# THE RELATIONSHIP OF AGE SPAN BETWEEN CHILDREN AND TIME USE IN TWO-PARENT, TWO-CHILD FAMILIES

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(ABSTRACT)

This study examined age span between children as a significant factor which affected the time use of wives and husbands in 1,983 two-parent, two-child families. Data were derived from from the Northeastern Regional Project, NE 113, sponsored by the Science and Education Administration of the United States Department of Agriculture. Using a multiple regression technique to investigate the individual activities that comprised household work time, it was found that age of the younger child, age of the older child, and age span, the interaction between the ages of the children, were significantly related to and were responsible for 49% of the variation in wives' and nearly 16% of the variation in husbands' time devoted to the physical care of other family members. Age span was not related to travel time use for any activity but was significantly related to secondary time use for non-physical care of family members by both parents. Age span, the interaction variable, accounted for differences between the ages of the children and explained the variation in effects of the differences

at various ages. Plotting the significant interactions revealed five patterns of time use. The most prevalent pattern was when the age of the younger child was very young and the age of the older child increased, the most time was used for the activity; as the age of the younger child approached school age, and the age of the older child increased, the amount of time used for the activity leveled off, or, neither increased or decreased. Then, as the age of the younger child increased still further, and the age of the older child increased, time used for the activity, increased. This pattern fit wives' time used for total work, household work, and physical care of family members; husbands' time used for physical care of family' members; and both parents' secondary time used for physical care of family members. Wives' time used for paid work and volunteer work followed an opposite pattern. The data have show that spacing of children has a direct bearing on parents' time use decisions.

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# CHAPTER I

## INTRODUCTION

Time allocation has become increasingly critical in families as members' activities increase in number and obligation. Time use has been studied to find out how families use their time but the relationship of age span between children to time use has not been investigated. Do wives or their husbands use time differently when children are close to the same age as opposed to when those ages cover a wider span? If time use is divided into specific activities will differences in time use for husbands and wives be attributable to differences in age span? If so, what activities will correlate with age span variation?

Time used for the performance of activities chosen by families serves as an indicator of family roles (Fox & Nickols, 1983). Studies of time use can monitor shifts in role performance for both men and women (Pleck, 1979). Within the family system, all family members perceive themselves in various roles and develop a set of expectations and demands for each. Conflicting roles, either internally within an individual or between members in a family, may result in stress on the total family system. If the demands associated with age span between

children are understood, all family members can be made aware of the extent to which they can better manage time and reduce stress caused by trying to do too many activities in limited amounts of time.

Obviously, the developmental tasks of children at different ages would create different demands on their parents' roles. Beyond the basic needs of food, clothing, and shelter common to all family members, other needs of children at different ages must be met. Kagan (1980) summarizes these needs:

> The needs of children vary with their age and their context of growth. In our society, they include varieties of manageable experiences during infancy, the opportunity to practice maturing capacities and to attain locally valued talents, to believe one is valued and to identify with role models who are regarded as powerful, talented and virtuous and, finally protection from excessive irregularity and dissonance of values.(pp.437)

Children's needs contribute to expanding dimensions of parents' roles and become woven into the demands made upon the parents.

One of the husbands' roles has been, and continues to be, that of the traditional wage earner in families. Because of economic demands of recent years, more and more wives have joined the labor force on a permanent basis creating an upward trend of families with two incomes (Thornton & Freedman, 1983). Therefore, the wife' role in many families has expanded to include "wage earner." The

economic result of this trend is clearly documented by the population statistics showing the median income of married-couple families with a working wife to be 40% higher ($30,300) than the median for such families where the wife was not in the paid labor force ($21,300) (Thornton & Freedman, 1983). Will differences in time used by wives for working outside the home be attributable to age span between children?

Expansion and change of wives' roles are evident. The traditional roles of husbands have either not undergone as much change or have not been researched in depth. Further investigation into the time use of both wives and husbands will result in an expanded description of alternative family roles which are performed. The development of new roles or at least the expansion of existing roles within the family system is evolutionary and often slow moving but progress in this direction is necessary for redefinition of the roles of wives and their husbands. Investigating age span between children will assist in such redefinition.

## Purpose

The purpose of this study was to examine age span as a factor that affects the time use of wives and their husbands in two-parent, two-child families. Age span

between children has not been researched as a variable that affects time use.

Two-parent, two-child families were selected as an appropriate population for this study. Intact families of less than two children would not allow study of age span. In order to study age span between more than two children, age span relationships need to be established first with a younger child and an older child. Studying intact families provides a point of departure for later exploration of single parent families and other family types.

## Theoretical Framework

Role theory, and the systems approach to that theory, gave direction to this study. Roles are social norms, the oughts and ought nots, that guide behavior. Family members, particularly wives and husbands, have beliefs and expectations about how they ought or ought not to perform or behave.

These beliefs and expectations are situational. They change under certain conditions. With respect to families, each position, such as mother, father, son or daughter, is composed of a set of interrelated roles (Bates, 1956). Pleck (1977) explains the work/family role orientation as a system of four interrelated roles,

the male work role, the male family role, the female work role, and the female family role.

According to Aldous (1969), major differences exist between work roles and family roles in modern industrial societies. Highly specialized jobs of work roles are characterized by formal rules, duties, and privileges. The family as a primary group is less rigid and more affective in nature. Differences of roles are also characterized by the general separation of time and space of the performance arena of the work role, and the family role. These differences may suggest that time used in performing work roles is mutually exclusive from time used in performing family roles. Because time is a limited resource, any addition of new roles or changes in original roles will cause a shift in time allocation distributed among the altered role orientations. If, for example, a full time homemaker wife adds the work role as identified by Pleck (1977) to her existing roles, the time she devotes to the family role will be altered to accommodate the time needed to work outside the home. In a similar situation, if her husband expands his existing roles to include an expansion of the family role, time spent in the other existing roles would be altered to accommodate the expanded role. Reciprocal effects develop, to some degree, between the wife's and the husband's roles because they mesh with or relate to each other.

The systems approach to family role theory emphasizes that family members operate differently or play different roles depending on the stage of the family system's interaction in which they find themselves.

Kantor and Lehr (1975) define a 'system' to be:

> a set of different things or parts that meet two requirements: first these parts are directly or indirectly related to one another in a network of reciprocal causal effects, and second, each component part is related to one or more of the other parts of the set in a reasonably stable way during any particular period of time. (p. 10)

Social systems, like families, are characterized by being in a state of continuous interchange not only within the system but across their boundaries between the inner environment and the outer environment. Kantor and Lehr point out that family systems are organizationally complex, open, adaptive and information-processing systems.

The conceptual model (Figure 1.) to be used in this research recognizes the family as a morphogenic system where (feedback) interchange is an essential factor between the family and its environments (Deacon & Firebaugh, 1981). A morphogenic family's positive receptivity enables the members to adapt to change caused by varying inputs, particularly those events and demands outside the family system. The environmental factors in the model, both community and family, do not necessarily nest within one another but work to continually impact on

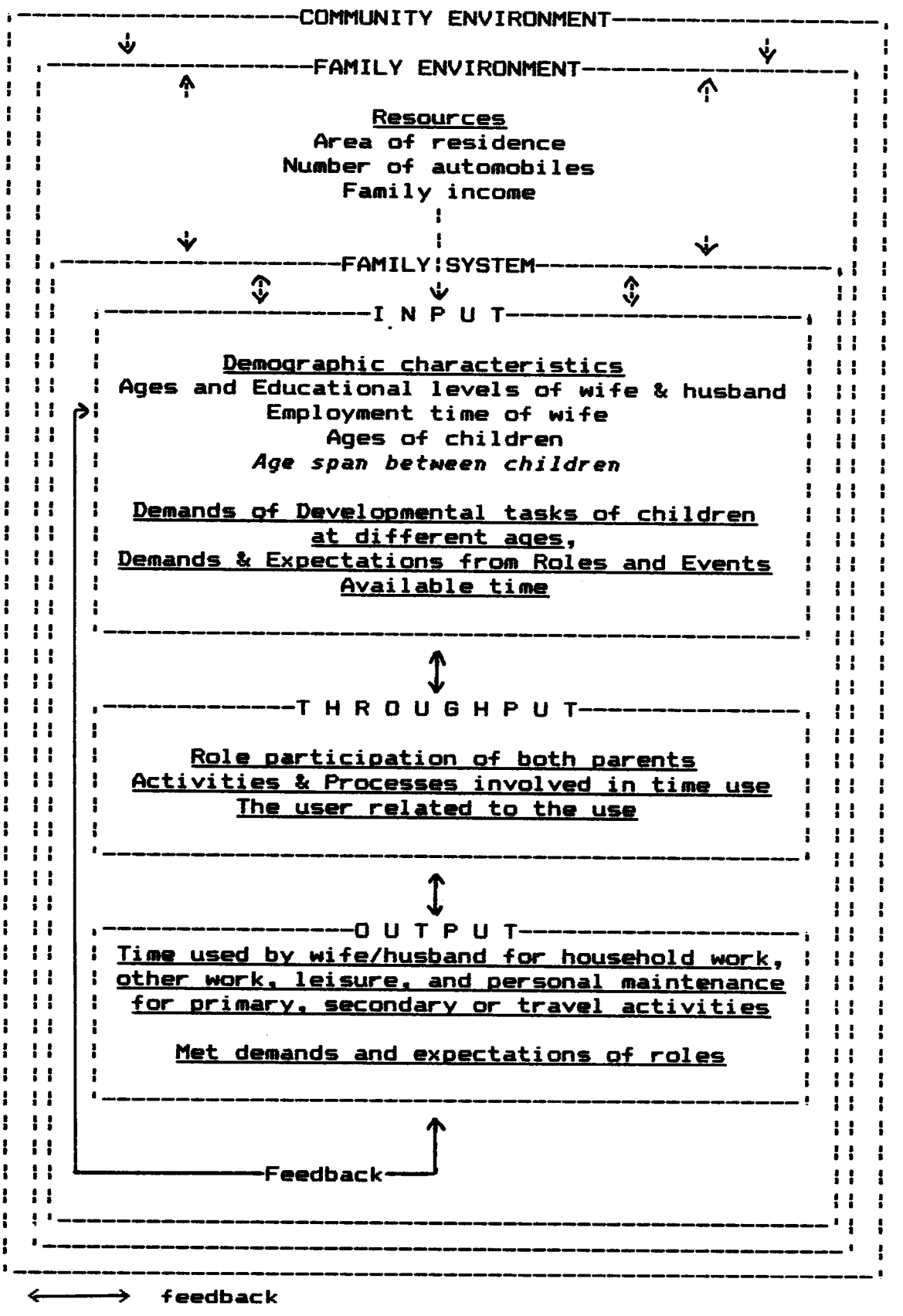



Figure 1. CONCEPTUAL MODEL

the family system and on each other. Family environment factors of area of residence, number of automobiles, and annual income are resources in the family system. Resources are the means for meeting demands (Deacon & Firebaugh, p. 30, 1981). Swanson's (1981) concept of enablers and constraints can be applied to resources. Enablers are factors that encourage (action) while constraints are factors that inhibit (action). A resource used to an advantage is an enabler. A resource that restricts or limits is considered a constraint. Any one factor can be an enabler in one situation and a constraint in another. Morphogenic families, as open systems, develop as a consequence of their interchanges with their family environments including the conscious use of their resources as enablers. Strain and tension are inevitable but family systems maintain themselves because they are capable of making changes.

Inputs influence activities important to and performed by the family, and therefore, the use of time within the family. Inputs include demographic characteristics, demands of developmental tasks associated with different needs of children at different ages, demands and expectations of wife/husband roles, events and available time. Family members respond to these inputs with varying amounts of their personal or collective

resources. Demographic characteristics (ages of family members, educational level of the wife and her husband, employment time of the wife, and age span between children) are specific to each family. However, demands and events from roles, whether they originate within or outside the family arena, are impacted upon by the community environment. Events on families in the same community environment will have an impact or lack of impact on each family system. Individual and family responses will vary with background, preferences, and values. All of these inputs are regulated by time, particular points in time, and time available to each specific family member over which she or he has control. Time is a constant input into the family both as a resource and as a constraint.

Wives and husbands use time to do household tasks, to give personal and family care, and to participate in some leisure activities within the family system. Outside the system, interchanging with either the community or the family environment, time is usually used for work (paid, volunteer, and school), community activities, and leisure activities apart from those performed within the system.

The performance of all activities and the processes related to their use enter into the model in the throughput stage. Both physical and mental activity are involved in the processes of doing. Time, as a resource,

is the medium common to all activities performed. The user cannot be separated from his or her use of time and, therefore, time is recognized as an integral part of the throughput stage. An activity can be performed by various family members, but the time used for the performance of that activity depends on the performer as well as the nature of the performed activity.

The activity or task may be one that takes continuous time involvement from one performer. In contrast, the activity may be best completed by intermittent time spans performed equally well by one or more performers (Steidl & Bratton, 1968, p 88). Not only would expectations of roles need to be well defined in the latter case, but coordination of role performance would become more complicated.

The output of the system is evident in time used to meet demands and expectations of the roles assumed by wives and husbands. Time used by both adults is categorized according to the nature of its use, primary, secondary, or travel time (see Operational Definitions). Feedback from the output stage of the system influences both future input and throughput stages by serving an information processing function.

Constant interchange between input, throughput, and output is indicated in the conceptual model (Figure 1.). No inputs on time use exist as a one way chain reaction

through to the output stage. All activities are being constantly adjusted because of new conditions brought about by the actions and reactions at every other stage.

## Rationale

The structural model for this study (Figure 2.) proposed that age span (see Operational Definitions) is a significant factor which affects the time use of wives and their husbands in two-parent, two-child families. Total time use will always equal 24 hours per day. The dependent variables, classes and types of time, shown in the structural model are the output of the family system in the conceptual model. Time used by wives and husbands allocated to the composite parts of the 24 hour day are classified as household work time, other work, leisure, and personal maintenance time. All time is specified as primary time, secondary time, or travel time. Resources, an independent variable of the structural model, are parts of the family environment that interact with the family system and the community environment. Resources are inputs into the family system of the conceptual model. The remaining independent variables of the structural model appear on the conceptual model as demographic characteristics of input into the family system. The model shows that family income, number of automobiles, area of residence, the gainful employment time of the

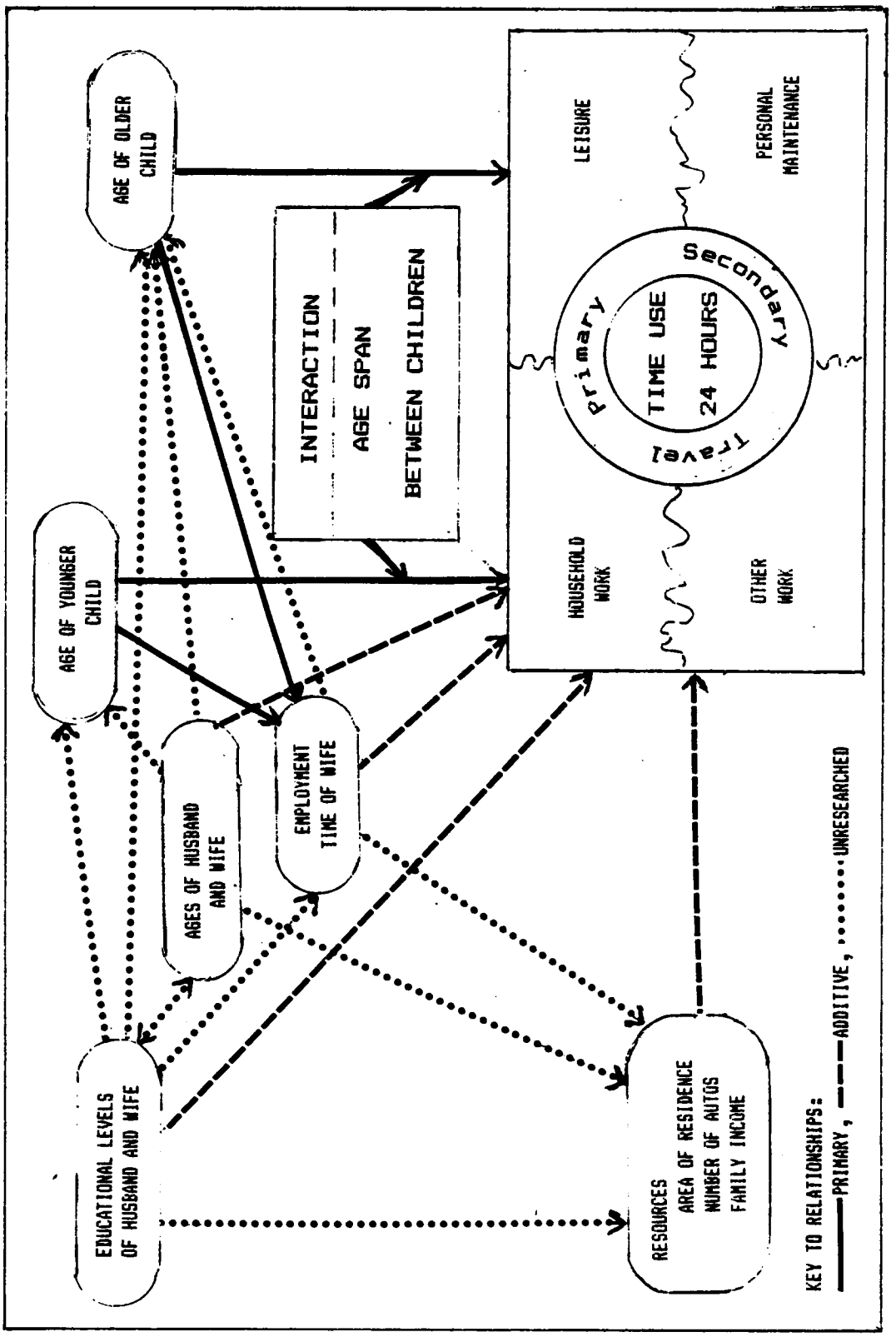



Figure 2. STURCTURAL MODEL RELATIONSHIPS OF INDEPENDENT VARIABLES TO TIME USE

wife, ages and educational levels of the husband and wife, age of the younger child and age of the older child will also directly affect time use.

Age span is statistically defined as the product of the age of the younger and older child and is shown as an interaction between the two on the structural model. The ages of children in the household are impacted upon by the ages and the levels of education of both husband and wife. The ages of both children are related to the gainful employment time of the wife. Resources of the family are influenced by the the ages and the education levels of the husband and wife, and the gainful employment time of the wife.

Ages and educational levels of both husband and wife are related to each other and help to determine the amount of resources a family has. Gainful employment time of the wife is determined in part by the educational levels of the husband and wife each of which is related to time use of the family. The interaction between the ages of the children can also affect the gainful employment time of the wife.

This study dealt with the variables in the structural model that are designated as major relationships and additive relationships only. The conceptual model is the framework from which the structural model was developed. The remainder of the conceptual model, though it completes

the family systems framework for this study, was not explored in this study.

## Operational Definitions

For the purposes of this study, the following definitions of terms are used:

Age span: the difference between the ages of the older and younger child and the control for the ages of those children in a family. "Controlling for the ages of children" simply refers to the realization that any effect on time use in families as a result of the difference in ages between children must also recognize that the same difference would affect time use differently depending on the ages of the children involved. For example, a three year difference between a one year old and a four year old may increase wives' time use in physical care activities. On the other hand, a three year difference between an eleven year old and a fourteen year old may increase husbands' time use for non-pyhsical care activities. The differences in ages of the one and four year old, and the 11 and 14 year old are the same. The effect on time use is different as a result of the chronological ages of the children. Thus the "control of the ages of the the children" is accomplished by the analysis procedure. Statistically, the difference and the control are

accomplished by initiating an interaction between the age of the younger child and the age of the older child. Age span between children refers to both the difference between ages and the control for those ages of children in sample families of this study.

Employment time of the homemaker/wife: the relative amounts of paid and unpaid work time on a daily basis expressed in minutes per day.

Family: wife-husband households with two children under 18 years of age.

Area of residence: the location of the home of the family as either urban or rural.

Classification of time: the category of time devoted to similar activities, the combined total of all classifications of time equals 24 hours per day (Family Time Use, 1981). Four classes of time are identified. (See Appendix E, for examples)

Household work time: time devoted to food preparation; dishwashing; shopping; housecleaning; maintenance of home, yard, car, and pets; care and construction of clothing and household linen; physical

care of other household members; nonphysical care of other household members; and management.

Other work time: time devoted to school, paid work, and/or volunteer (unpaid) work.

Leisure time: time devoted to organizational participation and/or social and recreational activities.

Personal maintenance time: time devoted to personal care of self, sleeping, and eating.

Types of time: the nature of common usage of time: Three types of time are identified.

Primary time: a period during which an activity engaged the worker's full attention.

Secondary time: when some work in an activity was done while work on another activity received primary attention.

Travel time: time used for traveling to and from any activity.

Total work time: a combination of time used for household work and time used for paid work other than household.

