXCEPT:

1. COMPLETELY SATISFIED
- 2.
- 3.
4. NEUTRAL
- 5.
- 6.
7. COMPLETELY DISSATISFIED
8. DK

- 9. NA
- 0. INAP; R LIVES ALONE

V8073 How satisfied are you with your friends?  
-----

- 1. COMPLETELY SATISFIED
- 2.
- 3.
- 4. NEUTRAL
- 5.
- 6.
- 7. COMPLETELY DISSATISFIED
- 8. DK
- 9. NA

V8074 (How satisfied are you) with your neighbors?  
-----

- 1. COMPLETELY SATISFIED
- 2.
- 3.
- 4. NEUTRAL
- 5.
- 6.
- 7. COMPLETELY DISSATISFIED
- 8. DK
- 9. NA

V8075 (How satisfied are you) with your participation in clubs or in organizations you belong to?  
-----

Use same code as V8067 EXCEPT:

- 1. COMPLETELY SATISFIED
- 2.
- 3.
- 4. NEUTRAL
- 5.
- 6.
- 7. COMPLETELY DISSATISFIED
- 8. DK
- 9. NA
- 0. INAP; DOESN'T BELONG TO ANY CLUBS OR ORGANIZATIONS

V8076 (How satisfied are you) with your social position in the community?  
-----

- 1. COMPLETELY SATISFIED
- 2.
- 3.
- 4. NEUTRAL
- 5.
- 6.
- 7. COMPLETELY DISSATISFIED

- 8. DK
- 9. NA

V8626 Age of Spouse Wav 1 81 \*\*  
Age in years of spouse living in  
household at Wave 1, 1981.

- 98. DK
- 99. NOT ASCERTAINED; NO SPOUSE INTERVIEW IN WAVE 1, 1981

**Appendix B**  
**Correlation Matrices**

Table B-1

Correlation Matrix For

	V5156	V51							
V5156	1.000								
V5157	.915	1.0	V7071						
V5158	.367	.3		V7099					
V5159	.207	.2			V7100				
V5160	.195	.2				V7101			
V5161	.001	-.0					V7102		
V5162	.234	.2						W	
V5163	.234	.2							
V5164	.210	.1							
V5165	.098	.0							
V5166	.079	.0							
V5167	.087	.0							
V5168	.282	.2							
V5169	.3.06	.2							
V5170	.094	.0							
V5171	.003	.0							
V5172	.078	.1							
V5173	.148	.1							
V5174	.026	-.0							
V5175	.093	-.1							
V6241	-.036	-.0							
V6242	-.023	-.0							
V6243	-.096	-.0							
V6244	.022	.0							
V6245	.012	.0							
V6292	.024	.0							
V7069	.089	.0							
V7070	.085	.1							
V7071	.036	.0							
V7099	-.052	-.0							
V7100	-.001	.0							
V7101	-.017	-.0	1.000						
V7102	-.029	-.0	-.022	1.000					
W	.042	.0	.029	.275	1.000				
			.036	.003	.066	1.000			
			-.096	.060	.005	-.337	1.000		
			-.017	.011	-.059	-.001	.051	1.000	