## Objectives of the Study

The general objective of the study was to examine and compare similarities and differences in time use by wives and their husbands in two-parent, two-child families with

continuously varying age spans between children. The source of the data was from the Northeastern Regional Project, NE-113, of the USDA-SEA, "An Interstate Urban/Rural Comparison of Families' Time Use."

The specific objectives of the study were to:

1. compare the time use of wives and husbands during a 24 hour day in order to determine whether age span between children explains any variation in that time use.

2. determine whether selected factors in addition to age span will further explain time use by wives or their husbands. These selected variables were:

a. age of the wife

b. age of the husband

c. educational level of the wife

d. educational level of the husband

e. employment status of the wife

f. annual family income

g. number of automobiles

h. area of residence

## Limitations

This study was limited to those variables included in the instruments used in the Northeastern Regional Project, NE-113, of the USDA-SEA, "An Interstate Urban/Rural Comparison of Families' Time Use." All variables were limited by the time use chart (Appendix B) which provided

space to record activities for a 24 hour day in five minute intervals, a family contact record (Appendix C) which was used to gather demographic information, and selected parts of a nine page survey questionnaire (Appendix D) which were used to gather the information about family income, housing environment, and transportation.

## Delimitations

The following were delimitations imposed by the investigator:

(1) the research focused only on the time used by wives as homemakers and husbands as spouses. The limited number of households of the data set in which male's were homemakers and females were spouses were excluded from this study.

(2) the work contributions of children of the families in the data set were excluded from this study.

(3) the criterion in the data specifications that all households consist of two adults and two children under the age of 18 was based upon findings from an earlier study (Walker & Woods, 1976) in which this unit was the most common household group.

## Summary

In this chapter the general question about the importance of age span between children as a variable

influencing time use of families was raised. Background information relating time use of parents to their role performance and to the operations of a morphogenic family system was discussed. Justification for studying age span between children was supported by the differences in developmental tasks associated with various ages of children. The purpose, framework, and rationale for the problem were determined. It is hoped that studying age span between children and its relationship to time use, will provide further justification for mutually shared performance of household tasks by both parents, especially in activities involving their children. Terms were operationally defined and the objectives were specified. Limitations and delimitations of the study were considered.

# CHAPTER II

## REVIEW OF LITERATURE

The literature reviewed is organized into four major sections. The first section includes an overview of theory and research on family systems plus family and work roles in the family environment which supports the theoretical base for this study. In the second section, time use studies and related variables are presented. Included in this section are a brief history and a review of studies related to the problem area. In a third section family characteristics, their variables, and other variables of interest are considered. The chapter concludes with a fourth section on the development of a theory for this study.

### Family systems, family and work roles in the family environment

The general systems approach to family theory is addressed by Broderick and Smith (1979).

> When a stimulus from the environment enters a system it is called input. When the system emits any response back into the environment it is called output. The central concern of systems theory is what happens to the input as it is processed by the system on its way to becoming an output. (p.114)

Family Systems

Gross, Crandall and Knoll (1980) adapted a similar model to home management whereby they listed the input as values, goals, standards, demands, and resources; the output as the results of management: changed values, goals, and standards; met goals and demands; increased, decreased, or different resources; and satisfaction (or lack of it). The action between the two is identified as general processes of decision making, communicating, and utilizing feedback. The processes unique to management are goal setting, planning, and implementing. Activities of families are classified into two functional subsystems: the psychological subsystem, meeting expressive and emotional needs of its members and the managerial subsystem, meeting instrumental needs where resources are acquired, changed, and used to meet goals (Gross, Crandall & Knoll, 1980).

In their discussion of the family systems model, Kantor and Lehr (1975) conceptualize the family as a distance regulating system that coordinates and uses resources to meet family demands. They believe that the information processed by the family system contributes to goal attainment by continuously identifying what constitutes a proper or optimal distance between members. These distances become established yet fluctuate in

response to environmental demands. Family members access each other through dimensions of space, energy, and time resources.

Kantor and Lehr propose three possible subsystems of the family, all of which interact with each other as well as with the environment beyond the family boundaries. These subsystems are the personal, interpersonal, and family unit; they interface with each other and the world outside. Family systems, therefore, focus on the interaction between family members and their environment. Family activities that involve one subsystem will involve at least one other subsystem. The resulting interaction is the basis for the development of strategies delineating each subsystem's boundaries and goals. Kantor and Lehr maintain that intrasystem strain is usually a result of incompatible intent between two competing subsystems.

## Family and Work Roles

Work roles or wage earner roles and family roles act as an interface between the family and its environment. Hill (1978) observed that family and work are highly valued as life sectors and they will compete for time, energy, and attention of married adults. Historically, prior to the industrial revolution, the work and family roles were closely associated because the family structure existed as an important economic unit. It would have made

no sense to have divided roles into work roles and family roles because the family operated for survival of the total unit. Such close association resulted in mutual intent and reduced intrasystem strain. Ericksen, Yancey, & Ericksen (1979) noted that:

> With industrialization, paid work was differentiated from unpaid work. This gave rise to a sex-related division of labor with women remaining at home in jobs that.....had use value, but not as exchange value. In a money economy, the result is that women were accorded lower status than men (p.301).

Today, collaboration of the family and income producing structures can succeed with positive results if proper balance between the two is maintained (Hill, 1978). Such positive relationships are not supported empirically. For example, cross pressures from time demands of the professions and the family were critical when husbands were in extremely responsible positions according to Scanzoni (1970). Such husbands were putting in long hours and consequently their time and energy for family activities were diminished.

It is widely assumed that the more time husbands spend in work, the less time they have for participation in the family roles. Nickols and Metzen (1978) found that husbands' employment time was a limiting factor to their time inputs to housework. Conflicting results were stated by Clark, Nye and Gecas (1978) who found that husbands' work time did not significantly decrease their

participation in housekeeper roles; only husbands' sharing of the recreation role was reduced by their work time. Clark, Nye and Gecas (1978) suggest that the effects of husbands' work time on marital role performance depend on the role priorities and expectations of husbands and wives. This suggestion is supported by Lein (1979), who maintains that men's reluctance to participate in household tasks stem from 1) men's lack of moral support from society and peer groups, 2) housework detracted from what men perceived to be their primary role, that of breadwinner, and 3) some reluctance on the part of the wife to relinquish her role as homemaker.

Intrasystem strain is evident when involvement in wage earner roles is incompatible with family role performance. In dual earner families, opportunity for greater intrasystem strain exists. It is necessary for husbands (as well as wives) to participate in both the family and the work arena (Aldous, 1969). The wage earner role is no longer exclusively reserved for men and only a minority of either men or women view housekeeping as solely the responsibility of the wife/mother (Nye, 1976; Lein, 1979). Characteristics of their occupational structures can have important effects on family and paid work roles for both wife and husband (Aldous, (1969).

Women's roles in the family, especially, have been altered by two major demographic changes that have taken

place. First, the child-bearing period has been compressed; the number of children in families is getting fewer so the years needed to bear and raise children have been shortened (Pleck, 1985). Second, the average length of life for adult women has increased. Wives, therefore have more years to participate in the work role. By 1982, more than half of all women aged 16 and over (53%) were working for pay or looking for a job outside the home (Bureau of Labor Statistics, 1983). When women spend time in the wage earner role the amount of time they have to devote to the family role is necessarily reduced (Walker & Woods, 1976). It appears that wives do make choices about resource allocation and trade-offs between roles. Wives who spend more time in the wage earner role spend less time in the housekeeper role tasks of meal preparation and dishwashing (Goebel & Hennon, 1983).

In her discussion about the development of new roles for men and women, Giele (1980) reflects that a new set of norms is emerging to govern the interaction of paid employment, parenthood, and household work. The new normative ideal appears to be one that encourages flexibility over the life span in the tasks that one takes up at each age and in the sex typing of these tasks. In general, it appears that greater crossover between age and sex roles may be more widely institutionalized as a result of two relatively new developments. On the one hand,

there is wider recognition that work patterns of men and women are becoming more similar over the life span. On the other hand, there is increasing recognition that responsibilities for parenthood and household work fall unequally on the shoulders of men and women.

## Time Use Studies and Related Variables

Time use of families has been studied in the United States for 70 years. Many of these projects were sponsored by state agricultural experiment stations. Early studies generally reported on time and energy required to do some aspect of household work by farm families in various states.

In the late 1930's and 40's, time studies began to deal with the employment status of the homemaker, her labor load in household work, and her management of time especially in families with young children (Britton, 1938; Dickens, 1945). The 1950's and 60's saw considerations given to differences in whether families were living in rural or urban locations (Thorpe, 1957; Walker, 1969; Walker & Woods, 1976). The 60's also brought about investigations of time use in families by social science research centers (Morgan, Sirageldin & Baerwaldt, 1966).

## Time Use Studies Related to the Problem

Internationally, use of time along with spatial and social attributes of everyday activities were studied

using populations of twelve cities in the United States, Eastern and Western Europe and Peru (Szalai, 1972). Major studies in the United States concerning time use of families since 1960, have been done by Kathryn Walker in 1967 at Cornell University (Walker & Woods, 1976), by the United States Department of Agriculture (Family Time Use, 1981), and by the survey research centers of major universities such as the Institute for Social Research at the University of Michigan (Morgan et al, 1966, Robinson, 1977).

The multinational study was carried out by the UNESCO sponsored European Coordination Center for Research and Documentation in Social Sciences. The major emphasis of this work was on non-work time used by adults in suburban populations. However, comparisons were made on time spent on household work as well as paid work. The Cornell University interests in household work research began in the 1920's (Walker & Woods, 1976), continuing into the 30's, 40's, and 50's with works by Warren (1940) and Weigand (1954). Historically, then, Cornell University's background in these research projects provided sufficient strength for a major study. The purpose of the 1967 study was two-fold. The development of a convenient instrument for measuring household production for large samples was of utmost importance, as was the resulting data bank itself. The sample consisted

of 1,296 time use records of families in the Syracuse, New York area. The results of the study identified three variables -- number of children, age of the youngest child, and employment of wives -- as being significantly related to household work time of husbands and wives.

The Northeast Regional Research Project, NE-113, sponsored by the U. S. Department of Agriculture and the Science and Education Administration was initiated by Kathryn Walker in 1977. Eleven states from various regions, including New York, joined to collect data from 2100 urban and rural two-parent, two-child families about their time use. Nine states gathered both urban and rural data. One state collected data from 105 urban families and one state collected data from 105 rural families (Family Time Use, 1981). The procedure of keeping time diaries to record a 24 hour day was patterned after that used earlier by Cornell University researchers (Walker & Woods, 1976). The time diary was modified to take into account the differences in nonwork time (organization participation and social and recreational activities) and personal maintenance time (personal care of self and eating). This allowed a comparison of household work time and nonwork time, a major need expressed by Walker in her concluding statements about the Cornell study. Two days of time use were collected on each family. The homemaker recalled time use for herself and all other family members

over age six for the day before the interview and the interviewer entered their use of time on the time diary sheet. The day after the interview the homemaker kept track of time use for herself and the family on a second time diary sheet. Time use was categorized into 18 types of activities and further summarized into four classes of time use: household work, work other than household, nonwork, and personal maintenance.

The University of Michigan studies are closely related. Robinson (1977) reported basically on the 1965-66 National Time Diary Study and some follow-up studies of that 1965-66 data. Robinson divided family time into a dyad, assigning variable family time use to either obligatory activities or free time. He maintained that personal care activities, although obligatory, were rather "constant" in the lives of employed men, employed women and housewives. Other obligatory activities were those associated with work (paid), housework, and childcare. Freetime was used for activities involving organizations, education, mass media, and recreation-social uses.

The Robinson data were gathered using a time diary method for a 24 hour day. The respondent entered time used by the activity, time started, and time ended. Researchers expanded upon the time diary method of the latter study for the 1975-76 Study of Time Use. In order

to balance "a typical day" results, more time use from respondents were collected.

> The study's design called for every individual to complete a 24-hour time diary at four different times over the course of a year. Individuals were interviewed in person during the fall of 1976. They were then reinterviewed by telephone three times during 1977: February, May, and September. (Pleck, 1985).

The 'data' days were comprised of either one or two week days plus a Saturday and a Sunday. An intricate procedure was used by the research team to develop a hypothetical "synthetic week" of time use for the cases in the analysis. Consequently, about 75% of the original 1519 primary respondents and 887 spouses interviewed were dropped from the analysis for various reasons. The remaining 547 cases were used in the total analysis sample (Pleck, 1985). The interview criteria were patterned after that used in the earlier 1965-66 research. Time use was divided into 37 activities and summarized into nine categories of total work, housework, household obligations, child care, personal needs, non-work travel, study and participation, mass media, and leisure.

Much of the time use research draws from the data banks established from these major studies. Although different sampling techniques, interview criteria, and research procedures were used in these studies the general objectives concerning the gathering of research data

dealing with time use and the use of the time diary collection technique are similar.

The data from the major research banks served in studying many facets of family time use. Some used the entire sample (Robinson (1977; Vanek, 1974; Tasker, et al., 1983; Nickols & Abdel-Ghany, 1983) and others were specific about a particular state (Goebel & Hennon, 1983; Nickols & Fox, 1980; Barclay, et al., 1984). Still others concentrated on a particular sub-sample having some common characteristic. (Sanik, 1981; Lawrence, et al., 1983).

Comparison studies using these data banks were performed by Sanik (1981, 1983) and by Vanek (1974). Vanek reviewed about 20 family time use studies of the 1920's through the 1960's that were carried out under the guidelines developed by the U.S. Bureau of Home Economics. She then compared the results to Robinson's Time Use Survey. Her analysis revealed that despite changes in technology, family location, and family composition, the total time used for household work had not changed during the 40 year period. She did report that the nature of household work had changed.

> The time spent in the tasks classified as shopping and managerial has increased. So has time devoted to family care. Less time is spent preparing food and cleaning up after meals, although together these activities continue to be the most time consuming aspect of house work. (p. 117).

Vanek's review substantiated the findings of an earlier study (Hall & Schroeder, 1970) that the total amount of time spent on household tasks has not significantly changed in the last 50 years. Only time use associated with individual tasks has changed. Hall and Schroeder's conclusions were based on data from 229 homemakers in the Seattle area whose returned questionnaires were analyzed.

Sanik (1981) compared 105 two parent, two child families of the NE 113 study interviewed in 1977, to 378 similar families who were interviewed 10 years earlier (Walker & Woods, 1976). Both samples were from the Syracuse, New York area. Sanik concluded that time used by the total family for all household work was about 10 hours daily in both samples, even though wives were working outside the home significantly more in the 1977 sample. Reduction in their household work time was evident in dishwashing and clothing care activities but wives still spent more time in household work than husbands. Husbands' household work time did not increase significantly when wives were employed.

Tasker et al. (1983) researched family travel time and factors related to it. Travel time and the variables of state of residence, rural/urban residence, age, education and employment of the wife, age and education of the husband, income of the family, season of the year,

and number of automobiles were studied. A framework of exchange theory and values theory was applied to determine values related to family travel time using the complete sample of the NE 113 study. All of the variables except education of the wife, age of the husband, and income were significant sources of variation in family travel time.

Stafford (1983) used a sub-sample from the Walker and Woods 1967-68 data to study employed wives. Only 362 families, or about 28% of the families from the original study, were used. Stafford avoided combining results of employed and nonemployed wives. With such a separation, Stafford found that employed wives increased their daily nonphysical care time by a greater margin than their decreases in physical care time for all families except those with only preschool children. These results differed from those of Walker and Woods (1976).

## Family Characteristics

### Age and Education

Age and education of both husbands and wives have some relationship to household time and travel time. When Tasker et al. (1983) considered 10 variables and their relationship to travel time, they found age of the wife and education of the husband to be significant while age of the husband and education of the wife were not. Ericksen, Yancey, and Ericksen (1979) observed that the

wife's education is positively related to husband/wife sharing of housework. In Model's findings (1981) relating age of husband to household tasks, those who were newlywedded (younger) or retired (older) participated to a greater degree than did husbands in the middle years of marriage.

Nickols and Metzen (1982) used a stepwise regression method to relate 19 independent variables to housework time. All four variables: ages of both wife and husband and both wife's and husband's education were included. None of the four added a large enough percentage to the explanation of household time to be included in the final equation. However, the wife's education variable was added back into the equation because of its importance to human resource allocation. The husband's education was added because the researchers thought that husband's education could be important in decisions regarding family time allocation to housework. In the final analysis, wife's education tended to be negatively related and husband's education was related in a positive direction but both educational variables added little to the explained variance of housework time.

Employment Status of the Wife

Almost all researchers agree that women who are employed outside the home still do the majority of

household tasks even though the amount of time is somewhat less than that of wives who are not employed. Robinson (1977) reported:

> No activity has as clearly demarcated the sexual division of labor in our society as household care. Women performed over 80 percent of both the housework and child care in this country in the 1965-66 study. While the employed woman was able to complete her housework in about half the time required by the housewife, this still represented a considerable encroachment on what could be free time for her. This was particularly true given that husbands of employed women reported little more contribution to housework than husbands of women not in the labor force. (p. 183-184).

According to Stafford (1983) when looking at specific activities of household work, employed wives spend most of their time in food preparation and the least time in yard and car care. Tasker et al.(1983) found that wives' employment was significantly related to their travel time. Travel time for paid work was shorter for women (13 minutes per day) than for men (32 minutes per day). Some differences may have resulted because these employed women lived closer to their jobs than their husbands did. All were mothers so they may have felt the restriction of working closer to their home and children.

Ages of Children

Age of children has a significant impact on time use in families (Walker and Woods, 1976; Robinson, 1977; Sanik, 1981). Sanik (1983) examined the age of the older

child and the age of the younger child as variables related to wife's and husband's time use. The age of the older child had a negative effect on physical care time of the family for both wives and husbands; and a positive effect on wives' time used for food preparation and shopping, and on husbands' time used for management. Robinson (1977) reported that age of children was even more significant than number of children relative to household tasks and family care time used by women. Walker and Woods (1976) found that age of the oldest child correlated slightly more closely with total time for all workers than did youngest age. Also, age of the older child was more highly correlated to food preparation, aftermeal clean-up, marketing, and regular house care as the older child got older (a positive relationship) than the age of the youngest child (a negative value with age of the youngest child shows the same basic result). Even when controlling for wives' employment status, it was found that more food preparation time was spent when older rather than younger children were present in the family (Walker & Woods, 1976). An earlier study by Hall and Schroeder (1970) came to the same conclusion. Walker and Woods (1976) also reported that total time used by all workers increased regularly and substantially in physical care from an average of .1 hour a day in households with

only teenage children to 3 hours a day in households with a baby as the youngest child.

Much of the time used in other tasks concerning meal preparation is related to age of children. Goebel and Hennon (1983) found that age of the younger child had a greater impact on whether families ate meals together and where, than did employment status of the mother. In the same study, age of the younger child also had a greater impact on mean number of meals eaten at home for both urban and rural samples than did the employment status of the mother.

In their book, Morgan, Sirageldin and Baerwaldt (1966) reported that married couples with at least one child under four reported doing 50% more hours of housework than the overall average. They observed that young children require more parental care and attention and that mothers with young children who tend to stay at home rather than seek outside employment, have more time for housework. The presence of preschool age children in the family as a primary factor in determining a mother's employment status is supported empirically by Hedges and Barnett (1972) and Nickols and Metzen (1978).

Age Span

Stone (1972) came close to addressing the issue of age span when he reported on child care time related to

their spacing, in Sweden. He addressed a time savings when children are born close together or when ages of children are of small spans. He reported:

> The amount of time spent of the toddler/baby combination averaged only about 78 percent of the sum of average baby time plus average toddler time, thus giving an estimate of the time saved (in activities related to child care) by having children closely spaced. (p. 249)

Other Variables

Several other variables were reviewed in addition to age and education, employment status of the wife, and age of children. When investigating travel time, Tasker et al. (1983) made two observations that are noteworthy here. First, in relation to number of autos, Tasker et al. found that husbands spent more time chauffeuring in families with fewer automobiles than in families with more automobiles; therefore the number of vehicles owned was inversely related to the husbands' chauffeuring of other family members. Second, a general finding was that house location is not significant when related to time use (Walker, 1976; Robinson, 1977). Tasker et al. agree to a point, but then makes these specific observations:

> Although the total travel time of rural families did not differ significantly from that of urban families, findings indicated that there were significant differences in travel for social and recreational activities, and for paid work. Rural husbands traveled significantly less time for paid work (30 minutes per day) than urban husbands did (34 minutes per day). The rural family spent significantly less time traveling

> for paid work than the urban family did. Rural families averaged 38 minutes per day, whereas urban families averaged 43 minutes per day in travel for paid work. Rural wives, however, averaged significantly more travel for social and recreational activities (17 minutes per day) than their urban counterparts (13 minutes per day). (pp. 212-213).

When comparing time used for activities involving parents with their children in Eastern and Western European families and those of the United States, Stone (1972) observed that American children get very little help with their homework compared to European children. But on the other hand, American mothers and fathers spend a great deal of their time transporting their children.

There is little empirical support in time use studies to relate the family income variable significantly with household tasks. Robinson (1977) stated that income was not associated in any systematic way with housework. He did find income emerging as a predictor of travel time. Apparently affluent families use automobiles for leisure activities. Model (1981) observed that high income men contributed more to housework if they are married to wives who also have high earnings. If high income is related to higher education it seems reasonable that wives' education is positively related to husband/wife sharing of housework as observed by Ericksen, Yancey, and Ericksen (1979). These same research findings disagreed with Model's study.

She concluded that high income husbands are considerably less likely than lower income husbands to do housework.

In a study concerning leisure time of husbands and wives, Nickols and Abdel-Ghany (1983) found that age of the younger child is positively related to wife's leisure time but not significantly related to husband's leisure time. Dolan (1980) found that income was related to nonwork time. She found that "homemakers in families with incomes between $6,000 and $7,500 per year recorded more time to social/recreational activities than any other group (p. 61)." Interestingly, the spouses in that same income category used the least amount of time in the same activities. Both homemakers and spouses with family incomes of less than $6,000 used more time in social/recreational activities than did those in the income groups of $7,000 to $50,000.

## Development of a Theory for the Study

Based on the review of literature, and the Conceptual Model developed earlier (Chapter 1, p. 7) a theory to guide this research incorporates role theory and viable concepts of the family systems approach in the exploration of age span. According to Kerlinger (1973) a theory is:

> a set of interrelated constructs (concepts), definitions, and propositions, that present a systematic view of phenomena by specific relations among variables, with the purpose of explaining and predicting the phenomena. (p.9)

The theory for this study considers the concepts of age span, family and work roles of parents, children's developmental needs and tasks, family systems, and the managerial components of input, throughput, and output. Their relationships are shown in the model in Figure 3.

Age span, a demographic characteristic, necessarily suggests that there is the presence of more than one child in a family. The expectations are that different age spans would create different developmental needs and tasks, and therefore, create changes in the input of the family system. As age span increases, the developmental task stages of children will become more varied. Families whose children are farthest apart in age will experience the greatest difference in developmental tasks between their two children. Differences in age span will cause various shifts in the demands on wife's and husband's roles, again creating change in input. When referring to roles, these are the family and paid work roles of the wife and husband. These roles are mutually exclusive in that they are generally performed in separate arenas. But they are also closely related and mesh together because of their commonality of relationship in the family system.

Viewed systematically, the theoretical prediction is: as age span increases so too will the variety of the children's developmental needs and tasks which will, in turn, expand the variety of demands on the roles of wives

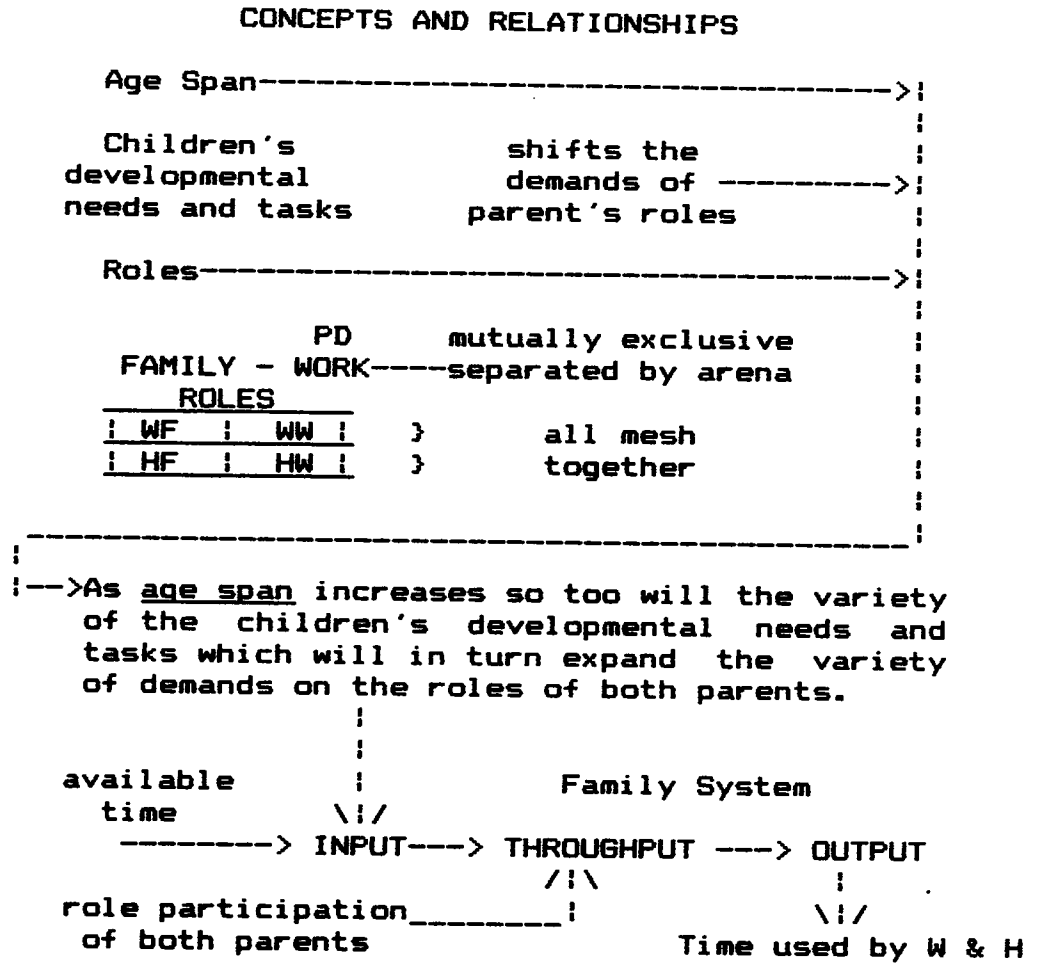



Figure 3. THE RELATIONSHIP OF CHANGES IN AGE SPAN TO WIVES AND HUSBANDS USE OF TIME

and husbands. These changes along with available time are part of the input component of the family's managerial system. Role participation of wives and husbands, the acting out or performing of roles, are part of the throughput component. Time used by wives and husbands to meet these developmental needs and tasks of children is shown as output.

## Summary

This review is a summary of the literature concerning family systems, role theory, and selected time use studies related to the purpose of this research. These concepts serve as the framework of this research. Selected variables are examined.

Family systems research is an adaptation of a general systems approach to families and their environment. It has been used as a framework by home economists and sociologists. Theoretical concepts of home economics and sociology include (1) resources are input used by families and (2) time is a central, integrative resource. Time is used to meet needs of the family as a system and also by its individual members. Time is also used to meet demands placed upon the family by the internal and external environments. Families are composed of subsystems which interact with each other and interface with the

environment. They are not always compatible in their intent and, as a result, cause intrasystem strain.

Roles of wives and husbands have been discussed by a number of authors. The majority seem to agree that wage earner roles and family roles are important for both wives and husbands. Traditionally, major roles of wives have concentrated on household activities or the family role; husbands have been associated with the wage earner role and since the industrial revolution husbands have been separated from the family boundary. Pressure of time demands of both roles affect both wives and husbands. The demographic changes of a shorter child-bearing period and a longer life span have contributed to more participation of wives in wage earning roles.

Time use studies using large national samples have served as a basis for the study of family systems, and family and work roles. Numerous variables are related to needs and demands that direct the way families use time. Those selected for review include age and education of the husband and wife, employment status of the wife, ages of children, and age span. Studies do not agree on how they relate to either total time use or specific time use devoted to either certain household tasks or activities outside household production. Whose time has been used has also been researched. Wives, whether employed outside the home or not, are responsible for or assume the

responsibility for the majority of household work time. Husbands, whether their wives are working or not, seem to change their time use very little.

Both the age of the younger child and the age of the older child have been examined as having effect on time use in families. Studies show that ages of either category relate differently to specific time consuming activities such as meal preparation, physical care of family members, and leisure time for both wives and husbands. No studies were disclosed which considered the interaction between the age of the younger child and the age of the older child as a variable related to time use of families. A theory was, therefore, developed to guide this study in searching for relationships of age span between children to time use in two-parent, two-child families.

# CHAPTER III

## METHODS AND PROCEDURES

The methods and procedures were designed to examine age span as a factor related to the time use of wives and their husbands in two-parent, two-child, families. Statistically, age span, the difference and the control of the ages of children, is accomplished by initiating an interaction between the age of the younger child and the age of the older child.

### Hypothesis Development

Assertions, subject to statistical analysis, were drawn within the limits of the objectives of the study which were to:

1. compare the time use of wives and of husbands during a 24 hour day in order to determine whether age span between their children explains any variation in that time use.

2. determine whether selected factors in addition to age span will further explain time use by wives or their husbands. The selected variables examined were:
   a. age of the wife
   b. age of the husband
   c. educational level of the wife
   d. educational level of the husband
   e. employment time of the wife
   f. annual family income
   g. number of automobiles
   h. area of residence

On the basis of previous research related to family time use, children's ages, and other selected variables, the following hypotheses were proposed.

H1: Age span, the interaction, will be significant between the ages of the younger and older child for wives' and husbands' total work time and as age span between children increases, total work time of wives or their husbands will increase.
(See models one and two, Appendix F.)

H2: Age span, the interaction, will be significant between the ages of the younger and older child for wives' and husbands' household work time, other work time, and leisure time and, as age span between children increases, household work time of wives or their husbands will increase; other work time, and leisure time of wives or their husbands will decrease; and personal maintenance time will stay the same. (See models three through 10, Appendix F.)

H3: Age span, the interaction, will be significant between the ages of the younger and older child for wives' and husbands' household work time, other work time, and leisure time and, as age span between children increases, household work time of wives or their husbands will increase; other work time and leisure time of wives or their husbands will decrease; and personal maintenance time will stay the same. The following variables will increase the

coefficient of determination significantly except in personal maintenance time for wives or their husbands:

a. age of wife

b. age of husband

c. educational level of wife

d. educational level of husband

e. employment time of wife

f. annual family income

g. number of automobiles

h. area of residence

(See models 11 through 18, Appendix F.)

H4: Age span, the interaction, will be significant between the ages of the younger and older child for wives' and husbands' time used for the activity components in (a) and (b) and, as age span between children increases, time for each of the following activity components of classes of time will increase, decrease, or have no correlation with wives or husbands time use as indicated.

(a) Age span between children will be positively correlated with wives' time use for food preparation; dish washing; shopping; maintenance of home, yard, car, and pets; physical care of others; and non-physical care of others.

(b) Age span between children will be positively correlated with husbands' time use for shopping, physical care of others, and non-physical care of others.

(c) Age span between children will be negatively correlated with wives' time use for paid work, volunteer (unpaid) work, and social/recreational activities.

(d) Age span between children will be negatively correlated with husbands' time use for volunteer (unpaid) work, and social/recreational activities.

(e) Age span between children will have no significant correlation with wives' time use for house cleaning, laundry, care and construction of clothes and household linens, management, school work, organizational participation, care of oneself, and eating.

(f) Age span between children will have no significant correlation with husbands' time use for food preparation; dish washing; house cleaning; maintenance of home, yard, car, and pets; laundry; care and construction of clothes and household linens; management; paid work; school work; organizational participation; care of oneself; and eating.

[See models 19-27 (positive correlations), 28-32 (negative correlations), & 33-52 (no effect) for $b_3$ in Appendix F.]

The following hypothesis was proposed to establish whether selected variables would add to the explanation of time use by significant component activities:

H5: Age span, the interaction, will be significant between the ages of the younger and older child for wives' and husbands' time used for the following activities, and as age span between children increases, those certain component activities [food preparation; dish washing; shopping; house cleaning; maintenance of the home, yard, car, and pets; care for and/or construction of clothing or household linens; laundering; physical care for other family members; non-physical care for other family members; management; paid work; volunteer (unpaid) work; school work; organizational participation; social and recreational activities; care of oneself; and eating] will be further explained by other selected variables. The variables are:

a. age of wife

b. age of husband

c. educational level of wife

d. educational level of husband

e. employment time of wife

f. annual family income

g. number of automobiles

h. area of residence

(See models 53 through 86, Appendix F.)

H6: Where age span, the interaction, between children is significant, travel time associated with primary time, and secondary time of wives or their husbands will be further explained by the following variables:

a. age of wife

b. age of husband

c. educational level of wife

d. educational level of husband

e. employment time of wife

f. annual family income

g. number of automobiles

h. area of residence

(See models 87-154 (travel & secondary time), Appendix F.)

H7: Age span, the interaction, will be significant between the ages of the younger and older child for wives' employment time, and as age span between children increases the employment time worked by wives will decrease. (See model 155, Appendix F.)

## Source of Data

This study utilized data from the Northeastern Regional Research Project: An Interstate Urban/Rural Comparison of Families' Time Use (NE-113) collected in 1977 and 1978. The NE-113 project was made possible through the effort of the Science and Education Administration, Cooperative State Research Services, United States Department of Agriculture and the Agricultural Experiment Stations in the Northeastern, North Central, Western, and Southern Regions (Family Time Use, 1981, pg. 1).

The NE-113 study had three major objectives, to:

(1) establish a data bank for urban and rural families on use of time for household, paid, and volunteer work and for nonwork activities;

(2) compare similarities and differences in use of time in work (household, paid, and volunteer) among urban and rural populations in various geographic areas in the United States; and

(3) determine the extent of change in time use for household work, paid work, and volunteer work, and the total of these kinds of work over the past decade.

This study contributed to objective two.

## Selection of Sample

The sample of 2100 families used in the NE-113 project was stratified according to area of residence (urban, rural) and to the age of the younger child in years (under 1, 1, 2-5, 6-11, 12-17). In all of the

states except Louisiana and North Carolina data were collected on 105 urban and 105 rural families. In Louisiana data were collected from 105 urban families only and in North Carolina, 105 rural families only. The total sample consisted of 1050 urban families and 1050 rural families (Family Time Use, 1981, pg. 6).

Families in the sample were defined as four person families with two adults and two children under the age of eighteen. Random selection was used to select 21 families for each of 10 cells (urban/rural residence x age of the younger child). Data were gathered equally across the seven week days and the three, four month segments of the year (January to April, May to August, September to December). "Homemaker" was defined as the person with primary responsibility for home care and management of the household (Family Time Use, 1981, p.10). Families from the original data set were excluded for this study if:

1. Homemakers were male and spouses were female,
2. Ages of wives and husbands were coded as zero or 99,
3. Ages of older children were coded as younger than that of the younger child,
4. Ages of either the younger or older child were coded beyond the scope of the study,
5. Husbands were unemployed.

The sample size for this study was 1,983 families.

## Description of the Instrument

Three instruments were used in this study. All were modified forms of the original instruments developed by Cornell University researchers for the 1967-68 household time use study (Walker and Woods, 1976). The time use chart (Appendix B) provided space to record activities for a 24 hour day in five minute intervals. Information asked on the two page family contact record (Appendix C), directed the interviewers to qualify the families for the study and gave certain demographics about the family. The survey questionnaire, a nine page instrument was used to gather information about additional demographics, housing environment and technology, needs, appliance ownership and use, transportation, non-family household help, and circumstantial time use events (Family Time Use, 1981).

Time spent in 10 household work activities, school, paid work, volunteer (unpaid) work, organizational participation, social and recreational activities, personal care, eating, and "other" were recorded. Primary, secondary, and travel time were recorded. This study used selected items from the family contact record, time use chart, and the survey questionnaire (Appendix D).

## Collection of the Data

Data were collected by personal interview. Interviewers, in each state, viewed a video cassette tape

on interview training and become familiar with a manual of data collection procedures to achieve uniformity and consistency in data collection techniques among the states. All data were collected over a one year period. Four attempts were made to contact a family. If unsuccessful, they were dropped from the sampling list. Other reasons for names being dropped were: family had moved, residence was vacant, unable to locate, and did not wish to participate.

## Analysis of the Data

For the purposes of this study, the following variables are described.

Independent Variables:

There are 11 independent variables. The actual ages of the children in the sample families were recorded. The difference between the ages were determined and controlled by a statistical interaction procedure and the result was designated as age span. Other demographic independent variables were age of the younger child, age of the older child, age of the husband, age of the wife, educational level of the wife, educational level of the husband, and employment of the wife. The independent resource variables were family income, number of automobiles, and area of residence.

Dependent variables:

The dependent variables are divisions of time based on a 24 hour day for wives and husbands. Household work time and paid work time were combined to determine total work time. All similar activities were categorized into four classifications of time and identified as household work time, other work time, leisure time and personal maintenance time. Time for each activity was considered. The activities were: preparation of food; dish washing; shopping; house cleaning; maintaining the home, yard, car, and pets; care and/or construction of clothing or household linens; laundering; physical care of other family members; care of other family members in a non-physical way; management; paid work; volunteer (unpaid) work; school work; participation in organizations; participation in social and recreational activities; care of oneself; and eating. The time data were categorized as primary, secondary, or travel. Employment time of wives was also studied as a dependent variable.

Time in minutes per day for recorded activities was calculated as an average of aggregate time recorded for two days, one day apart, for those activities.

Statistical Analysis

The data were subjected to both descriptive and inferential procedures as follows:

1. Frequencies of the differences between the age of the younger child and the age of the older child were determined and sorted by number of families and employment status of wives in those numbers of families.

2. The average time in minutes was calculated for household work time, paid work time, and total work time for wives and their husbands.

3. Multiple linear regression was used to determine the best combination between the independent and dependent variables. Both continuous variables (age, education, employment time, family income, number of automobiles) which differed in degree and a categorical variable (area of residence) which differed in condition were used. The general prediction regression model was:

$$Y' = a + b_1X_1 + b_2X_2 + \ldots\ldots b_kX_k, \text{ where}$$

$Y'$ = estimated scores of the dependent variable

$X_1$, $X_2$, $X_k$ = scores of the independent variable 1, 2, k

$b_1$, $b_2$, $b_k$ = regression coefficients, and

a = intercept

Several assumptions underlie the multiple regression analysis. It is assumed that the scores of the dependent variable (Y) are normally distributed, have equal variances at each value of X, and the relationship between the dependent variable and independent variable is linear.

# CHAPTER IV

## RESULTS AND DISCUSSION

In this chapter the first section describes demographic characteristics of the families of the study followed by the results of the statistical analysis required for testing the hypotheses and supplementary findings on related variables. The chapter concludes with a summary.

### Description of the sample

The sample size for this study was 1,983 families. All wives and husbands were parents or guardians of two children living at home with minimum differences in age of less than one year and maximum differences in ages of 17 years. Thirty percent of both wives and husbands were in the age range of 30 to 34 years (Table 1). There were more husbands than wives in all ranges beyond 34 years. The mean age of the wives was 32.42 and mean age of the husbands was 34.84. The mean age of the wives was 2.4 years younger than that of the husbands.

Education of wives and husbands revealed 39.2% of the wives had completed high school while another 24.3% had earned either their bachelor's or master's degree (Table 2). Fewer husbands had graduated from high school (29.7%) but an equal number (30.1%) had completed their bachelor's

TABLE 1

Distribution of Age of Wives and Husbands in Two-Parent, Two-Child Families

| Age Level | Wives | | Husbands | |
|---|---|---|---|---|
| | N | % | N | % |
| | N = 1983 | | N = 1983 | |
| Less than 25 | 182 | 9.178 | 95 | 4.791 |
| 25 - 29 | 567 | 28.593 | 427 | 21.533 |
| 30 - 34 | 604 | 30.459 | 600 | 30.257 |
| 35 - 39 | 331 | 16.692 | 385 | 19.415 |
| 40 - 44 | 160 | 8.069 | 228 | 11.498 |
| 45 - 49 | 81 | 4.085 | 145 | 7.312 |
| 50 - 54 | 52 | 2.622 | 63 | 3.177 |
| 55 or more | 6 | 0.303 | 40 | 2.017 |
| mean age | $\bar{X}$ = 32.42 (s.d. = 6.96) | | $\bar{X}$ = 34.84 (s.d. = 7.70) | |

TABLE 2

Distribution of Education of Wives and Husbands in Two-Parent, Two-Child Families

| Education Level | Wives | | Husbands | |
|---|---|---|---|---|
| | N | % | N | % |
| | N = 1981* | | N = 1980* | |
| Less than h.s. | 135 | 6.815 | 148 | 7.478 |
| H.S. diploma | 777 | 39.223 | 588 | 29.697 |
| Tech. training | 131 | 6.613 | 87 | 4.394 |
| Part college | 413 | 20.848 | 378 | 19.091 |
| Associates degree | 35 | 1.767 | 60 | 3.030 |
| Bachelor's degree | 382 | 19.283 | 436 | 22.020 |
| Master's degree | 101 | 5.098 | 161 | 8.131 |
| Doctoral degree | 7 | 0.353 | 122 | 6.162 |

N* = information availible

or master's degree. More husbands had completed degrees at all four levels, associate, bachelor's, master's, and doctoral, than had their wives.