Table B-2

Correlation Matrix for Factor Analysis of Satisfaction Items

	V6068	V6070	V7072	V7073	V7074	V7075	V7076	V7077	V7078	V7079	V8069	V8070	V8072	V8073	V8074	V8075	V8076	SOL	JOB
V6068	1.000																		
V6070	.370	1.000																	
V7072	.159	.199	1.000																
V7073	.180	.595	.090	1.000															
V7074	.014	.092	.199	.199	1.000														
V7075	.014	.112	.195	.246	.693	1.000													
V7076	-.045	.119	.180	.363	.540	.520	1.000												
V7077	.222	.165	.347	.245	.202	.144	-.024	1.000											
V7078	.439	.329	.342	.178	.065	.099	.253	.472	1.000										
V7079	.156	.250	.341	.425	.227	.228	.115	.110	.200	1.000									
V8069	-.171	-.190	-.211	-.140	.003	-.033	-.115	-.222	-.218	.271	1.000								
V8070	-.163	-.115	-.251	-.237	-.084	-.106	-.040	-.336	-.217	.291	.387	1.000							
V8072	-.104	-.115	-.357	-.396	-.201	-.203	-.311	-.101	-.067	.330	.464	.753	1.000						
V8073	-.119	-.195	-.352	-.407	-.159	-.117	-.243	-.186	-.121	.294	.394	.589	.694	1.000					
V8074	-.122	-.101	-.269	-.348	-.132	-.087	-.176	-.173	-.129	.252	.350	.353	.443	.405	1.000				
V8075	-.121	-.121	-.194	-.232	-.075	-.049	-.107	-.132	-.134	.251	.252	.450	.466	.515	.573	1.000			
V8076	-.181	-.228	-.258	-.294	-.136	-.114	-.164	-.222	-.233	.321	.364	.450	.466	.515	.573	.405	1.000		
SOL	.374	.538	.342	.290	.069	.079	.037	.279	.497	.284	.309	.388	.378	.431	.397	.317	.452	1.000	
JOB	.253	.397	.149	.173	.131	.087	.188	.028	.071	.254	.236	.139	.366	.312	.205	.194	.300	.296	1.000

## Key for Abbreviations

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Independent Variables

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CAGE	Age of Youngest Child
HAGE	Husband's Age
HBILLS	Household Financial Management for the Husband
HDM	Decision Making Power for the Husband
HED	Education of the Husband
HELP	Paid household help, excluding child care
HFOOD	Household Food Production for the Husband
HINC	Individual Income for the Husband
HMAIN	Household Maintenance for the Husband
HREST	Individual Free Time Use for the Husband
HSCHED	Household Production Scheduling for the Husband
HSIZE	Maximum Household Size During the Year
HYARD	Household Yard Work for the Husband
HWTH	Household Work Time of the Husband
HWTW	Household Work Time of the Wife
HWW	Decision Making Power Regarding the Wife's Employment for the Husband
NWTH	Nonwork Time of the Husband
NWTW	Nonwork Time of the Wife
OWN	Housing Tenure: Home Ownership
PMTH	Personal Maintenance Time of the Husband
PMTW	Personal Maintenance Time of the Wife
RENT	Housing Tenure: Rental Housing
TECH	Items of Household Equipment/Technology
V5129	Total Family Income
V5130	Household Net Worth
WAGE	Wife's Age
WBILLS	Household Financial Management for the Wife
WDM	Decision Making Power for the Wife
WED	Education of the Wife
WFOOD	Household Food Production for the Wife
WINC	Individual Income for the Wife
WMAIN	Household Maintenance for the Wife
WREST	Individual Free Time Use for the Wife
WSCHED	Household Production Scheduling for the Wife
WTH	Work Time of the Husband
WTW	Work Time of the Wife
WYARD	Household Yard Work for the Wife
WWW	Decision Making Power Regarding the Wife's Employment for the Wife

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**Dependent Variables**

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HSOC	Satisfaction With Personal Belongingness for the Husband
HECON	Satisfaction With Economic Status for the Husband
HFAM	Satisfaction With Family for the Husband
HPHY	Satisfaction With Household Production for the Husband
HAUT	Satisfaction With Personal Autonomy for the Husband
HEST	Satisfaction with Self-esteem for the Husband
HED	Satisfaction With Educational Attainment for the Husband
HLIFE	Satisfaction With Life for the Husband
WSOC	Satisfaction With Personal Belongingness for the Wife
WECON	Satisfaction With Economic Status for the Wife
WFAM	Satisfaction With Family for the Wife
WPHY	Satisfaction With Household Production for the Wife
WAUT	Satisfaction With Personal Autonomy for the Wife
WEST	Satisfaction with Self-esteem for the Wife
WED	Satisfaction With Educational Attainment for the Wife
WLIFE	Satisfaction With Life for the Wife