Income levels for the participating families are shown in Table 3. About 41% of the families had incomes of $20,000 and above and half were in the $10,000 to $20,000 categories. Over 65% of the families in the study owned and used two automobiles for family activities (Table 4). About the same number of families in the study had three or more automobiles (18.2%) as those who had only one (16.2%).

TABLE 4

Distribution of Automobiles in Two-Parent, Two-Child Families

| Number of Autos | Frequency | Percent of Total | Cumulative Frequency | Cumulative Percent |
|---|---|---|---|---|
| | | | N* = 1981 | |
| 1 | 321 | 16.204 | 321 | 16.204 |
| 2 | 1298 | 65.522 | 1619 | 81.726 |
| 3 | 273 | 13.781 | 1892 | 95.507 |
| 4 or more | 89 | 4.493 | 1981 | 100.000 |

N* = information available

With respect to area of residence, the sample for this study has a slightly uneven distribution with 993

TABLE 3

Distribution of Family Income in Two-Parent, Two-child Families

| Income level | Frequency | Percent of Total | Cumulative Frequency | Cumulative Percent |
|---|---|---|---|---|
| | | N = 1886 | | |
| under $5,000 | 13 | 0.689 | 13 | 0.689 |
| 5,000 to 7,499 | 46 | 2.439 | 59 | 3.128 |
| 7,500 to 9,999 | 99 | 5.249 | 158 | 8.378 |
| 10,000 to 14,999 | 482 | 25.557 | 640 | 33.934 |
| 15,000 to 19,999 | 463 | 24.549 | 1103 | 58.484 |
| 20,000 to 24,999 | 354 | 18.770 | 1457 | 77.253 |
| 25,000 to 49,999 | 362 | 19.194 | 1819 | 96.445 |
| 50,000 or more | 67 | 3.552 | 1886 | 100.000 |

N* = information available

(50.1%) families located in a rural area and 990 (49.9%) families located in an urban area as the result of sample selection to meet the specific criteria unique to this study.

Of all possible 189 age spans or differences between the ages of the two children in families of the study, 147 have at least one family in the cell. There were 128 families with their youngest child less than one and their oldest child 3 years old (see Appendix G). Over half of the children in the study had a brother or sister within an age span of either two (26.1%) or three years (25.2%) (Table 5). As a sample, these families gave birth to their children in a relatively short period of time. Fewer than 12% had more than five years between the ages of their children.

When investigating all wives by age span between children, a majority (57.6%) were full time homemakers (Table 6). These full time homemakers ranged from 51.2% of those with an age span of less than one year to 68.4% when the age span was seven years. Part-time employed wives were those who worked from one to 29 hours per week. Eighteen percent of all wives were part-time employed. The seven year age span accounted for the smallest percentage (14.0%) of that category who were part-time employed and the eight year age span accounted for the greatest percentage (24.0%) of that category who were in

TABLE 5

Distribution of
Two-Parent, Two-Child Families by Age Span

| Age Span in Years | Total Families N = 1983 | Percent of Total | Cumulative of Total | Cumulative Percent |
|---|---|---|---|---|
| < 1 | 27 | 1.362 | 27 | 1.362 |
| 1 | 213 | 10.741 | 240 | 12.103 |
| 2 | 518 | 26.122 | 758 | 38.225 |
| 3 | 499 | 25.164 | 1257 | 63.389 |
| 4 | 311 | 15.683 | 1568 | 79.072 |
| 5 | 182 | 9.178 | 1750 | 88.250 |
| 6 | 105 | 5.295 | 1855 | 93.545 |
| 7 | 57 | 2.874 | 1912 | 96.420 |
| 8 | 25 | 1.261 | 1937 | 97.680 |
| 9 | 19 | 0.958 | 1956 | 98.638 |
| 10 & more | 27 | 1.362 | 1983 | 100.000 |

TABLE 6

Distribution of Employment Status of Wives in Two-Parent, Two-Child Families by Age Span

| Age Span in Years | Full Time Homemakers N = 1143 (57.6) | Part Time Employed N = 363 (18.3) | Full Time Employed N = 477 (24.1) | Total N = 1983 (100.0) |
|---|---|---|---|---|
| < 1 | 14 (51.2) | 5 (18.5) | 8 (30.0) | 27 |
| 1 | 124 (58.2) | 32 (15.0) | 57 (26.8) | 213 |
| 2 | 277 (53.5) | 106 (20.5) | 135 (26.1) | 518 |
| 3 | 293 (58.7) | 91 (18.2) | 115 (23.0) | 499 |
| 4 | 184 (59.2) | 51 (16.4) | 76 (24.4) | 311 |
| 5 | 108 (59.3) | 34 (18.7) | 40 (22.0) | 182 |
| 6 | 61 (58.1) | 22 (21.0) | 22 (21.0) | 105 |
| 7 | 39 (68.4) | 8 (14.0) | 10 (17.5) | 57 |
| 8 | 15 (60.0) | 6 (24.0) | 4 (16.0) | 25 |
| 9 | 12 (63.2) | 4 (21.1) | 3 (15.8) | 19 |
| 10 & more | 16 (59.3) | 4 (14.8) | 7 (25.9) | 27 |

Percent of age span for that span in parentheses

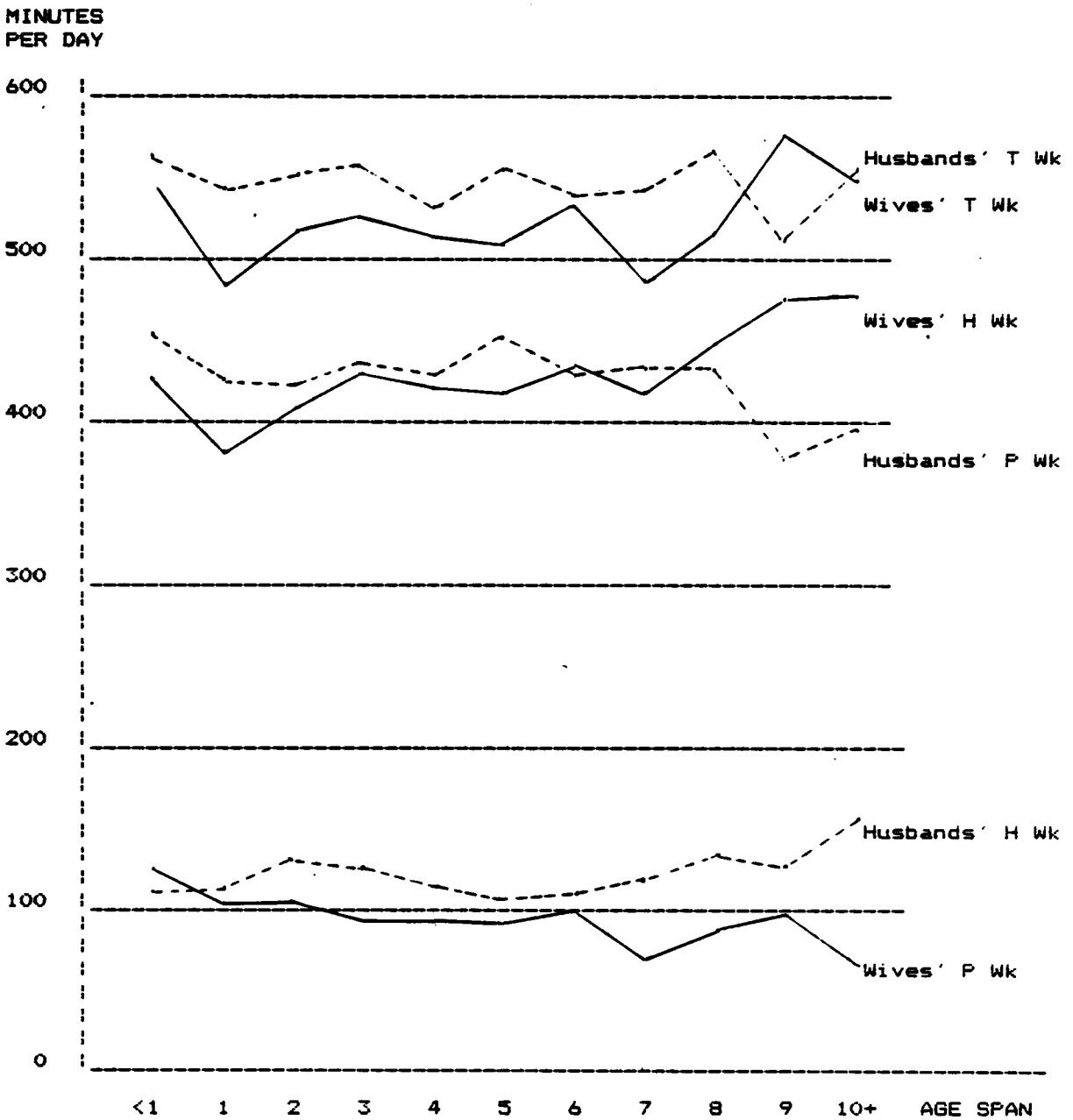
this part-time employed group. The age spans of less than one, three and five years were close to the overall percentage (18.3%) of all part-time employed wives to the total. Full time employed wives were those who worked 30 or more hours a week and comprised 24.1% of all wives in the sample. The age span distribution for this group ranged from 15.8% for the nine year span to 30% for a span of less than one year. Comparing full time homemakers to full time employed wives, the age span of less than one year is the span where the smallest percentage of full time homemakers and the greatest percentage of full time employed wives are. Yet, the opposite is true when age spans reach seven, eight, and nine years.

## Total Work Time

Total work time was computed for all wives and husbands by summing mean time used for household work and mean time used for paid work at each age span level. Husbands' total work time exceeded wives' at all age span levels except when nine years separated the age of the younger and older child. (Figure 4). Husbands' household work time approximated wives' paid work time and wives' household work time approximated husbands' paid work time.

## Classifications and Types of Time Use

Time use was divided into two categories, classifications of time and types of time according to the




T Wk = total work time
H Wk = housesold work time
P Wk = paid work time

Figure 4. ALL WIVES' AND HUSBANDS' HOUSEHOLD, PAID, AND TOTAL TIME

nature of its use. The four classifications of time dealt with similar or related activities in each. The class with the most activities was that of household work. Ten activities were identified with household work. Time used for preparing food; dishwashing; shopping; housecleaning; maintaining the house, yard, car, and pets; caring for or constructing clothing or household linens; caring for other household members in a physical manner; caring for other household members in a non-physical manner; and the managing aspects of the family were classified as household work time. Time used for paid work, unpaid or volunteer work, and school work was classified as other work time. Leisure time included activities devoted to organizational participation and/or social or recreational activities. The last class of time, personal maintenance, encompassed activities for caring for oneself, including sleeping and eating.

Time was also divided into three types, primary, travel, and secondary time. Primary and travel time for all activities were the base for the accounting of the 24 hour day. However, recognizing that activities can be done simultaneously with primary and travel activities, the nature of secondary activities was acknowledged. Time was assigned to primary, travel or secondary type according to the nature of its use, independent of its activity classification.

## Combinations of Time Use as Dependent Variables

Different combinations of time use disclosed a maximum of 155 autonomous dependent time variables. Variables were created by considering each of the four classifications of time, their 17 activity components, all in relation to each of the three types of time for both wives and husbands. Total work time was devised by combining household work time and paid work time. Paid work time of the wives was studied as the final dependent variable. Comparisons were made between wives' and husbands' time use in the first 154 dependent variables.

## Independent Variables

Age of the younger child and age of the older child and the interaction between the ages of the children were the initial independent variables of this study. Age span between children accounts for both the distance in years between the age of the younger and older child, and the control for those ages. Employment status of wives, age and educational level of wives, age and educational level of husbands, annual family income, number of automobiles, and area of residence were selected as other independent variables to see if their additive effect would increase the correlation of determination ($R^2$) and by what quantity.

## Regression Analysis

The results of the regression analysis among the dependent and independent variables satisfied the objectives of the study:

1. to examine and compare the time use of wives and husbands during a 24 hour day in order to determine whether age span between children explains any variation.

2. to determine whether selected factors in addition to age span will further explain time use by wives or their husbands. The variables to be examined are:
    a. age of wife
    b. age of husband
    c. educational level of wife
    d. educational level of husband
    e. employment time of wife
    f. annual family income
    g. number of automobiles
    h. area of residence

The results of the findings of the dependent variables regressed on age of the younger child, age of the older child and the significance of the interaction associated with increases in age span, are reported following each hypothesis.

## Age Span and Total Time Use

H1: Age span, the interaction, will be significant between the ages of the younger and older child for wives' and husbands' total work time and as age span between children increases,total work time of wives or their husbands will increase.

This hypothesis holds true for total work time of wives (.0001 level) and when the age of the younger child is five or more years old, but is not supported for total

work time of husbands (Table 7 & Figure 5). The results of the regression of wives' total work time and husbands' total work time on age of the younger child, age of the older child and the interaction of the two ages, or age span, indicate that age span is significant for wives' total work time (.005 level) but not for husbands total work time. The coefficient of determination for both wives' and husbands' total work time revealed that the three age variables accounted for less than two percent of the variance ($R^2$ = .018 & .014) in total work time for either wives or husbands. Wives total work time was greatest when the family's two children were very young. When the youngest child was one year old or less, the most substantial time was used by wives for total work. When the age of the youngest child was one to three, and the age of the older child increased, the wives' total work time decreased. When the age of the younger child reached school age (5 years and above), and the age of the older child increased, the total work time for wives increased. Household work time including time for physical and non-physical care of other family members and paid work time comprised total work time. This finding may be explained by the physical care needs of very young children being most time consuming. When children reach school age, they spend less time at home. The increased total work time for wives may be a result of wives increasing their paid

TABLE 7.

Regression Results of Total Work Time on Age of Younger Child, Age of Older Child, and Age Span

| Independent Variables | Wives' Total Work Time | | Husbands' Total Work Time | |
|---|---|---|---|---|
| | Regression Coefficient* | T Value | Regression Coefficient* | T Value |
| AGEYC (A) | -11.536 (3.489) | -3.31*** | -2.478 (4.323) | -0.57 |
| AGEOC (B) | -2.831 (1.852) | -1.53 | -5.839 (2.294) | -2.55* |
| AGESP (AxB) | 0.641 (0.209) | 3.07** | 0.233 (0.259) | 0.90 |
| Constant | 558.802 | | 597.962 | |
| $R^2$ | .018 | | .014 | |
| TWT Means | 516.104 | | 550.561 | |

* Standard errors are shown in parentheses
* Incicates significance at a level of .05
** Indicates significance at a level of .005
*** Indicates significance at a level of .001

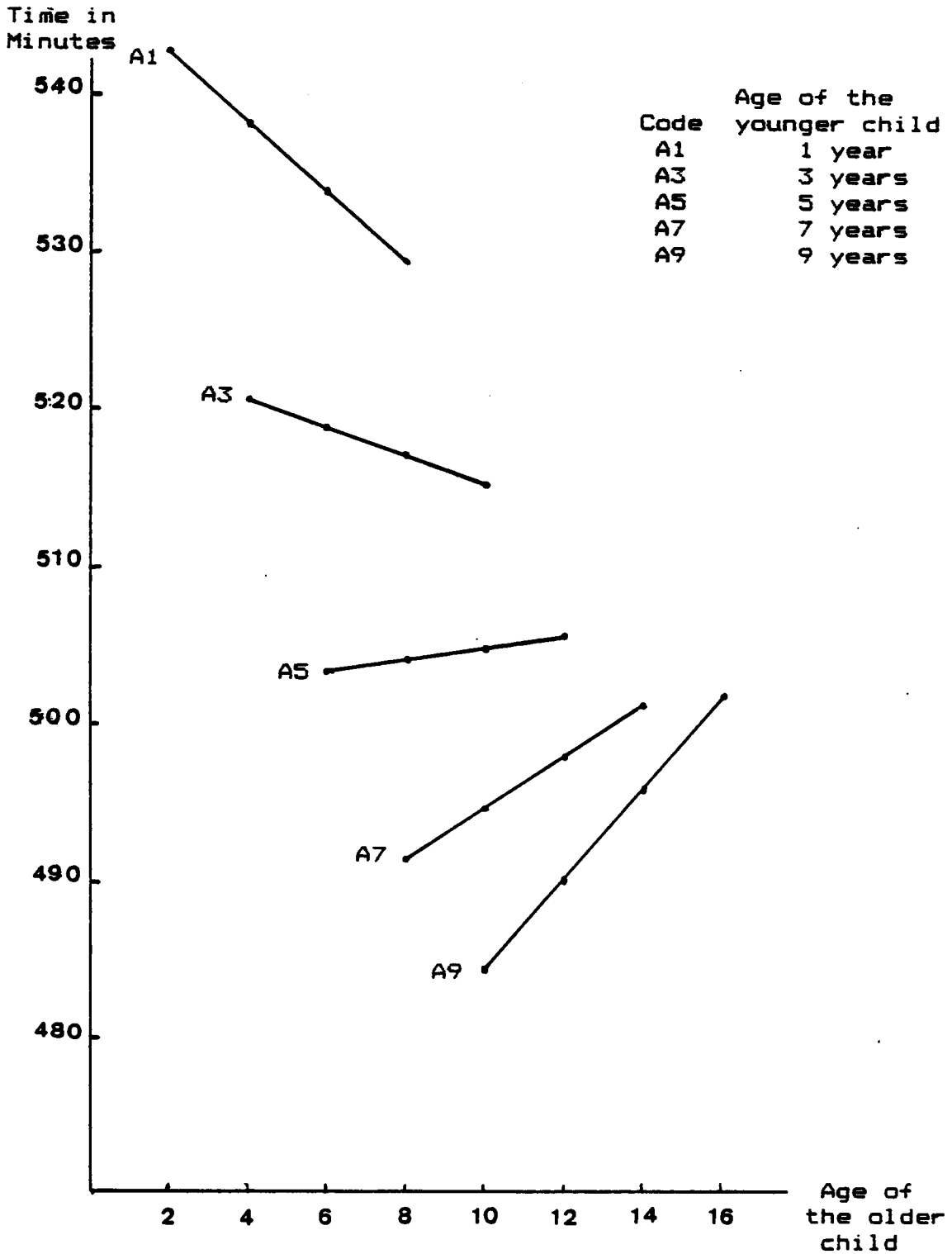



Figure 5. Interaction of the age of the younger child with age of the older child in wives' total work time

work time after both children are in school. The increases in wives' total work time associated with the increases of the older child when the age of the younger child reached school age may also be caused in part, by differences in both physical and non-physical needs and diversity in children's developmental tasks as their ages increase. These findings support those of Fox and Nickols (1983) who, using a smaller sub-sample of the data set, found age of the younger child to be negatively significant to wives' total work day and a lack of significance between age of the younger child and husbands' total work day.

## Age Span and Classifications of Time Use

> H2: Age span, the interaction, will be significant between the ages of the younger and older child for wives' and husbands' household work time, other work time, and leisure time and, as age span between children increases, household work time of wives or their husbands will increase; other work time, and leisure time of wives or their husbands will decrease; and personal maintenance time will stay the same.

The hypothesis holds true for wives' household work time (.0001 level), after the age of younger child reaches more than five years, but is not supported for household work time of husbands at any ages of children. Although the interaction was significantly related (.05 level) to husbands' household work time as age span increased, husbands' household work time decreased as age span

increased (Table 8, Figures 6 & 7). The regression results of time used for household work showed that although wives used more time for this activity than did their husbands, both parents used the most time when the age of the youngest child was very young and the age of the oldest child was closest to the age of the youngest child. For wives, as the age of the youngest child increased, less substantial amounts of time was used for household work as the differences between the ages increased until the age of the youngest child exceeded five years. Then, the amount of time used by wives increased as the differences in the ages of the children increased. For husbands, time used for household work continued to decrease with increases in the age of the older child. Household work time contains time used for both physical and non-physical care of children. Therefore, this finding may be explained by developmental needs and tasks of children. When children are very young they are less able to care for themselves and therefore, much parental time is used to meet their children's physical and non-physical care needs. As the children get older, they are more able to do things for themselves. At least for wives, when both children reach school age, perhaps activities dealing with their care become so diverse that physical and non-physical care time increases as the differences in ages increase. In this sample,

TABLE 8.

Regression Results of Household Work Time on Age of Younger Child, Age of Older Child, and Age Span

| Independent Variables | Wives' Household Work Time | | Husbands' Household Work Time | |
|---|---|---|---|---|
| | Regression Coefficient* | T Value | Regression Coefficient* | T Value |
| AGEYC (A) | -26.375 (3.459) | -7.62**** | -5.138 (2.468) | -2.08* |
| AGEOC (B) | -7.661 (1.836) | -4.17**** | -4.329 (1.309) | -3.31*** |
| AGESP (AxB) | 1.365 (0.207) | 6.59**** | 0.370 (0.148) | 2.51* |
| Constant | 532.748 | | 159.901 | |
| $R^2$ | .133 | | .025 | |
| HWT Means | 418.042 | | 120.472 | |

* Standard errors are shown in parentheses
* Incicates significance at a level of .05
*** Indicates significance at a level of .001
**** Indicates significance at a level of .0001

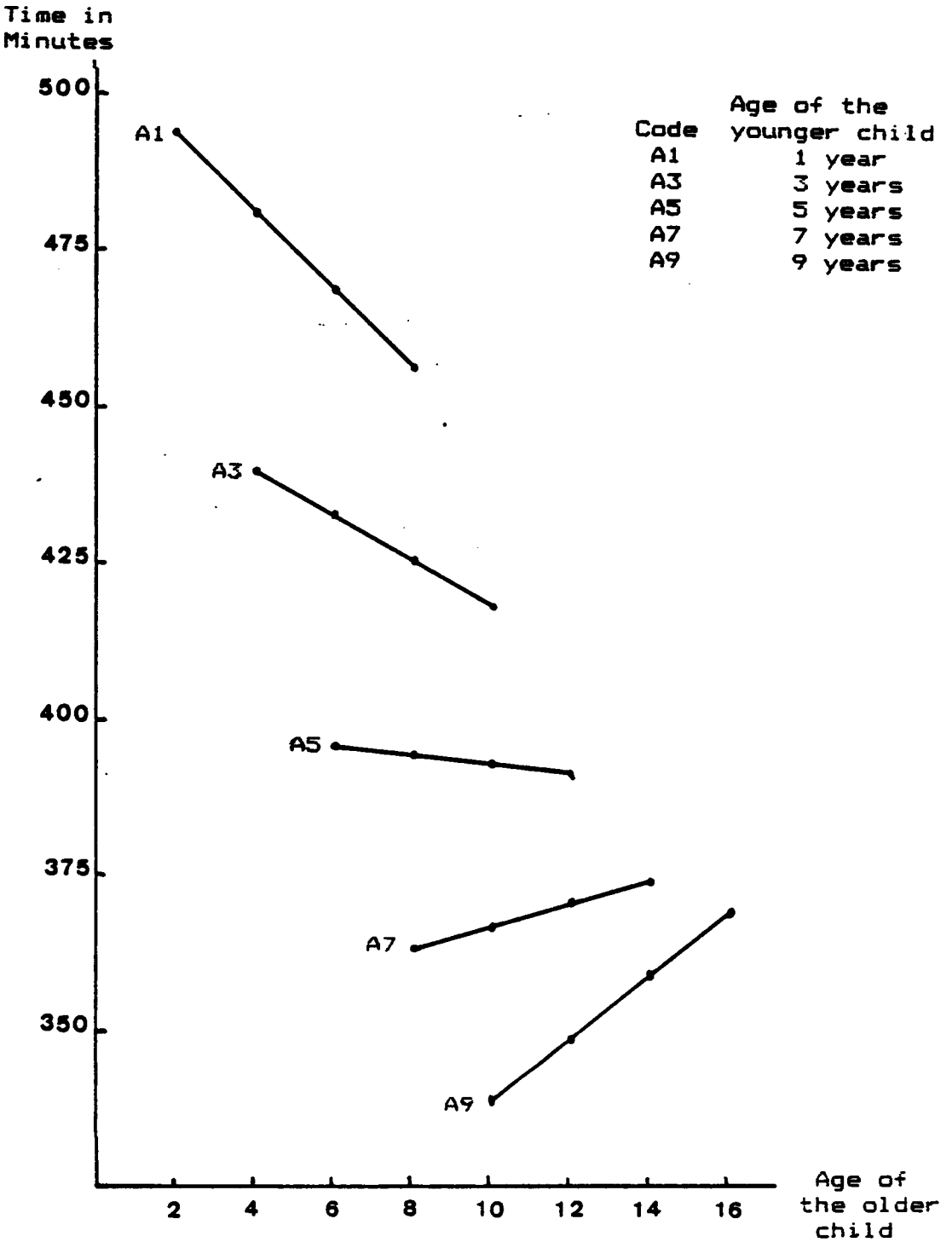



Figure 6. Interaction of the age of the younger child with age of the older child in wives' household work time

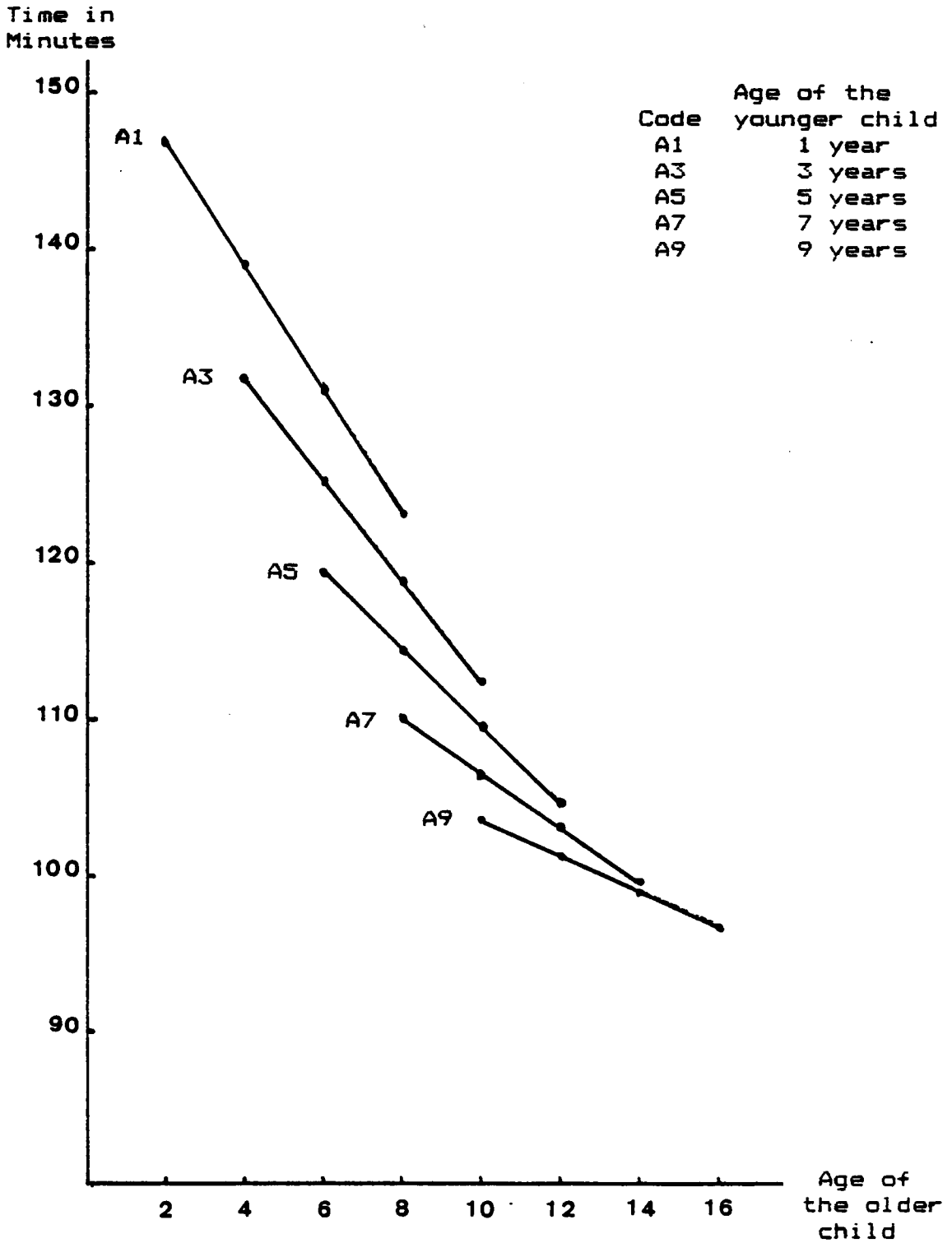



Figure 7. Interaction of the age of the younger child with age of the older child in husbands' household work time

13.3% of the variance in wives' time and 2.5% of the variance in husbands time used for the physical care of other family members could be explained by the linear combination of the predictor variables in this equation. Considering that husbands' mean household work time is 120 minutes compared to that of wives at 418 minutes for this variable, the change in household work time for husbands was proportional to that of wives. These findings support those of Fox and Nickols (1983) who found age of the younger child negatively significant to wives' household work time and of Sanik (1981) who found age of the older child negatively significant to husbands' house care time. These findings disagree with Sanik (1981) who found a lack of significance between age of the older child and wives' household work time.

The hypothesis holds true for wives' other work time (.0001 level), and when the age of younger child is more than five years, but is not supported for household work time of husbands (Table 9, Figure 8). The regression of other work time on age of the younger child, age of the older child and the interaction of the two ages, for both wives and their husbands shows all three age variables were responsible for a total of 7.6% of variance in wives' other work time but none of the three were significant for the variance on husbands' other work time. The interaction of the age of the younger and age of the older

TABLE 9.

Regression Results of Other Work Time on Age of Younger Child, Age of Older Child, and Age Span

| Independent Variables | Wives' Other Work Time | | Husbands' Other Work Time | |
|---|---|---|---|---|
| | Regression Coefficient* | T Value | Regression Coefficient* | T Value |
| AGEYC (A) | -19.512 (3.680) | 5.30**** | 0.408 (4.746) | 0.09 |
| AGEOC (B) | 5.162 (1.953) | 2.64* | -0.088 (2.519) | 0.03 |
| AGESP (AxB) | -0.948 (0.220) | -4.30**** | -0.114 (0.284) | -0.40 |
| Constant | 42.536 | | 464.660 | |
| $R^2$ | .076 | | .001 | |
| OWT Means | 127.317 | | 459.778 | |

* Standard errors are shown in parentheses
* Incicates significance at a level of .05
**** Indicates significance at a level of .0001

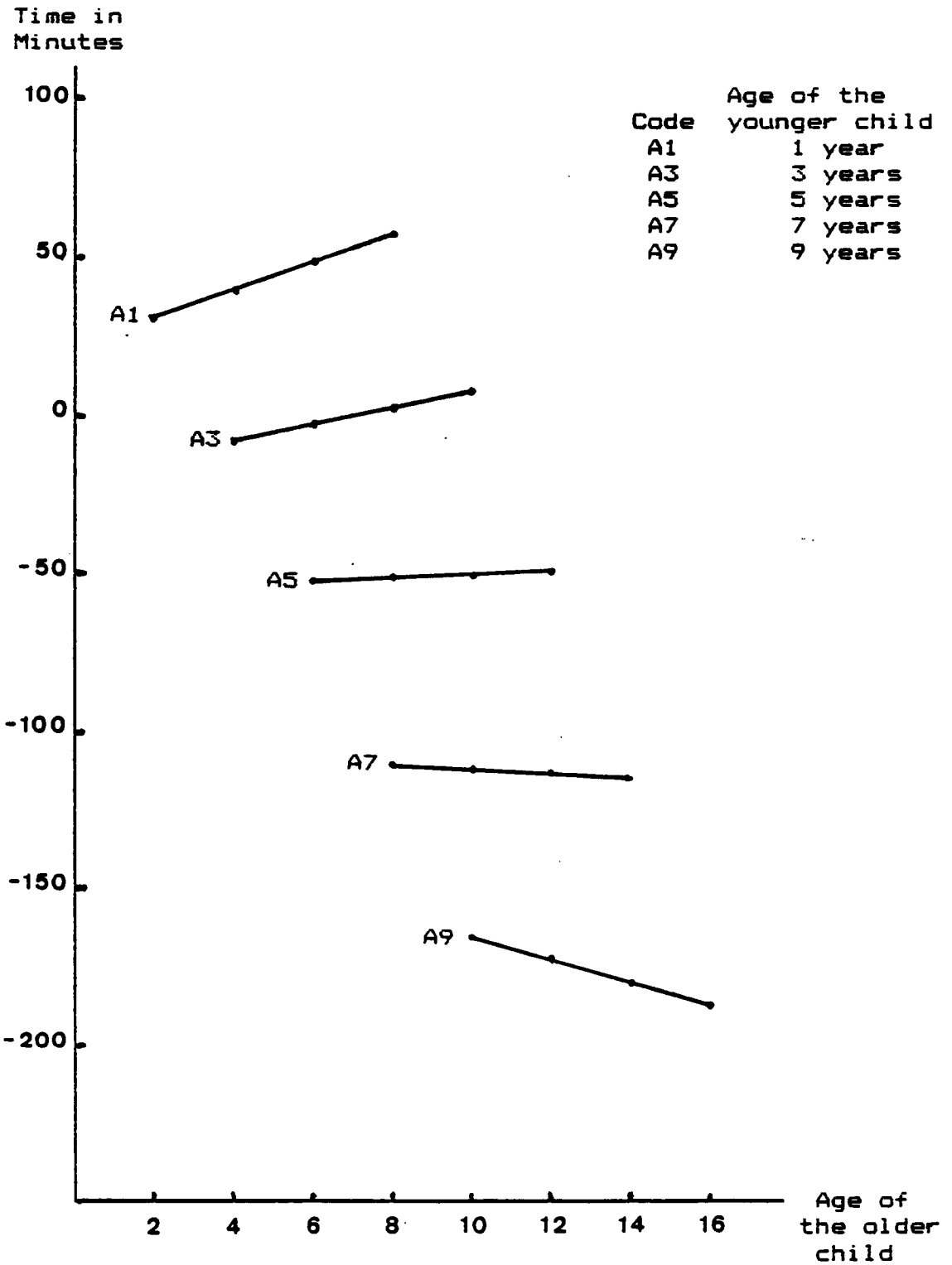



Figure 8. Interaction of the age of the younger child with age of the older child in wives' other work time

child show that when the age of the younger child is less five years, wives' time for other work increases with increases in age of the older child. When the age of the younger child is seven or more years, wives' time for other work decreases with increases in age of the older child. The most substantial increases in wives' other work time are associated with very young children and the most substantial decreases are associated with children who are nine or more years old. The regression coefficient relating age span to husbands' other work time was of no significance. Husbands' mean time for other work is 459.78 minutes per day. Most of this time is spent on paid work time. It is understandable that these variables do not cause any appreciable variance ($R^2$ = .001) in husbands' other work time.

The regression of leisure time on age of the younger child, age of the older child, and the interaction of the two ages or age span, for wives and their husbands shows the three age variables had no effect on their leisure time use (Table 10). The coefficients of determination of .8% and 1.7% indicated how little variance in wives' and husbands' leisure time was related to the three age variables in this study. These findings support the findings of Nichols and Able-Ghany (1983) who, using a smaller sample, found age of the younger child not significant to husbands' leisure time use. However, these

TABLE 10.

Regression Results of Leisure Time on
Age of Younger Child, Age of Older Child, and Age Span

| Independent Variables | Wives' Leisure Time | | Husbands' Leisure Time | |
|---|---|---|---|---|
| | Regression Coefficient[a] | T Value | Regression Coefficient[a] | T Value |
| AGEYC (A) | 4.370<br>(2.913) | 1.50 | 4.271<br>(3.211) | 1.33 |
| AGEOC (B) | 2.678<br>(1.546) | 1.73 | 4.686<br>(1.704) | 2.75* |
| AGESP (AxB) | -0.298<br>(0.174) | -1.71 | -0.322<br>(0.192) | -1.67 |
| Constant | 241.847 | | 211.005 | |
| $R^2$ | .008 | | .017 | |
| LT Means | 267.980 | | 252.113 | |

[a] Standard errors are shown in parentheses
* Indicates significance at a level of .05

findings do not support Nickols and Abdel-Ghany findings that the age of the younger child was negatively significant to wives' leisure time use.

Personal maintenance time of wives and their husbands was least affected by the age variables (Table 11). With coefficients of determination of .1% and .2%, one can conclude that age of the younger child, age of the older child, and the interaction between the two ages has no significant effect on personal maintenance time of wives and husbands and that increases in age span at any age of the younger child will not change the time that either parent uses for personal maintenance. These findings agree with those of Robinson (1977) when he concluded that constant amounts of time for both men and women were expended on personal needs. These results were in agreement with the hypothesis.

## Ages of Younger and Older Children and Classes of Time

Results of the age of the younger and older child as significant variables in predicting time use of wives and husbands was evident in the regression results for classes of time. As the age of the younger and older children increased, household work time for wives decreased. Both of these variables were significant at a .0001 level (Table 8). As both children grew older, wives

TABLE 11.

Regression Results of Personal Maintenance Time on Age of Younger Child, Age of Older Child, and Age Span

| Independent Variables | Wives' Personal Maintenance Time | | Husbands' Personal Maintenance Time | |
|---|---|---|---|---|
| | Regression Coefficient* | T Value | Regression Coefficient* | T Value |
| AGEYC (A) | 1.024 | 0.54 | -2.263 | -0.93 |
| | (1.899) | | (2.428) | |
| AGEOC (B) | -0.525 | -0.52 | 0.540 | 0.42 |
| | (1.008) | | (1.289) | |
| AGESP (AxB) | -0.014 | -0.12 | 0.148 | 1.01 |
| | (0.113) | | (0.145) | |
| Constant | 621.643 | | 595.752 | |
| $R^2$ | .001 | | .002 | |
| PMT Means | 621.760 | | 598.270 | |

* Standard errors are shown in parentheses

spent less time at household work. These findings support those reported eariler by Walker (1976). Both the age of the younger child (.05 level) and the age of the older child (.001 level) were significant for husbands' time spent in household work activities. They, too, spent less time in household work as both children grew older, as shown by the negative coefficients.

The age of the younger child (.0001 level) and the age of the older child (.05 level) were significant variables in explaining the amount of time wives spent at other work. As the older child's age increased by one year wives increased their other work time by 5.16 minutes a day but as the younger child aged by one year wives spent 19.51 fewer minutes a day at other work (Table 9). Ages of children were not significantly related to husbands' other work time.

Increases in age of the older child (.05 level) extended the amount of time husbands spent in leisure time. As the age of the older child increased by one year, husbands' leisure time increased by 4.7 minutes a day (Table 10). Ages of children were not significantly related to wives' leisure time.

## Intercorrelation of Independent Variables

Eight selected variables were entered into a correlation procedure to determine which, if any, were

highly correlated with one another. The purpose of this procedure was to avoid using highly correlated variables which would cause multicollinearity. It was expected that age of wives would be highly correlated with educational level of wives and the same was expected for husbands. These intercorrelations did not show up in the correlation procedure. High intercorrelation did exist between age of wives and age of husbands (Appendix H.) A second intercorrelation existed between educational level of wives and educational level of husbands. Both age and educational level of husbands were dropped from the independent variable list to avoid multicollinearity. Hypotheses 3, 5, and 7 show only the variables used. The regression results of the classifications of time on age of the younger child, age of the older child, and the interaction was tested on the total sample size of 1,983 families. When the additional six variables were added, the sample size was reduced to a maximum of 1,118 families reflecting the number of families who reported all of the data necessary for these analyses.

## Age Span and Selected Variables and Classifications of Time

H3: Age span, the interaction, will be significant between the ages of the younger and older child for wives' and husbands' household work time, other work time, and leisure time and, as age span between children increases, houshold work time of wives or their husbands will increase; other work time and

leisure time of wives or their husbands will decrease; and personal maintenance time will stay the same. The following variables will increase the coefficient of determi- nation significantly except in personal maintenance time for wives or their husbands:

a. age of wife
b. educational level of wife
c. employment time of wife
d. annual family income
e. number of automobiles
f. area of residence

The four classifications of time were regressed on six selected variables in addition to age of the younger and older child and the interaction of the two age variables. For household work time, two of the six variables were significant for wives (Table 12). The addition of the six selected variables raised the $R^2$ from 13.3% (Table 8) to 27.7%. When wives used more time for employment (.0001 level) they used less time for household work. This finding is similar to those found in earlier studies (Robinson, 1977; Walker, 1976). Age of wives was positively associated with wives' time used for household work. For each year increase in age, household work time of wives increased 2.58 minutes a day. Educational level, annual family income, number of automobiles, and area of residence had no effect on wives' household time.

Only one of the six variables was significant in adding to husbands' household work time (Table 12). When age of wives (highly correlated with the age of husbands) increased so did husbands' household work time. The $R^2$

TABLE 12.

Regression Results of Household Work Time on Independent Demographic and Resource Variables

| Independent Variables | | Wives' Household Work Time | | Husbands' Household Work Time | |
|---|---|---|---|---|---|
| | | Regression Coefficient* | T Value | Regression Coefficient* | T Value |
| AGEYC | (A) | -23.299 (4.165) | -5.59**** | 6.754 (3.165) | -2.13* |
| AGEOC | (B) | -7.529 (2.528) | -2.98** | 6.877 (1.921) | -3.58*** |
| AGESP | (AxB) | 1.185 (0.253) | 4.69**** | 0.374 (0.192) | 1.95 |
| EmpW | (C) | -3.272 (0.247) | -13.26**** | 0.225 (0.187) | 1.20 |
| AgeW | (D) | 2.58 (1.066) | 2.42* | 2.650 (0.810) | 3.27** |
| EduW | (E) | -0.076 (2.426) | -0.03 | 2.316 (1.844) | 1.26 |
| AFI | (F) | -4.089 (2.849) | -1.44 | -0.025 (2.165) | -0.01 |
| NAu | (G) | -7.739 (5.895) | -1.31 | -3.468 (4.479) | -0.77 |
| ArR | (H) | -12.194 (8.429) | -1.45 | -5.537 (6.405) | -0.86 |
| Constant | | 568.115 | | 111.948 | |
| $R^2$ | | .277 | | .059 | |
| HWT Means | | 389.303 | | 125.226 | |

* Standard errors are shown in parentheses
* Indicates significance at a level of .05
** Indicates significance at a level of .005
*** Indicates significance at a level of .001
**** Indicates significance at a level of .0001

increased from 2.5% (Table 8) to 5.9%. Wives' employment time, educational levels, annual family income, number of automobiles and area of residence had no effect on husbands' household work time.