Table B-3  
Correlation Matrix of the Independent Variable Included in the Regression Analysis

	CAGE	HSTZE	HAGE	WAGE	RED	VED	PHTW	PHTH	NATV	NATH	WTR	WTV	HWTV	HWTH	HELF	VS:29	KINC	VINC	VS:30	TECH	OWN	RENT	RDAIN	WRAIN	RSCHED	VSCHED	RFOOD	VFOOD	RTARD	VTARD	NRST	VRST	VBILLS	VBILLS	VDK	VDK	VDW	VDW
1 - NSOC	-.059 (374)	.000 (374)	-.033 (374)	-.032 (374)	-.028 (373)	-.074 (374)	.011 (283)	.023 (270)	.003 (283)	-.087 (270)	.042 (270)	.014 (283)	-.032 (283)	.032 (270)	.016 (299)	-.097 (323)	-.039 (347)	.004 (360)	.100 (368)	.033 (330)	-.030 (374)	.035 (374)	-.025 (371)	-.025 (371)	.030 (363)	.030 (363)	-.019 (370)	-.019 (370)	.006 (364)	.006 (364)	.113 (273)	.161 (283)	.025 (370)	.025 (370)	.017 (289)	.037 (303)	-.076 (290)	-.042 (294)
2 - VSOC	.014 (374)	.011 (374)	-.054 (374)	-.057 (374)	-.016 (373)	-.096 (374)	-.004 (283)	-.104 (270)	-.110 (283)	.009 (270)	.052 (270)	.071 (283)	.021 (283)	.011 (270)	.022 (299)	-.067 (323)	-.025 (347)	.012 (360)	.096 (368)	.021 (330)	-.148 (374)	.104 (374)	.085 (371)	.085 (371)	.016 (363)	.016 (363)	.001 (370)	.001 (370)	.010 (364)	.010 (364)	.148 (273)	.253 (283)	-.035 (370)	-.035 (370)	-.027 (289)	.001 (303)	.025 (290)	-.007 (294)
3 - NSCON	.082 (374)	-.017 (374)	-.011 (374)	.002 (374)	.150 (373)	.128 (374)	.018 (283)	.001 (270)	.076 (283)	-.012 (270)	.060 (270)	.004 (283)	-.096 (283)	-.134 (270)	.051 (299)	.417 (323)	.350 (347)	.107 (360)	-.161 (368)	.198 (330)	.103 (374)	-.082 (374)	.051 (371)	.051 (371)	-.003 (363)	-.003 (363)	-.080 (370)	-.080 (370)	.085 (364)	.085 (364)	-.162 (273)	-.211 (283)	.023 (370)	.023 (370)	-.070 (289)	.011 (303)	-.100 (290)	.111 (294)
4 - VCON	.102 (374)	-.113 (374)	.066 (374)	.084 (374)	.135 (373)	.159 (374)	.019 (283)	.006 (270)	-.002 (283)	-.071 (270)	.090 (270)	.095 (283)	-.132 (283)	-.089 (270)	.140 (299)	.307 (323)	.213 (347)	.074 (360)	-.151 (368)	.205 (330)	.189 (374)	-.149 (374)	.002 (371)	.002 (371)	.021 (363)	.021 (363)	.003 (370)	.003 (370)	-.034 (364)	-.034 (364)	-.108 (273)	-.216 (283)	.012 (370)	.012 (370)	.006 (289)	.078 (303)	-.056 (290)	.003 (294)
5 - NFAK	-.485 (374)	.350 (374)	-.379 (374)	-.375 (374)	.062 (373)	.083 (374)	-.175 (283)	-.079 (270)	-.158 (283)	-.134 (270)	.158 (270)	.032 (283)	.227 (283)	.001 (270)	-.086 (299)	-.041 (323)	.057 (347)	-.040 (360)	-.016 (368)	.026 (330)	.024 (374)	-.012 (374)	.037 (371)	.037 (371)	-.080 (363)	-.080 (363)	-.046 (370)	-.046 (370)	.144 (364)	.144 (364)	-.065 (273)	.035 (283)	-.137 (370)	-.137 (370)	-.066 (289)	-.109 (303)	-.130 (290)	-.071 (294)