Other work time was regressed on the extended set of variables. Two of the six variables were significant for wives' other work time (Table 13). The addition of the six selected variables raised the $R^2$ from 7.6% (Table 9) to 34.9%. When wives used more time for employment (.0001 level), and when number of automobiles (.05 level) in the family increased wives used more time for other work. Age of wives, educational level of the wife, annual family income, and area of residence had no effect on wives' other work time.

One variable, age of the wife (.0001 level) was significantly related to husbands' other work time (Table 13). When age of the wife increased by one year, husbands' time used for 'work other than household, decreased by 5.16 minutes a day. All of the variables were responsible for 2.5% of the change ($R^2$) in husbands' other work time.

Wives' employment time (.0001 level) was the only variable of the additional six that was significantly related to wives' leisure time (Table 14). When wives used more time for employment, they used less time for leisure. The $R^2$ increased from .8% (Table 10) to 5.3%.

TABLE 13.

Regression Results of Other Work Time on Independent Demographic and Resource Variables

| Independent Variables | | Wives' Other Work Time | | Husbands' Other Other Time | |
|---|---|---|---|---|---|
| | | Regression Coefficient[a] | T Value | Regression Coefficient[a] | T Value |
| AGEYC | (A) | 12.966 | 2.95*** | 9.314 | 1.54 |
| | | (4.393) | | (6.043) | |
| AGEOC | (B) | 5.056 | 1.90 | -2.021 | -0.55 |
| | | (2.667) | | (3.669) | |
| AGESP | (AxB) | -0.701 | -2.63* | -0.105 | 0.17 |
| | | (0.267) | | (0.367) | |
| EmpW | (C) | 5.227 | 20.08**** | -0.479 | -1.34 |
| | | (0.260) | | (0.358) | |
| AgeW | (D) | -1.972 | -1.75 | -5.159 | -3.34*** |
| | | (1.124) | | (1.546) | |
| EduW | (E) | 1.448 | 0.57 | -6.123 | -1.74 |
| | | (2.559) | | (3.521) | |
| AFI | (F) | 5.494 | 1.83 | -2.259 | -0.55 |
| | | (3.005) | | (4.134) | |
| NAu | (G) | 13.503 | 2.17* | 8.671 | 1.01 |
| | | (6.218) | | (8.553) | |
| ArR | (H) | -5.101 | -0.57 | -5.362 | -0.44 |
| | | (8.891) | | (12.229) | |
| Constant | | -17.149 | | 646.673 | |
| $R^2$ | | .349 | | .025 | |
| OWT Means | | 183.724 | | 452.011 | |

[a] Standard errors are shown in parentheses
* Indicates significance at a level of .05
*** Indicates significance at a level of .001
**** Indicates significance at a level of .0001

TABLE 14.

Regression Results of Leisure Time on Independent Demographic and Resource Variables

| Independent Variables | | Wives' Leisure Time | | Husbands' Leisure Time | |
|---|---|---|---|---|---|
| | | Regression Coefficient* | T Value | Regression Coefficient* | T Value |
| $\bar{A}$GEYC | (A) | 6.522 (3.555) | 1.83 | 1.382 (4.164) | 0.33 |
| AGEOC | (B) | 4.105 (2.158) | 1.90 | 7.961 (2.528) | 3.15** |
| AGESP | (AxB) | -0.369 (0.216) | -1.71 | -0.472 (0.253) | 1.87 |
| EmpW | (C) | -1.494 (0.211) | -7.09*** | 0.212 (0.247) | 0.86 |
| AgeW | (D) | -1.217 (0.909) | -1.34 | 1.937 (1.065) | 1.82 |
| EduW | (E) | -0.540 (2.071) | -0.26 | 1.365 (2.426) | 0.56 |
| AFI | (F) | -2.858 (2.432) | -1.18 | 0.976 (2.848) | 0.34 |
| NAu | (G) | 3.817 (5.031) | 0.76 | 1.600 (5.893) | 0.27 |
| ArR | (H) | 7.055 (7.194) | 0.98 | 10.586 (8.427) | 1.26 |
| Constant | | 285.348 | | 103.184 | |
| $R^2$ | | .053 | | .032 | |
| LT Means | | 245.827 | | 251.948 | |

* Standard errors are shown in parentheses
** Indicates significance at a level of .005
*** Indicates significance at a level of .001

No significant change in wives' leisure time was attributed to age of wife, educational level of wife, annual family income, number of automobiles, or area of residence.

None of the added six selected variables showed any significant relationship to husbands' leisure time (Table 14). The $R^2$ increased from 1.7% (Table 10) to 3.2%. Apparently variables other than the eight in this regression have a stronger influence on wives' and husbands' leisure time.

For personal maintenance time, two of the six variables were significant for wives (Table 15). The addition of the six selected variables did increase the $R^2$ from .1% (Table 11) to 2.4%. When wives used more time for employment (.05 level) and when there were more automobiles (.05 level) for family use wives reduced their time for personal maintenance. The reduction in personal maintenance time related to these variables, however, would have little substantial impact on the total personal maintenance time used by wives. Age of wives, educational level, annual family income, and area of residence had no effect on wives' personal maintenance time.

No significance between the variables and husbands' personal maintenance time was evident (Table 15). With the increase in total number of variables, the $R^2$ changed from .2% (Table 11) to 1.1%. All other variables

TABLE 15.

Regression Results of Personal Maintenance Time on Independent Demographic and Resource Variables

| Independent Variables | | Wives' Personal Maintenance Time | | Husbands' Personal Maintenaance Time | |
|---|---|---|---|---|---|
| | | Regression Coefficient* | T Value | Regression Coefficient* | T Value |
| AGEYC | (A) | 4.006 (2.391) | 1.68 | -6.038 (3.164) | -1.91 |
| AGEOC | (B) | -2.381 (1.451) | -1.64 | 2.409 (1.921) | 1.25 |
| AGESP | (AxB) | -0.101 (0.145) | -0.69 | 0.167 (0.192) | 0.87 |
| EmpW | (C) | -0.388 (0.142) | -2.74*** | -0.108 (0.187) | -0.57 |
| AgeW | (D) | 0.718 (0.612) | 1.17 | 1.380 (0.810) | 1.70 |
| EduW | (E) | -1.336 (1.393) | -0.96 | 1.383 (1.843) | 0.75 |
| AFI | (F) | 1.779 (1.635) | 1.09 | 1.030 (2.165) | 0.48 |
| NAu | (G) | -9.057 (3.384) | -2.68* | -0.770 (4.478) | -0.17 |
| ArR | (H) | 6.208 (4.838) | 1.28 | -3.264 (6.404) | -0.51 |
| Constant | | 602.513 | | 545.954 | |
| $R^2$ | | .024 | | .011 | |
| PMT Means | | 616.100 | | 599.382 | |

* Standard errors are shown in parentheses
*** Indicates significance at a level of .001

including ages of children had no effect on husbands' personal maintenance time.

## Age Span and Selected Variables on Activity Components of Classifications of Time

H4: Age span, the interaction, will be significant between the ages of the younger and older child for wives' and husbands' time used for the activity components in (a) and (b) and, as age span between children increases, time for each of the following activity components of classes of time will increase, decrease, or have no effect with wives' or husbands' time use as indicated.

(a) Age span between children will be positively correlated with wives' time use for food preparation; dish washing; shopping; maintenance of home, yard, car, and pets; physical care of others; and non-physical care of others.
(b) Age span between children will be positively correlated with husbands' time use for shopping; physical care of others; and non-physical care of others.
(c) Age span between children will be negatively correlated with wives' time use for paid work, volunteer (unpaid) work, and social/ recreational activities.
(d) Age span between children will be negatively correlated with husbands' time use for volunteer (unpaid) work, and social/recreational activities.
(e) Age span between children will have no significant correlation with wives' time use for house cleaning, laundry, care and construction of clothes and household linens, management, school work, organizational participation, care of oneself, and eating.
(f) Age span between children will have no significant correlation with husbands' time use for food preparation; dish washing; house cleaning; maintenance of home, yard, car, and pets; laundry; care and construction of clothes and household linens; management; paid work; school work; organizational participation; care of oneself; and eating.

The basis for this hypothesis grew from a need to more closely scrutinize the 17 activities that made up the

four classifications of time. Each activity was regressed on age of the younger child, age of the older child, and the interaction between the ages of children.

Of the ten activities classified as those contributing to household work time for wives, it was predicted that the interaction between the ages of children would be significantly related to six and no significant relationships would be found for four. Also, of the ten activities classified as those contributing to household work time for husbands, it was predicted that the interaction between the ages of children would be significantly related to three and no significant relationships would be found for seven. The hypothesis was supported if it was determined that the effect of the interaction was significant and for at least some ages of children, age span was positively, negatively, or irrelevantly related as predicted, to the specific time use, and the coefficient of determination was .005 or higher (Table 16). The hypothesis was said to be partially (part) supported if one of the two hypothesized relationships were as predicted.

## Age Span and Household Work Activities

The results of the household activity time regressions are presented in Tables 17 through 22. Those that showed at least one of the age variables or the

TABLE 16.

Prediction and Results of Activity Relationships to Age Span for Wives and Husbands

| Activity Component | Wives Time | Husbands Time | Support of Hypothesis yes | part | no |
|---|---|---|---|---|---|
| FOOD PREP | + | 0 | | x | |
| DISH WASH | + | 0 | | x | |
| SHOPPING | + | + | | | x |
| HOUSECLEAN | 0 | 0 | | x | |
| MTN-HmYdCrPt | + | 0 | | x | |
| LAUNDRY | 0 | 0 | x | | |
| CARE CL-LN | 0 | 0 | x | | |
| PHYS CARE | + | + | x | | |
| NONPHYCARE | + | + | | x | |
| MANAGEMNT | 0 | 0 | | x | |
| PAID WORK | − | 0 | x | | |
| VOLUNTEER | − | − | | x | |
| SCHL WORK | 0 | 0 | x | | |
| ORGN PART | 0 | 0 | x | | |
| SOC REC | − | − | | x | |
| SELF CARE | 0 | 0 | x | | |
| EATING | 0 | 0 | x | | |

interaction significant for either the wives' or husbands' time are included.

Food preparation was predicted to be positively related to age span for wives' time but unrelated to husbands' time. The regression analysis revealed that the $R^2$ determined by the three age variables equaled .5% for wives' food preparation time (Table 17). The interaction was not significant for either wives' or husbands' food preparation time, therefore, the hypothesis was only partially supported. The same prediction was made for dishwashing time for both wives and husbands. The results of the regression are shown in Table 18. The interaction was not significant for either wives' or husbands' time used for dish washing, therefore the hypothesis was supported only for husbands' time use. The $R^2$ obtained for the wives' model was 1.4%, and for the husbands model, it was less than .5% as predicted. Looking at the means of dish washing time for both wives and husbands, wives did most of this task, and apparently independent of age span. Dish washing time might be better explained by numbers of persons in the household rather than by age variables.

Shopping time for both parents was predicted to increase as age span increased. Neither wives' nor husbands' shopping time was affected by the variables and therefore, no support was shown for this part of the

TABLE 17.

Regression Results of Food Preparation Time on Age of Younger Child, Age of Older Child, and Age Span

| Independent Variables | Wives' Food Preparation Time | | Husbands' Food Preparation Time | |
|---|---|---|---|---|
| | Regression Coefficient* | T Value | Regression Coefficient* | T Value |
| AGEYC (A) | 0.674 (0.981) | 0.66 | 0.510 (0.363) | 1.40 |
| AGEOC (B) | 1.565 (0.521) | 3.01** | -0.335 (0.193) | -1.74 |
| AGESP (AxB) | -0.047 (0.059) | -0.79 | -0.016 (0.022) | -0.75 |
| Constant | 71.606 | | 9.093 | |
| $R^2$ | .005 | | .003 | |
| FPT Means | 78.122 | | 7.867 | |

* Standard errors are shown in parentheses
** Indicates significance at a level of .005

TABLE 18.

Regression Results of Dish Washing Time on Age of Younger Child, Age of Older Child, and Age Span

| Independent Variables | Wives' Dish Washing Time | | Husbands' Dish Washing Time | |
|---|---|---|---|---|
| | Regression Coefficient* | T Value | Regression Coefficient* | T Value |
| AGEYC (A) | -1.137 (0.515) | -2.21* | 0.238 (0.175) | 0.14 |
| AGEOC (B) | 0.101 (0.273) | 0.37*** | 0.150 (0.093) | 1.61 |
| AGESP (AxB) | 0.031 (0.031) | 1.02 | -0.010 (0.010) | -0.99 |
| Constant | 36.538 | | 2.121 | |
| $R^2$ | .014 | | .002 | |
| DWT Means | 33.393 | | 2.820 | |

* Standard errors are shown in parentheses
* Indicates significance at a level of .05
*** Indicates significance at a level of .001

hypothesis. House cleaning time was predicted to show no change as a result of age span for either parent. However, the interaction was significantly related to wives' house cleaning time (.05 level). The $R^2$ for this regression was .5% for wives' house cleaning time (Table 19). The lack of significance for husbands' house cleaning time allowed partial support of the hypothesis.

Time used for maintenance of the home, yard, car, and pets used a larger amount of the husbands' day than that of the wives (Table 20). Mean time use for husbands in this category was 45.6 minutes per day as compared to that of wives which was 26.9 minutes per day. Husbands' time use for maintenance was unaffected by the variables as predicted. Wives' time used in these kinds of maintenance activities, however, was significantly related to both the age of the younger child and to the age span interaction (.0001 level). Perhaps as age of the younger child increases wives' time for maintenance is reduced because the children take on these responsibilities.

Both laundry time and time used for the care and construction of clothing and household linen by wives or husbands were predicted not to change significantly with variations in the predictor variables in this model. As might be expected the husbands in this study did very little laundry or sewing and that done by wives was not affected by the age variables for either wives' or

TABLE 19.

Regression Results of House Cleaning Time on Age of Younger Child, Age of Older Child, and Age Span

| Independent Variables | Wives' House Cleaning Time | | Husbands' House Cleaning Time | |
|---|---|---|---|---|
| | Regression Coefficient* | T Value | Regression Coefficient* | T Value |
| AGEYC (A) | -3.705 (1.215) | -3.05** | -0.230 (0.319) | -0.72 |
| AGEOC (B) | 0.326 (0.645) | 0.51 | 0.002 (0.169) | 0.02 |
| AGESP (AxB) | 0.203 (0.073) | 2.79* | 0.011 (0.019) | 0.56 |
| Constant | 63.269 | | 3.380 | |
| $R^2$ | .005 | | .001 | |
| HCT Means | 59.936 | | 2.885 | |

* Standard errors are shown in parentheses
* Indicates significance at a level of .05
** Indicates significance at a level of .005

TABLE 20.

Regression Results of Maintenance of Home, Yard, Car, & Pet Time on Age of Younger Child, Age of Older Child, and Age Span

| Independent Variables | Wives' Hm.,Yd., Car & Pet Time | | Husbands' Hm., Yd., Car & Pet Time | |
|---|---|---|---|---|
| | Regression Coefficient* | T Value | Regression Coefficient* | T Value |
| AGEYC (A) | -5.260 (1.109) | 4.74**** | 2.195 (1.663) | 1.32 |
| AGEOC (B) | -0.297 (0.589) | -0.50 | -0.058 (0.883) | -0.07 |
| AGESP (AxB) | -0.256 (0.066) | -3.85**** | -0.110 (0.010) | -1.10 |
| Constant | 18.580 | | 41.784 | |
| $R^2$ | .015 | | .001 | |
| HYCP Means | 26.947 | | 45.622 | |

* Standard errors are shown in parentheses
**** Indicates significance at a level of .0001

husbands' time used for these activities. The hypothesis was supported.

The regression results of time used for physical care of other family members for wives and husbands showed that although wives used more time for this activity than did their husbands, both parents used the most time for physical care of other family members when the age of the youngest child was very young and that the age of the oldest child was closest to the age of the youngest child (Table 21, Figures 9 & 10). As the age of the youngest child increased, less substantial amounts of time was used for physical care as the differences between the ages increased until the age of the youngest child approached 7 years for wives and 9 years for husbands. Then, the amount of time used by both parents increased as the differences in the ages of the children increased. These findings add support to those reported earlier by Walker (1976) concerning child care time. These results may be explained by developmental needs and tasks of children. When children are very young they are less able to care for themselves and therefore, much parental time is used to meet their children's physical needs. As the children get older, they are more able to do things for themselves. When they reach school age perhaps activities dealing with their physical well being, such as orthodontist's

TABLE 21.

Regression Results of Physical Care Time on Age of Younger Child, Age of Older Child, and Age Span

| Independent Variables | Wives' Physical Care Time | | Husbands' Physical Care Time | |
|---|---|---|---|---|
| | Regression Coefficient* | T Value | Regression Coefficient* | T Value |
| AGEYC (A) | -23.576 | -20.08**** | -3.046 | -7.76**** |
| | (1.174) | | (0.393) | |
| AGEOC (B) | -8.821 | -14.16**** | -1.456 | -6.99**** |
| | (0.623) | | (0.208) | |
| AGESP (AxB) | 1.387 | 19.72**** | 0.187 | 67.97**** |
| | (0.070) | | (0.024) | |
| Constant | 166.359 | | 25.021 | |
| $R^2$ | .491 | | .156 | |
| PhCT Means | 58.411 | | 8.935 | |

* Standard errors are shown in parentheses
**** Indicates significance at a level of .0001

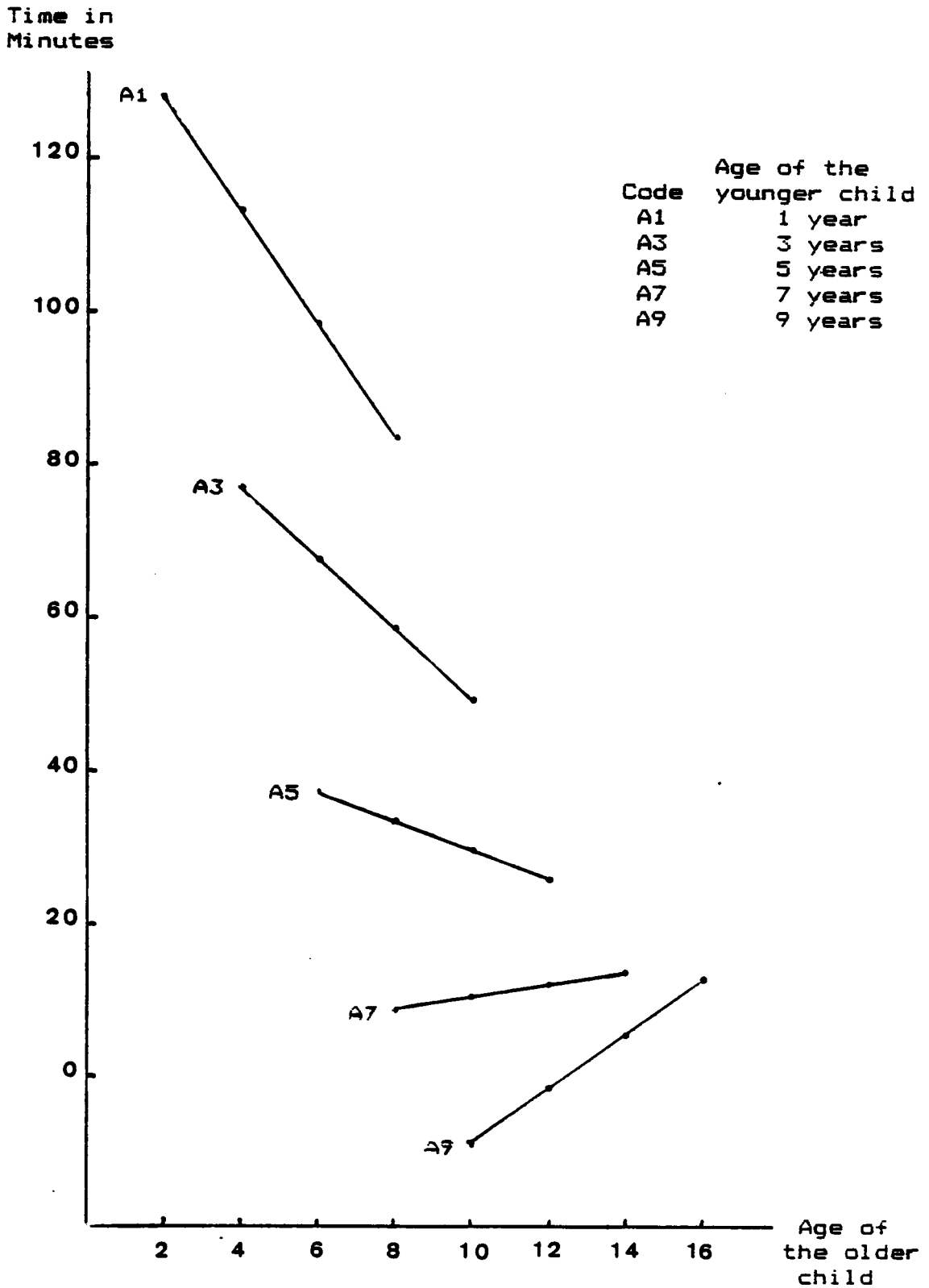



Figure 9. Interaction of the age of the younger child with age of the older child in wives' time for physical care of others