6 - VFAK	-.480 (374)	.372 (374)	-.401 (374)	-.380 (374)	.122 (373)	.090 (374)	-.209 (283)	-.183 (270)	-.096 (283)	-.161 (270)	.222 (270)	.015 (283)	.208 (283)	-.008 (270)	-.095 (299)	-.013 (323)	.089 (347)	-.047 (360)	-.044 (368)	.075 (330)	-.002 (374)	.031 (374)	.046 (371)	.046 (371)	-.094 (363)	-.094 (363)	-.031 (370)	-.031 (370)	.144 (364)	.144 (364)	-.028 (273)	-.010 (283)	-.039 (370)	-.039 (370)	-.045 (289)	-.161 (303)	-.074 (290)	-.046 (294)
7 - NPHI	-.056 (374)	.053 (374)	-.116 (374)	-.086 (374)	.058 (373)	.058 (374)	-.040 (283)	.031 (270)	.010 (283)	-.017 (270)	-.068 (270)	.016 (283)	.017 (283)	.055 (270)	-.015 (299)	.130 (323)	.126 (347)	-.033 (360)	-.124 (368)	.036 (330)	.100 (374)	-.078 (374)	-.042 (371)	-.042 (371)	-.115 (363)	-.115 (363)	-.046 (370)	-.046 (370)	.020 (364)	.020 (364)	-.268 (273)	-.192 (283)	-.072 (370)	-.072 (370)	-.014 (289)	-.069 (303)	-.085 (290)	.051 (294)
8 - VPHI	-.009 (374)	-.035 (374)	-.037 (374)	.041 (374)	-.034 (373)	.004 (374)	.026 (283)	.079 (270)	-.130 (283)	.163 (270)	-.155 (270)	-.106 (283)	-.001 (283)	-.014 (270)	-.018 (299)	.075 (323)	.076 (347)	-.059 (360)	-.011 (368)	-.039 (330)	.128 (374)	-.077 (374)	-.137 (371)	-.137 (371)	-.095 (363)	-.095 (363)	-.105 (370)	-.105 (370)	-.006 (364)	-.006 (364)	-.210 (273)	-.274 (283)	-.048 (370)	-.048 (370)	.001 (289)	-.127 (303)	-.107 (290)	.091 (294)
9 - NAUT	.239 (374)	-.197 (374)	.384 (374)	.281 (374)	-.031 (373)	.020 (374)	-.104 (283)	.248 (270)	.142 (283)	.231 (270)	-.296 (270)	-.101 (283)	-.067 (283)	-.020 (270)	-.109 (299)	.148 (323)	.005 (347)	-.022 (360)	-.142 (368)	.031 (330)	.156 (374)	-.123 (374)	-.050 (371)	-.050 (371)	.032 (363)	.032 (363)	-.037 (370)	-.037 (370)	-.038 (364)	-.038 (364)	-.259 (273)	-.231 (283)	-.051 (370)	-.051 (370)	.115 (289)	.049 (303)	-.028 (290)	-.024 (294)
10 - VAUT	.306 (374)	-.254 (374)	.358 (374)	.387 (374)	.000 (373)	.008 (374)	.239 (283)	.198 (270)	.248 (283)	.184 (270)	-.207 (270)	-.245 (283)	-.073 (283)	-.057 (270)	.010 (299)	.195 (323)	.074 (347)	-.095 (360)	-.129 (368)	.038 (330)	.195 (374)	-.155 (374)	-.073 (371)	-.073 (371)	-.018 (363)	-.018 (363)	-.068 (370)	-.068 (370)	-.074 (364)	-.074 (364)	-.180 (273)	-.304 (283)	-.043 (370)	-.043 (370)	.084 (289)	.038 (303)	-.090 (290)	.022 (294)