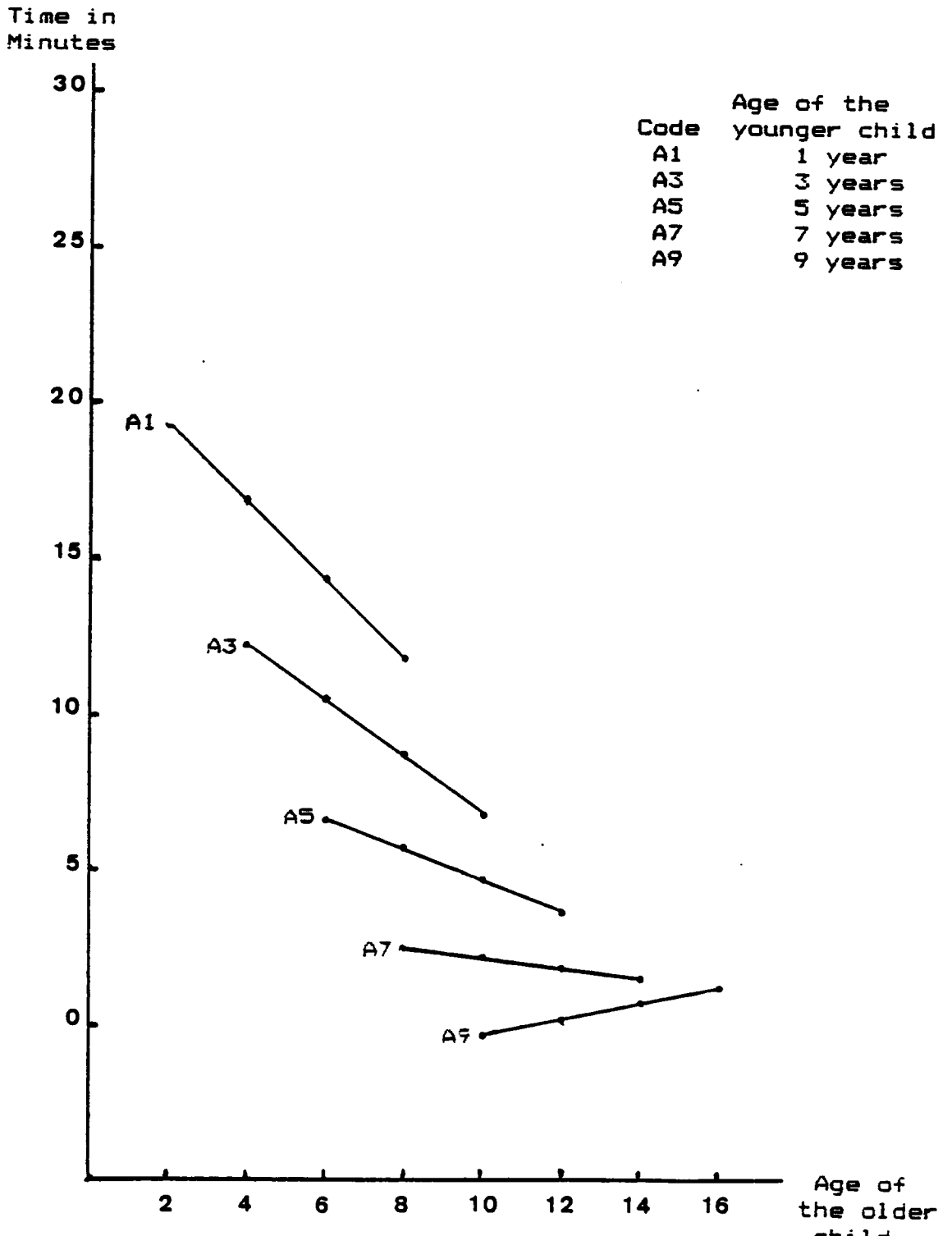



Figure 10. Interaction of the age of the younger child with age of the older child in husbands' time for physical care of others

appointments, become so diverse that physical care time demands increase as the differences in ages increase. In this sample, 49.1% of the variance in wives' time and 15.6% of the variance in husbands time used for the physical care of other family members could be explained by the linear combination of the predictor variables in this equation. The interaction between the age of the younger child and the age of the older child was significant (.0001 level) for both wives' and husbands' physical care time and therefore, the hypothesis is supported.

The regression equation concerning parents' time use for non-physical care time was predicted to show significance for both wives and husbands. In fact, the interaction was significantly related to only husbands' time (.05 level) (Table 22). The linear combination of the predictor variables explained only 8.1% of wives' time and 7.5% of husbands' time. The results of the interaction of the age of the younger child with the age of the older child on husbands' time for non-physical care of others show that husbands use the most time for these activities when the younger child is very young and the older child is close to the age of the younger child (Figure 11). Husbands use decreasing amounts of time for non-physical care as the ages of the older child increase. As the age of the younger child increases, less

TABLE 22.

Regression Results of Non-physical Care Time on Age of Younger Child, Age of Older Child, and Age Span

| Independent Variables | Wives' Non-physical Care Time | | Husbands' Non-Physical Care Time | |
|---|---|---|---|---|
| | Regression Coefficient[a] | T Value | Regression Coefficient[a] | T Value |
| AGEYC (A) | -2.657<br>(1.167) | -2.28* | -2.523<br>(0.825) | -3.06** |
| AGEOC (B) | -1.719<br>(0.620) | -2.78* | -1.822<br>(0.438) | -4.16**** |
| AGESP (AxB) | 0.079<br>(0.070) | 1.12 | 0.138<br>(0.049) | 2.79* |
| Constant | 73.444 | | 42.666 | |
| $R^2$ | .081 | | .075 | |
| NPCT Means | 49.690 | | 22.886 | |

[a] Standard errors are shown in parentheses
* Indicates significance at a level of .05
** Indicates significance at a level of .005
**** Indicates significance at a level of .0001

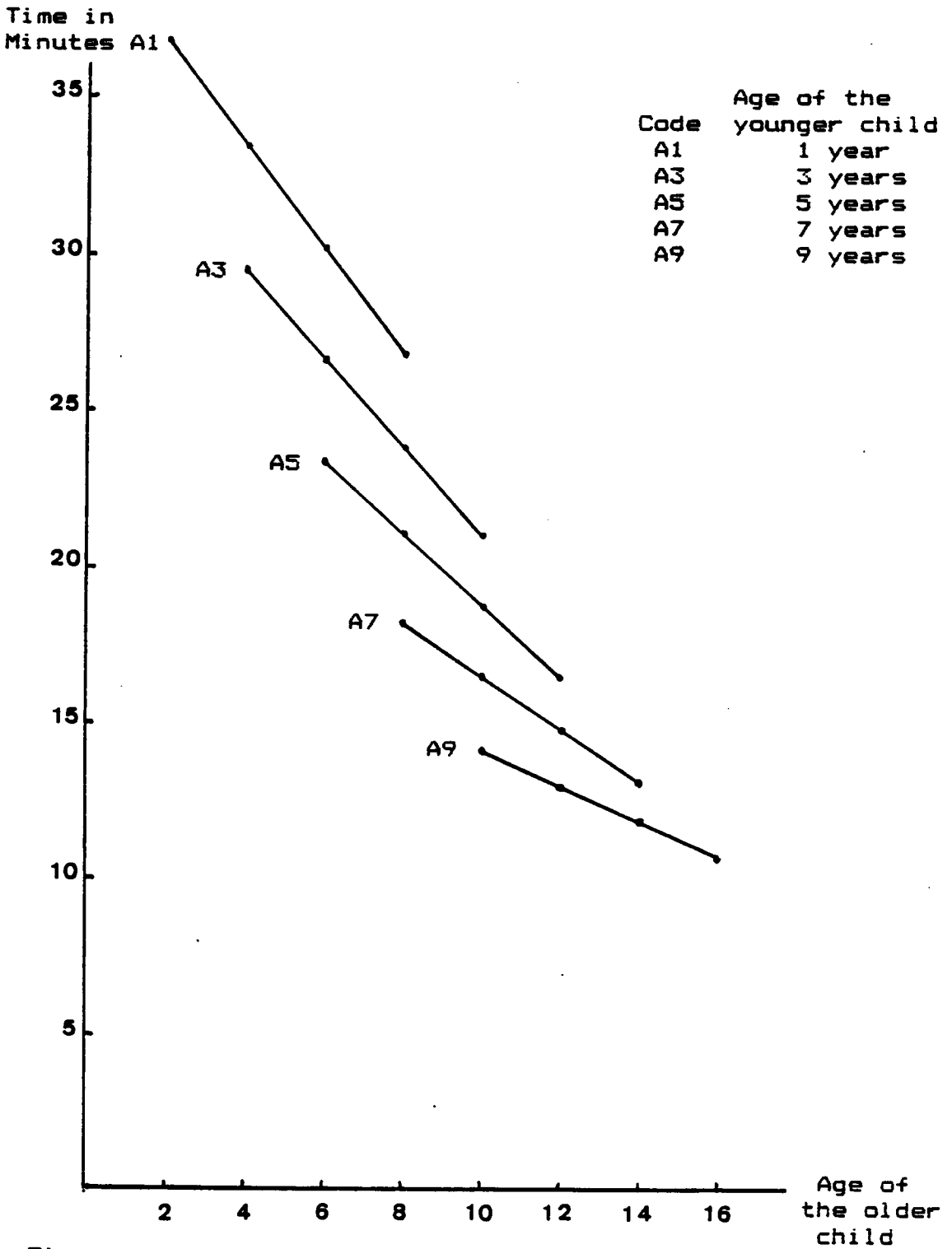



Figure 11. Interaction of the age of the younger child with age of the older child in husbands' time for non-physical care of others

substantial amounts of time is used by husbands for non-physical care. This finding may be explained by the developmental needs and tasks of children. As children's ages increase, the children may increase their own time in self care, allowing husbands to spend less time for these activities. The interaction between children's ages did not contribute significantly to the explanation of wives' time used for non-physical care of other family members. The findings here, only partially supported the hypothesis.

In this study, time used by parents for management activities was predicted to change without correlation to the predictor variables. The results of management time regressed on children's age variables are shown in Table 23. Age span was not significantly related to wives' time use for management activities as predicted. Husbands' time, however, was positively related to their time use for management activities. One-half percent ($R^2$ = .005) change in husbands' management time could be attributed to the predictor variables in this study. Husbands used an average of 10.1 minutes per day for management time; even if the age variables are significant, the $R^2$ of.5% indicates a weak relationship to management time of husbands. However, the hypothesis was partially supported.

TABLE 23.

Regression Results of Management Time on Age of Younger Child, Age of Older Child, and Age Span

| Independent Variables | Wives' Management Time | | Husbands' Management Time | |
|---|---|---|---|---|
| | Regression Coefficient* | T Value | Regression Coefficient* | T Value |
| AGEYC (A) | -0.145 | -0.18 | -1.037 | -1.78 |
| | (0.822) | | (0.582) | |
| AGEOC (B) | -0.549 | -1.26 | -0.552 | -1.79 |
| | (0.436) | | (0.309) | |
| AGESP (AxB) | 0.049 | 1.00 | 0.010 | 2.86** |
| | (0.049) | | (0.035) | |
| Constant | 19.914 | | 13.566 | |
| $R^2$ | .002 | | .005 | |
| MgtT Means | 17.820 | | 10.095 | |

* Standard errors are shown in parentheses
** Indicates significance at a level of .005

Three kinds of work outside of that done within the household were included in the classification of other work. They were paid work, volunteer (unpaid) work, and school work. Of the six models half were predicted to be negatively related and half were predicted to have no relationship with the predictor variables (Table 16).

Age span was negatively related to wives' paid work time (.001 level) and not significantly related to husbands' paid work time (Table 24). The regression results of wives' paid work time shows that wives mean time used for paid work is 98.06 minutes. When children are very young, only about half of that time is used for paid work (Figure 12). When the age of the younger child is very young, increases in the age of the older child, increases the time wives spend in paid work substantially. When the age of the younger child reaches seven years, the increases in the age of the older child are no longer associated with increases in wives paid work time. As the age of the younger child increases beyond seven years, the time wives spend in paid work decreases with increases in the age of the older child. This finding may be partially explained by wives' need to increase the family income in the early family years but there is no logical support for why wives' should leave the paid work force in later family stages. Wives may feel that with two very young children, their time is most needed to meet the physical

TABLE 24.

Regression Results of Paid Work Time on
Age of Younger Child, Age of Older Child, and Age Span

| Independent Variables | Wives' Paid Work Time | | Husbands' Paid Work Time | |
|---|---|---|---|---|
| | Regression Coefficient* | T Value | Regression Coefficient* | T Value |
| AGEYC (A) | 14.839<br>(3.565) | 4.16**** | 2.660<br>(4.861) | 0.55 |
| AGEOC (B) | 4.830<br>(1.892) | 2.55* | -1.510<br>(2.579) | -0.59 |
| AGESP (AxB) | -0.724<br>(0.213) | -3.39*** | -0.137<br>(0.291) | -0.47 |
| Constant | 26.053 | | 438.061 | |
| $R^2$ | .059 | | .001 | |
| PdWT Means | 98.062 | | 430.090 | |

* Standard errors are shown in parentheses
* Indicates significance at a level of .05
*** Indicates significance at a level of .001
**** Indicates significance at a level of .0001

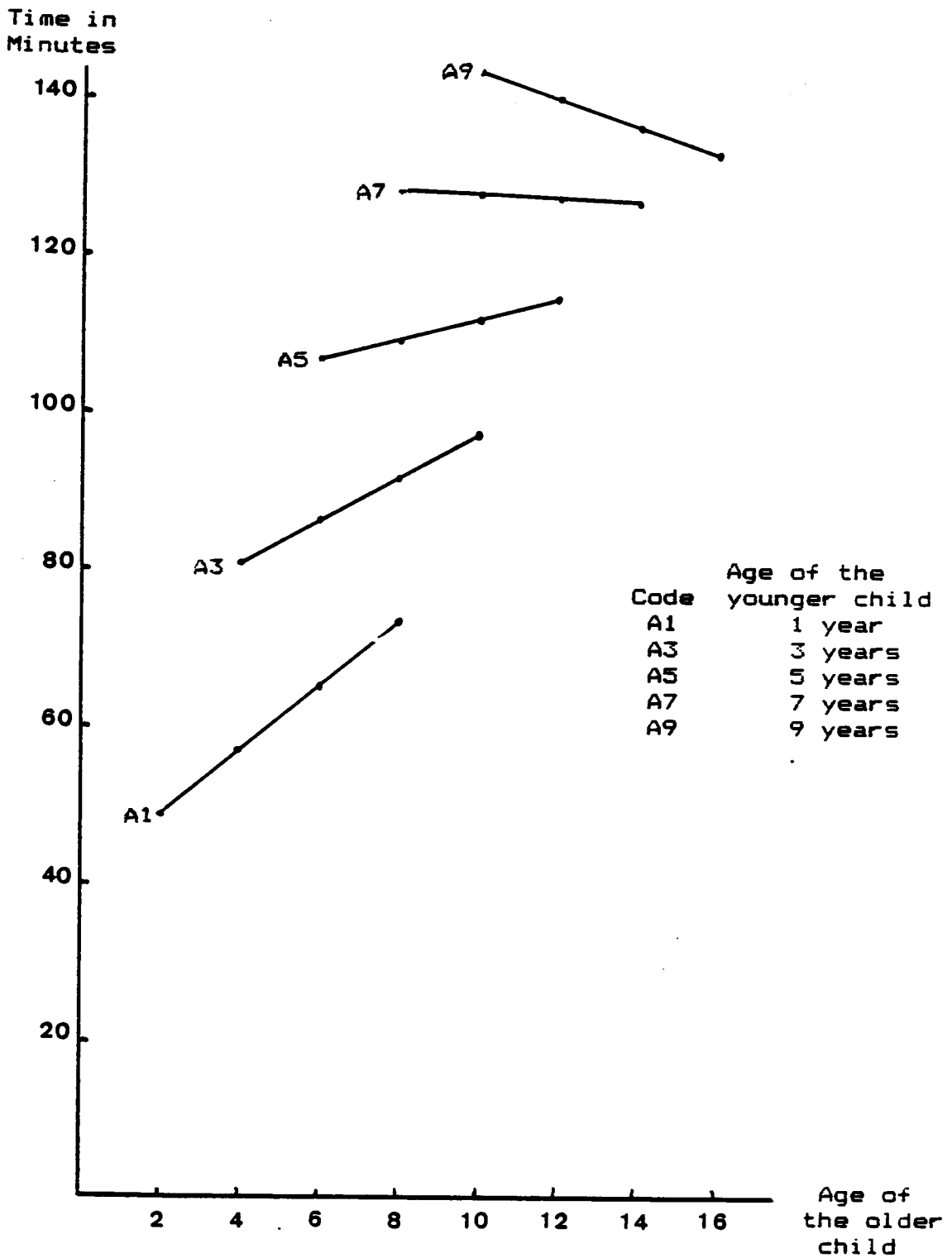



Figure 12. Interaction of the age of the younger child with age of the older child in wives' paid work time

care needs of the children. As the age of the older child increases perhaps wives feel they can use more time for paid work. As the age of the younger child increases to the point where the ages of the older child puts the children in different schools or otherwise separates them into different developmental or activity needs, perhaps wives' decrease their paid work time because of their limited time for child activities and paid work conflict. The coefficient of determination indicated that 5.9% of the variance in wives' paid work time could be explained by the linear regression model. The hypothesis was supported by the findings.

The hypothesis predicted that volunteer time regressed on the predictor variables would show age span to have a negative effect on the volunteer time of both parents. The results of the regression showed the predicted relationship (.05 level) to wives' volunteer time but no effect on husbands' volunteer time (Table 25). The regression results of wives' volunteer work time shows wives use the least of their time for volunteer activities when the ages of their children are very young (Figure 13). Wives increase their volunteer time when the age of the older child increases only when the age of the youngest child is one year old, but not substantially. When the age of the youngest child is three or more years, wives use decreasing amounts of time as the age of the

TABLE 25.