11 - NEST	-.035 (374)	-.022 (374)	-.025 (374)	-.022 (374)	-.111 (373)	-.113 (374)	-.034 (283)	-.015 (270)	.017 (283)	-.140 (270)	.073 (270)	-.019 (283)	.023 (283)	.070 (270)	-.053 (299)	-.182 (323)	-.110 (347)	.002 (360)	.081 (368)	.021 (330)	-.013 (374)	.007 (374)	-.123 (371)	-.123 (371)	.003 (363)	.003 (363)	-.025 (370)	-.025 (370)	-.043 (364)	-.043 (364)	.183 (273)	.231 (283)	.008 (370)	.008 (370)	.076 (289)	.065 (303)	-.005 (290)	-.054 (294)
12 - VEST	-.003 (374)	.008 (374)	-.096 (374)	-.105 (374)	-.070 (373)	-.135 (374)	-.001 (283)	-.109 (270)	-.123 (283)	.020 (270)	.042 (270)	.087 (283)	.015 (283)	-.011 (270)	.033 (299)	-.083 (323)	-.066 (347)	.080 (360)	.100 (368)	.018 (330)	-.140 (374)	.108 (374)	.052 (371)	.052 (371)	.045 (363)	.045 (363)	.037 (370)	.037 (370)	.012 (364)	.012 (364)	-.161 (273)	.222 (283)	-.056 (370)	-.056 (370)	.023 (289)	-.030 (303)	.053 (290)	-.066 (294)
13 - NSCH	.034 (374)	.021 (374)	.031 (374)	.035 (374)	-.334 (373)	-.183 (374)	-.073 (283)	-.024 (270)	.008 (283)	-.099 (270)	.042 (270)	.050 (283)	-.020 (283)	.123 (270)	-.105 (299)	-.230 (323)	-.115 (347)	-.009 (360)	.033 (368)	-.028 (330)	-.026 (374)	.028 (374)	.038 (371)	.038 (371)	-.010 (363)	-.010 (363)	-.028 (370)	-.028 (370)	.001 (364)	.001 (364)	.137 (273)	.102 (283)	.018 (370)	.018 (370)	-.016 (289)	.024 (303)	.079 (290)	-.074 (294)
14 - VSCN	-.032 (374)	.035 (374)	.015 (374)	-.014 (374)	-.122 (373)	-.373 (374)	-.014 (283)	-.088 (270)	.065 (283)	.063 (270)	-.038 (270)	-.121 (283)	.115 (283)	.072 (270)	-.091 (299)	-.143 (323)	-.083 (347)	-.079 (360)	.064 (368)	-.077 (330)	-.126 (374)	.117 (374)	.045 (371)	.045 (371)	.005 (363)	.005 (363)	-.011 (370)	-.011 (370)	.055 (364)	.055 (364)	.070 (273)	.030 (283)	.076 (370)	.076 (370)	.005 (289)	-.078 (303)	.043 (290)	-.049 (294)
15 - NLIFF	-.061 (374)	-.036 (374)	-.011 (374)	-.018 (374)	-.100 (373)	-.111 (374)	-.035 (283)	-.096 (270)	.042 (283)	-.004 (270)	.048 (270)	.001 (283)	-.012 (283)	.038 (270)	-.054 (299)	-.232 (323)	-.140 (347)	-.055 (360)	.179 (368)	-.088 (330)	-.061 (374)	.066 (374)	-.065 (371)	-.065 (371)	.018 (363)	.018 (363)	.015 (370)	.015 (370)	-.001 (364)	-.001 (364)	.159 (273)	.230 (283)	-.012 (370)	-.012 (370)	.052 (289)	.027 (303)	.047 (290)	-.101 (294)
16 - VLIFF	-.050 (374)	.052 (374)	-.048 (374)	-.051 (374)	-.033 (373)	-.097 (374)	-.016 (283)	.015 (270)	-.078 (283)	.052 (270)	-.023 (270)	.094 (283)	-.026 (283)	.004 (270)	-.054 (299)	-.110 (323)	-.093 (347)	.019 (360)	.125 (368)	-.065 (330)	-.205 (374)	.164 (374)	.071 (371)	.071 (371)	.060 (363)	.060 (363)	.029 (370)	.029 (370)	-.006 (364)	-.006 (364)	.184 (273)	.328 (283)	-.015 (370)	-.015 (370)	.020 (289)	.108 (303)	.136 (290)	.047 (294)

Table B-4

Correlation Matrix of the Dependent and Independent Variables Included in the Regression Analysis

	CAGE	HSIZE	HAZE	WAGE	HED	WED	PMTW	PNTH	MPW	MTW	WTH	WTV	HMTV	HMTW	HELP	V5129	MINC	WINC
CAGE	1.000 (374)																	
HSIZE	-.597 (374)	1.000 (374)																
HAZE	.702 (374)	1.477 (374)	1.000 (374)															
WAGE	.709 (374)	-.469 (374)	.952 (374)	1.000 (374)														
HED	-.133 (373)	.025 (373)	-.261 (373)	1.000 (373)														
WED	-.123 (374)	.045 (374)	-.282 (374)	-.258 (374)	1.000 (374)													
PMTW	.267 (283)	-.238 (283)	.331 (283)	.346 (283)	-.046 (283)	1.000 (283)												
PNTH	.294 (270)	-.253 (270)	.418 (270)	.408 (270)	-.055 (270)	.403 (270)	1.000 (270)											
MPW	.268 (283)	-.228 (283)	.293 (283)	.301 (283)	-.144 (283)	.177 (283)	.134 (283)	1.000 (283)										
MTW	.261 (270)	-.259 (270)	.346 (270)	.312 (270)	-.176 (270)	.055 (270)	.072 (270)	.306 (270)	1.000 (270)									
WTH	-.290 (270)	.316 (270)	-.319 (270)	-.482 (270)	.190 (270)	.164 (270)	.242 (270)	-.210 (270)	-.714 (270)	1.000 (270)								
WTV	-.051 (283)	-.031 (283)	-.261 (283)	-.281 (283)	.120 (283)	.227 (283)	-.344 (283)	-.459 (283)	-.116 (283)	.310 (283)	1.000 (283)							
HMTV	-.347 (283)	.323 (283)	-.162 (283)	-.161 (283)	-.065 (283)	-.095 (283)	-.058 (283)	-.182 (283)	-.129 (283)	-.045 (283)	-.616 (283)	1.000 (283)						
HMTW	-.111 (270)	-.026 (270)	-.072 (270)	-.059 (270)	-.082 (270)	-.005 (270)	-.010 (270)	-.094 (270)	-.083 (270)	-.434 (270)	-.037 (270)	-.144 (270)	1.000 (270)					
HELP	1.06 (299)	-.144 (299)	-.092 (299)	.079 (299)	.231 (299)	.224 (299)	.129 (299)	.106 (299)	-.068 (299)	-.040 (299)	-.040 (299)	-.040 (299)	-.083 (299)	1.000 (299)				
V5129	1.43 (323)	-.027 (323)	-.025 (323)	-.024 (323)	.482 (323)	.410 (323)	.032 (323)	.004 (323)	-.034 (323)	-.146 (323)	.179 (323)	.175 (323)	-.158 (323)	.327 (323)	1.000 (323)			
MINC	-.057 (347)	.136 (347)	-.246 (347)	-.239 (347)	.400 (346)	.335 (347)	.044 (346)	-.155 (346)	.046 (346)	-.244 (346)	.344 (346)	.004 (346)	-.018 (346)	.290 (346)	.797 (346)	1.000 (346)		
WINC	-.029 (360)	-.090 (360)	-.183 (360)	-.219 (360)	.128 (360)	.293 (360)	-.246 (360)	-.133 (360)	-.282 (360)	-.065 (360)	-.170 (360)	.714 (360)	-.477 (360)	.037 (360)	.367 (360)	.150 (360)	1.000 (360)	
V5130	-.094 (368)	.063 (368)	-.003 (368)	-.061 (368)	-.238 (367)	.215 (368)	-.001 (367)	.068 (368)	.078 (368)	.076 (368)	-.036 (368)	-.008 (368)	-.090 (368)	-.052 (368)	-.206 (368)	-.133 (368)	-.088 (368)	1.000 (368)
TECH	-.102 (370)	.170 (370)	-.202 (370)	-.148 (370)	.243 (370)	.214 (370)	-.087 (370)	-.122 (370)	-.206 (370)	-.221 (370)	-.179 (370)	.140 (370)	.053 (370)	-.055 (370)	-.189 (370)	.389 (370)	.323 (370)	1.000 (370)
OWN	-.055 (374)	-.044 (374)	.072 (374)	.102 (374)	.095 (373)	.122 (373)	-.022 (373)	.057 (373)	-.065 (373)	-.083 (373)	-.042 (373)	-.080 (373)	-.152 (373)	-.112 (373)	-.168 (373)	.105 (373)	-.078 (373)	1.000 (373)
RENT	-.076 (374)	-.046 (374)	-.099 (374)	-.132 (374)	-.103 (373)	-.148 (374)	.010 (373)	-.058 (373)	.090 (373)	.099 (373)	-.024 (373)	.015 (373)	-.140 (373)	-.121 (373)	-.165 (373)	-.113 (373)	-.061 (373)	1.000 (373)
HVALIN	-.058 (371)	.255 (371)	-.074 (371)	-.093 (371)	.077 (371)	.009 (371)	.043 (371)	-.043 (371)	-.126 (371)	-.054 (371)	.021 (371)	.238 (371)	-.205 (371)	-.008 (371)	-.003 (371)	-.004 (371)	-.090 (371)	1.000 (371)
WVALIN	-.058 (371)	.255 (371)	-.074 (371)	-.093 (371)	.077 (371)	.009 (371)	.043 (371)	-.043 (371)	-.126 (371)	-.054 (371)	.021 (371)	.238 (371)	-.205 (371)	-.008 (371)	-.003 (371)	-.004 (371)	-.090 (371)	1.000 (371)
HSCHEID	.127 (363)	-.123 (363)	.130 (363)	.131 (363)	-.082 (363)	.003 (363)	.110 (363)	-.006 (363)	-.014 (363)	.012 (363)	.031 (363)	-.080 (363)	-.151 (363)	-.074 (363)	-.036 (363)	-.111 (363)	-.008 (363)	1.000 (363)
WSCHEID	.127 (363)	-.123 (363)	.130 (363)	.131 (363)	-.082 (363)	.003 (363)	.110 (363)	-.006 (363)	-.014 (363)	.012 (363)	.031 (363)	-.080 (363)	-.151 (363)	-.074 (363)	-.036 (363)	-.111 (363)	-.008 (363)	1.000 (363)
REFOOD	.059 (370)	-.005 (370)	.051 (370)	.059 (370)	-.005 (369)	.052 (370)	.052 (370)	-.034 (369)	-.065 (369)	.000 (369)	-.066 (369)	.184 (369)	-.200 (369)	.111 (369)	-.124 (369)	.343 (369)	.356 (369)	1.000 (369)
WFOOD	.059 (370)	-.005 (370)	.051 (370)	.059 (370)	-.005 (369)	.052 (370)	.052 (370)	-.034 (369)	-.065 (369)	.000 (369)	-.066 (369)	.184 (369)	-.200 (369)	.111 (369)	-.124 (369)	.343 (369)	.356 (369)	1.000 (369)
RYARD	-.060 (364)	.278 (364)	-.061 (364)	-.074 (364)	.013 (364)	.012 (364)	-.043 (364)	-.012 (364)	-.044 (364)	-.042 (364)	-.050 (364)	-.087 (364)	-.102 (364)	-.062 (364)	-.079 (364)	-.063 (364)	-.152 (364)	1.000 (364)
WYARD	-.060 (364)	.278 (364)	-.061 (364)	-.074 (364)	.013 (364)	.012 (364)	-.043 (364)	-.012 (364)	-.044 (364)	-.042 (364)	-.050 (364)	-.087 (364)	-.102 (364)	-.062 (364)	-.079 (364)	-.063 (364)	-.152 (364)	1.000 (364)
HREST	-.083 (283)	-.105 (283)	-.044 (283)	-.047 (283)	-.086 (282)	-.035 (283)	-.047 (282)	-.001 (282)	-.086 (282)	-.193 (282)	-.045 (282)	.003 (282)	.021 (282)	-.050 (282)	-.057 (282)	-.008 (282)	-.130 (282)	1.000 (282)
WREST	-.167 (283)	-.131 (283)	-.080 (283)	-.047 (283)	-.072 (282)	-.047 (283)	-.047 (282)	-.030 (282)	-.036 (282)	-.164 (282)	.076 (282)	.003 (282)	.021 (282)	-.050 (282)	-.057 (282)	-.008 (282)	-.130 (282)	1.000 (282)
HILLS	.077 (370)	-.070 (370)	-.015 (370)	-.028 (370)	-.184 (369)	.030 (370)	.002 (369)	-.047 (369)	-.047 (369)	-.048 (369)	-.024 (369)	.034 (369)	-.094 (369)	-.020 (369)	.139 (369)	.054 (369)	-.060 (369)	1.000 (369)
WILLS	.077 (370)	-.070 (370)	-.015 (370)	-.028 (370)	-.184 (369)	.030 (370)	.002 (369)	-.047 (369)	-.047 (369)	-.048 (369)	-.024 (369)	.034 (369)	-.094 (369)	-.020 (369)	.139 (369)	.054 (369)	-.060 (369)	1.000 (369)
HDP	.123 (298)	-.038 (298)	.185 (298)	-.184 (298)	-.008 (297)	.030 (298)	.002 (297)	-.047 (297)	-.047 (297)	-.048 (297)	-.024 (297)	.034 (297)	-.094 (297)	-.020 (297)	.139 (297)	.054 (297)	-.060 (297)	1.000 (297)
WDH	.210 (303)	-.123 (303)	.145 (303)	-.142 (303)	-.030 (302)	.035 (303)	.002 (302)	-.047 (302)	-.047 (302)	-.048 (302)	-.024 (302)	.034 (302)	-.094 (302)	-.020 (302)	.139 (302)	.054 (302)	-.060 (302)	1.000 (302)
HHW	.099 (290)	-.050 (290)	.014 (290)	-.020 (290)	-.077 (289)	.006 (290)	.006 (289)	-.047 (289)	-.047 (289)	-.048 (289)	-.024 (289)	.034 (289)	-.094 (289)	-.020 (289)	.139 (289)	.054 (289)	-.060 (289)	1.000 (289)
WHW	.025 (294)	-.008 (294)	-.017 (294)	-.030 (294)	-.131 (293)	.101 (294)	-.007 (293)	-.177 (293)	-.088 (293)	-.018 (293)	-.201 (293)	-.125 (293)	-.058 (293)	-.098 (293)	.180 (293)	.087 (293)	-.134 (293)	1.000 (293)



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