Regression Results of Volunteer Work Time on Age of Younger Child, Age of Older Child, and Age Span

| Independent Variables | Wives' Volunteer Time | | Husbands' Volunteer Time | |
|---|---|---|---|---|
| | Regression Coefficient* | T Value | Regression Coefficient* | T Value |
| AGEYC (A) | 3.466 (1.322) | 2.62* | -1.011 (1.555) | -0.65 |
| AGEOC (B) | 0.376 (0.702) | 0.54 | 1.861 (0.825) | 2.26* |
| AGESP (AxB) | -0.163 (0.079) | -2.06* | -0.025 (0.291) | -0.27 |
| Constant | 12.898 | | 13.527 | |
| $R^2$ | .011 | | .003 | |
| VtT Means | 23.691 | | 22.235 | |

* Standard errors are shown in parentheses
* Indicates significance at a level of .05

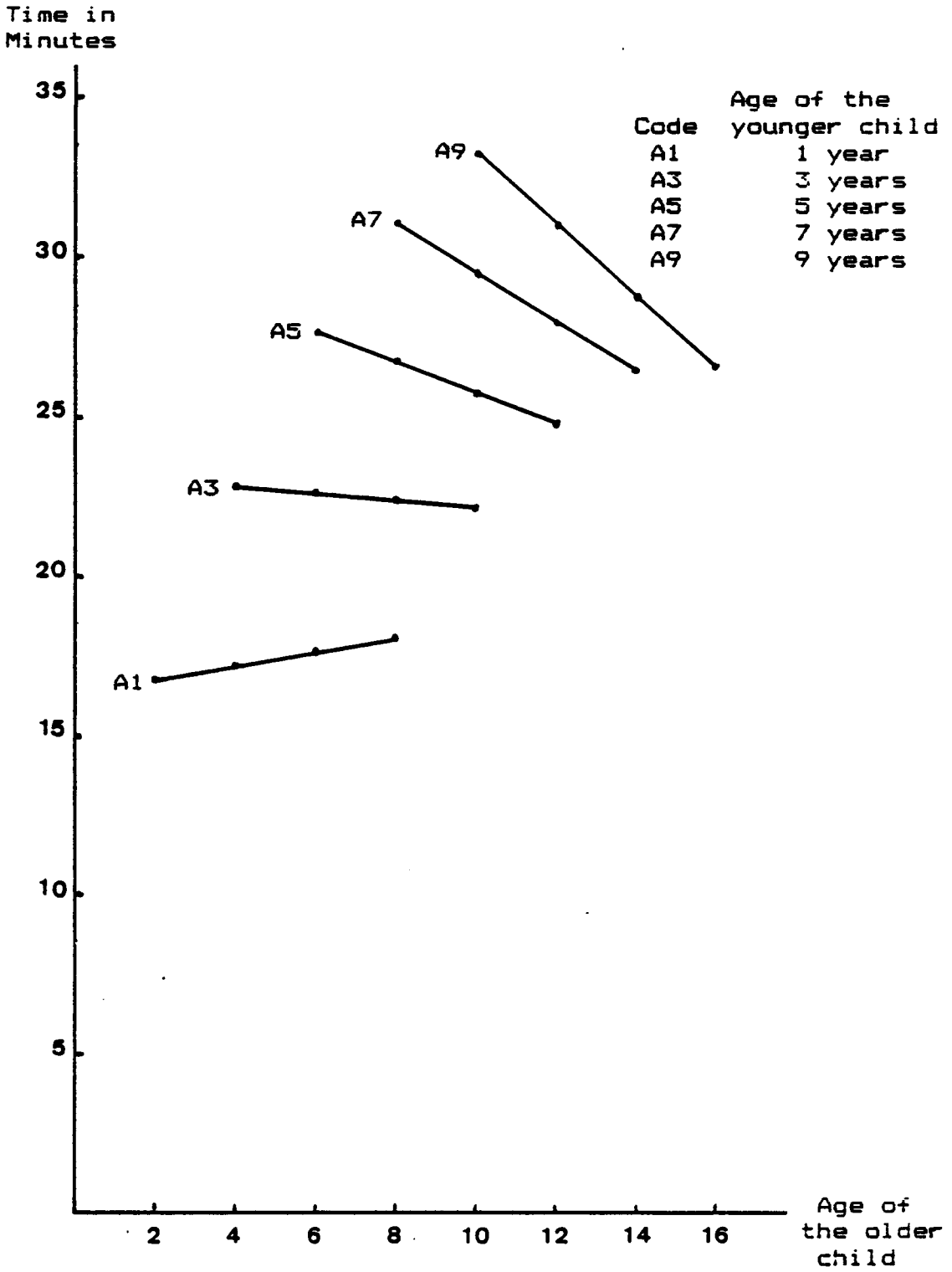



Figure 13. Interaction of the age of the younger child with age of the older child in wives' volunteer work time

older child increases, and that time decreases substantially at each increment in the ages of the children. Perhaps wives do volunteering at an increased rate, in activities that concern or involve their children when they are very young. As the children increase in age, the distance between the ages of the children seem to influence the time wives used for volunteer activities in a negative way. Because there was no significant effect on husbands' volunteer time, the hypothesis was partially supported.

School work time regressed on the age variables showed no significant changes due to age of the younger child, age of the older child or the interaction. These were the expected results and the hypothesis was supported. Time used by wives and husbands for school work activities are apparently unaffected by age span.

Organizational participation and activities less structured in nature, such as social and recreational time use, were classified as leisure time. Organizational participation regressed on the age variables showed no significant changes in wives' or husbands' time use for organizational participation. The result was expected and the hypothesis was supported. Mean time used by wives and husbands for organizational participation was 27 and 20 minutes per day, respectively, and apparently this time use is unaffected by age span.

Social and recreational time was regressed on the predictor variables. Wives and husbands in this sample spend about four hours a day in these types of activities (Table 26). Age span was predicted to have no significant relationship to wives' and husbands' time for social and recreational activities. The interaction of the age of the younger child with the age of the older child in husbands' social/recreational time show substantial increases of time used for these activities as the age of the older child increases (Figure 14). Husbands use the least amount of time for social and recreational activities when the age of the younger child is very young. As the age of the younger child increases to 9 years or more, increases in the age of the older child account for less change in husbands' time use. This finding may be explained by the needs of very young children. Prior to school age, the care of children may be using time that husbands, later use for social and recreational purposes. There was no significant relationship between age span and social and recreational activity time for wives. The result of the regression agreed, partially, with the predicted relationship in the hypothesis.

The hypothesis was totally supported for activities concerning the laundry, care and construction of clothing and linens, physical care of family members, paid work,

TABLE 26.

Regression Results of Social/Recreational Time on Age of Younger Child, Age of Older Child, and Age Span

| Independent Variables | Wives' Soc./Rec. Time | | Husbands' Soc./Rec. Time | |
|---|---|---|---|---|
| | Regression Coefficient* | T Value | Regression Coefficient* | T Value |
| AGEYC (A) | 2.302 | 0.83 | 4.818 | 1.57 |
| | (2.790) | | (3.074) | |
| AGEOC (B) | 2.329 | 1.57 | 5.079 | 3.11** |
| | (1.480) | | (1.631) | |
| AGESP (AxB) | -0.194 | -1.16 | -0.427 | -2.32* |
| | (0.167) | | (0.184) | |
| Constant | 221.516 | | 191.919 | |
| $R^2$ | .004 | | .014 | |
| SRT Means | 240.555 | | 232.083 | |

* Standard errors are shown in parentheses
* Indicates significance at a level of .05
** Indicates significance at a level of .005

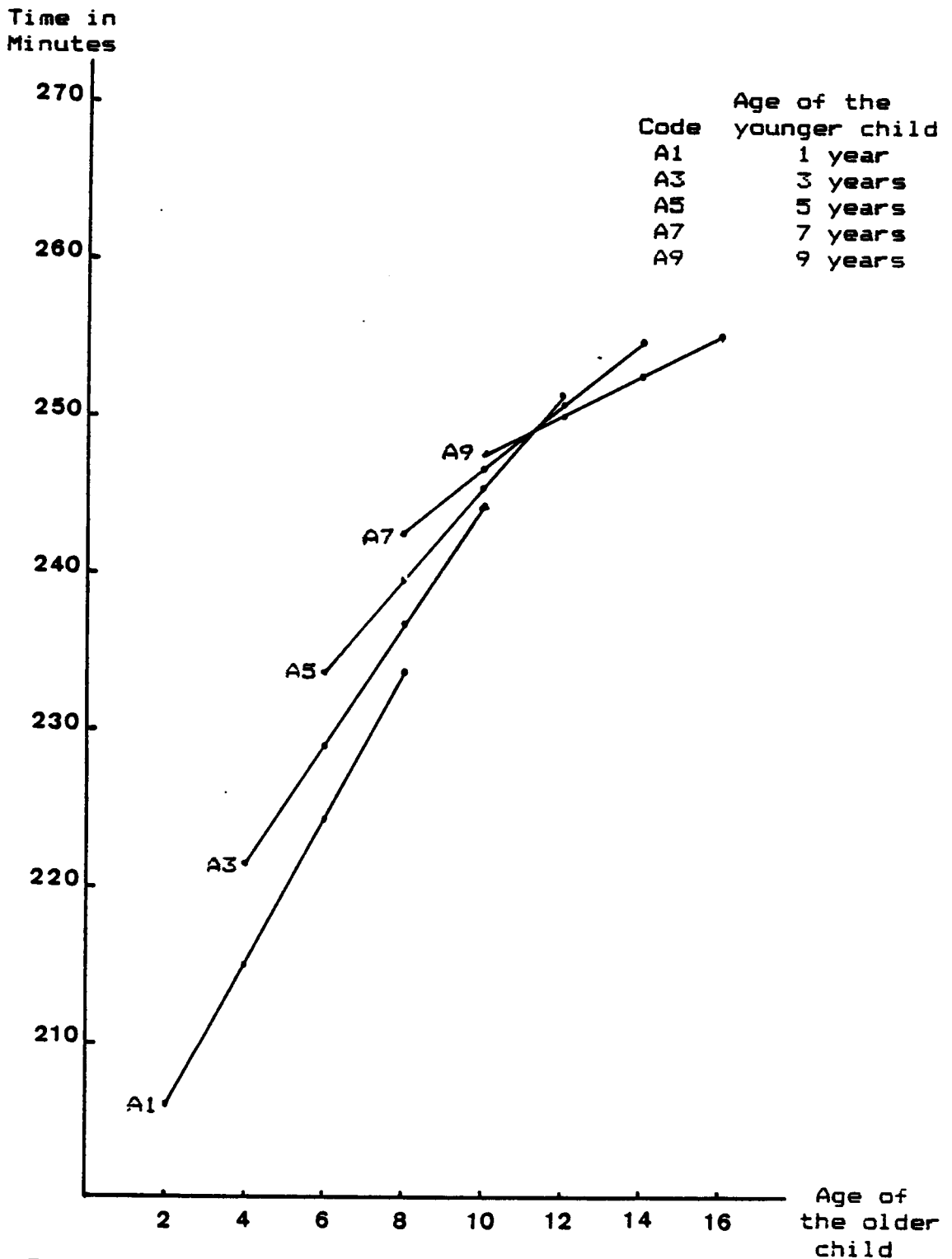



Figure 14. Interaction of the age of the younger child with age of the older child in husbands' social/recreational time

school work activities, organizational participation, care of self, and eating. The hypothesis was partially supported for activities concerning food preparation; dishwashing; house cleaning; maintenance of home, yard, car, and pets; non-physical care of family members; and management; volunteer work; and social and recreational activities. The hypothesis was not supported for activities concerning shopping .

Of the remaining seven activities classified as those contributing to other work, leisure, and personal maintenance time, it was predicted that time used for paid work by wives would be negatively affected and that similar time used by husbands would be unaffected by increases in age span; that less time would be used by both parents for volunteer activities; and that time used for school work would be unaffected by age span between children. Age span was predicted to be negatively related to time used for social and recreational activities and to have no effect on time used for organizational participation, care of oneself, and eating for both wives and husbands.

Five of the seven results supported the hypothesis concerning wives' and husbands' time used for paid work, school work, organizational participation, personal care and eating. Only time used by parents for volunteer and

social and recreational activities were partially supported by the analysis of the data.

## Ages of Children and Time Use Activities of Wives and Husbands

Ages of the younger and older children in two-parent, two-child families were used as primary predictor variables and the interaction between them was the basis for predictions concerning age span.

Seven activities regressed on the predictor variables resulted in age of the younger child as a significant factor on wives' time. The younger child was negatively correlated with wives' time for dish washing; housecleaning; maintenance of home yard, car, and pets; physical care of other family members; and non-physical care of other family members. As the age of the younger child increased, wives in this study used less of their day to wash dishes, clean the house, to do maintenance activities, and to meet the physical and non-physical needs of other family members. Age of the younger child was positively related to wives' paid work and volunteer time. The older the younger child, the more time spent by wives working outside the home and volunteering.

Age of the younger child was significantly related to three of the husbands' time activities. Negative significance was evident for time used by husbands for physical and non-physical care of other family members and

positively sigificant for employment time. As the age of the younger child increased, husbands used less time in caring for others and more time working outside the home.

Four activities regressed on the predictor variables resulted in age of the older child as a significant factor on wives' time. Age of the older child was negatively correlated with wives' time for physical care of other family members, and non-physical care of other family members. As the age of the older child increased, wives in this study used less of their day to meet both physical and non-physical needs of other family members. Age of the older child was positively related to wives' food preparation time and paid work time. As the age of the older child increased, wives spent more time preparing meals and working outside the home.

Age of the older child was significantly related to three of the husbands' time activities. Negative significance was evident for time used by husbands for physical and non physical care of other family members and positively sigificant for social and recreational activities. As the age of the younger child increased, husbands used less time in caring for others and more time in passive leisure activities.

## Age Span, Selected Variables, and Activity Components of Classifications of Time

The test for intercorrelation among variables revealed that multicollinearity may exist between two sets of variables. Those that seemed to be highly correlated, age of husband and educational level of husband, were dropped from the regression formula of prediction to avoid multicollinearity. The following hypothesis was tested to establish whether selected variables added to the regression equation would add to the explanation of time use on significant component activities:

> H5: Age span, the interaction, will be significant between the ages of the younger and older child for wives' and husbands' time used for the following activities, and as age span between children increases, those certain component activities [food preparation; dish washing; shopping; house cleaning; maintainence of the home, yard, car, and pets; care for and/or construction of clothing or household linens; laundering; physical care of other family members; non-physical care of other family members; management; paid work; volunteer (unpaid) work; school work; organizational participation; social and recreational activities; care of oneself; and eating] will be further explained by other selected variables. The variables are:
>
> a. age of wife
> b. educational level of wife
> c. employment time of wife
> d. annual family income
> e. number of automobiles
> f. area of residence

The eight component activities of family time use that were significantly related to age span were regressed on six selected variables in addition to age of the

younger and older child and the interaction of the two age variables. They included time for house cleaning; maintainence of the house, yard, car, and pets; physical care of other family members; non-physical care of other family members; managment: paid work; volunteer (unpaid) work; and time for social and recreation activities. For house cleaning time, three of the added six variables were significant for wives (Table 27). The addition of the six selected variables raised the $R^2$ from .5% (Table 19) to 6%. When wives used more time for employment, increased in age or their educational level they used less time for house cleaning. All of these variables were negatively significant. Annual family income, number of automobiles, and area of residence had no effect on wives' house cleaning time. The $R^2$ for husbands' house cleaning time increased from .1% (Table 19) to 1.2% although none of the six added variables were significantly related to husbands' house cleaning time.

Time used for maintaining the house, yard, car, and pets was regressed on the extended set of variables (Table 28). Age of the younger child (.005 level) and employment of the wife (.0001 level) and the other four variables raised the $R^2$ from 1.5% (Table 20) to 3% for wives' maintenance activities. Two variables in this regression were significantly related to husbands' time for maintenance of the house, yard, car, and pets. Age of the

TABLE 27.

Regression Results of House Cleaning Time on Independent Demographic and Resource Variables

| Independent Variables | | Wives' House Cleaning Time | | Husbands' House Cleaning Time | |
|---|---|---|---|---|---|
| | | Regression Coefficient* | T Value | Regression Coefficient* | T Value |
| AGEYC | (A) | -1.932 (1.451) | -1.33 | -0.090 (0.350) | -0.26 |
| AGEOC | (B) | 0.437 (0.881) | 0.502 | 0.180 (0.212) | 0.85 |
| AGESP | (AxB) | 0.164 (0.088) | 1.86 | -0.016 (0.021) | -0.75 |
| EmpW | (C) | -0.591 (0.086) | -6.87**** | 0.033 (0.021) | 1.57 |
| AgeW | (D) | -0.408 (0.371) | -1.10* | 0.088 (0.089) | 0.99 |
| EduW | (E) | -1.721 (0.846) | -2.04* | 0.389 (0.204) | 1.91 |
| AFI | (F) | -0.999 (0.993) | -1.01 | -0.100 (0.239) | -0.42 |
| NAu | (G) | -2.233 (2.054) | -1.09 | -0.349 (0.495) | -0.70 |
| ArR | (H) | 3.289 (2.937) | 1.12 | -0.722 (0.707) | -1.02 |
| Constant | | 92.332 | | 0.651 | |
| $R^2$ | | .060 | | .012 | |
| HCT Means | | 52.779 | | 2.967 | |
| N | | 1118 | | 1118 | |

* Standard errors are shown in parentheses
* Indicates significance at a level of .05
**** Indicates significance at a level of .0001

TABLE 28.

Regression Results of Maintenance(Hm.,Yd.,Car, & Pet) Time on Independent Demographic and Resource Variables

| Independent Variables | | Wives' Maintenance (Hm,Yd,Cr, & Pt) Time | | Husbands' Maintenance (Hm,Yd,Cr, & Pt) Time | |
|---|---|---|---|---|---|
| | | Regression Coefficient* | T Value | Regression Coefficient* | T Value |
| AGEYC | (A) | 3.710 | 2.98** | -0.150 | -0.07 |
| | | (1.246) | | (2.108) | |
| AGEOC | (B) | -0.960 | -1.27 | -2.125 | -1.66 |
| | | (0.756) | | (1.280) | |
| AGESP | (AxB) | -0.149 | -1.98* | -0.020 | -0.15 |
| | | (0.076) | | (0.128) | |
| EmpW | (C) | -0.301 | -4.08**** | -0.004 | -0.03 |
| | | (0.074) | | (0.125) | |
| AgeW | (D) | 0.416 | 1.13 | 1.956 | 3.63*** |
| | | (0.319) | | (0.539) | |
| EduW | (E) | 0.355 | 0.49 | -2.253 | -1.83* |
| | | (0.726) | | (1.228) | |
| AFI | (F) | 0.358 | 0.42 | -1.513 | -1.05 |
| | | (0.852) | | (1.442) | |
| NAu | (G) | 0.669 | 0.38 | 1.022 | 0.34 |
| | | (1.723) | | (2.984) | |
| ArR | (H) | -2.551 | -1.01 | -5.498 | -1.29 |
| | | (2.521) | | (4.266) | |
| Constant | | 10.951 | | 37.141 | |
| $R^2$ | | .030 | | .017 | |
| HYCP Means | | 23.552 | | 47.361 | |

* Standard errors are shown in parentheses
* Indicates significance at a level of .05
** Indicates significance at a level of .005
*** Indicates significance at a level of .001
**** Indicates significance at a level of .0001

wife was positively related and educational level of the wife was negatively related to husbands' time for maintenance activities. As age of the wife increased one year, husbands used 1.96 minutes more per day in maintenance activities; and when the wife increased her educational level one unit, husbands used 2.25 minutes less per day in maintenance activities. The total effect of all variables raised the percentage of variance explained from .1% (Table 20) to 1.7% for husbands' time use.

Two of the added six variables were significantly related to wives' physical care time (Table 29). When the variables, employment time for the wife (.0001 level) and annual family income (.05 level) increased, the time that wives used for physically caring for other family members decreased. Perhaps wives who work outside the home use some of their income to buy physical care services that, as full time homemakers, they would do themselves. The $R^2$ increased from 49.1% (Table 21) to 51.0% over what resulted from age of the younger child, age of the older child and the interaction between the two ages, all of which remained significant at the .0001 level in this analysis. Age of the wife, educational level of the wife, number of automobiles, and area of residence were not significant to wives' physical care time.

TABLE 29.

Regression Results of Physical Care Time on Independent Demographic and Resource Variables

| Independent Variables | | Wives' Physical Care Time | | Husbands' Physical Care Time | |
|---|---|---|---|---|---|
| | | Regression Coefficient[a] | T Value | Regression Coefficient[a] | T Value |
| AGEYC | (A) | -20.235 (1.325) | -15.28**** | -2.846 (0.487) | -5.85**** |
| AGEOC | (B) | -7.998 (0.804) | -9.95**** | -1.332 (0.296) | -4.51**** |
| AGESP | (AxB) | 1.195 (0.080) | 14.86**** | 0.166 (0.030) | 5.61**** |
| EmpW | (C) | -0.324 (0.078) | -4.13**** | 0.014 (0.029) | 0.48 |
| AgeW | (D) | 0.318 (0.339) | 0.94 | 0.099 (0.125) | 0.80 |
| EduW | (E) | 0.601 (0.772) | 0.78 | 0.497 (0.284) | 1.75 |
| AFI | (F) | -2.093 (0.906) | -2.31* | 0.163 (0.333) | 0.49 |
| NAu | (G) | 0.106 (1.875) | 0.06 | -0.113 (0.689) | -0.16 |
| ArR | (H) | -0.904 (2.681) | -0.34 | 0.855 (0.985) | 0.87 |
| Constant | | 167.679 | | 15.721 | |
| $R^2$ | | .510 | | .152 | |
| PhCT Means | | 48.706 | | 8.217 | |

[a] Standard errors are shown in parentheses
* Indicates significance at a level of .05
**** Indicates significance at a level of .0001

None of the six variables were significant for husbands' physical care time. The addition of the six selected variables actually lowered the $R^2$ from 15.6% (Table 21) to 15.2% for husbands' physical care time.

Three of the added variables were significantly related to wives' non-physical care time (Table 30). As the age of the wife increased, so did wives' time used for non-physical care of other family members. However, increases in employment time of the wife, number of automobiles, and living in a rural residence were associated with decreases in wives' non-physical care time. Age of the older child was significant in hypothesis four but did not show as a significant variable on wives non-physical care time when the six selected variables were added to the regression. The $R^2$ increased from 8.1% (Table 22) to 14.5% with the addition of the six selected variables. Age of the wife, educational level of the wife, and annual family income were not significant in contributing to the amount of change in wives' non-physical care time.

Age and educational level variables of the wife (and most likely of the husband) were positively correlated with husbands' non-physical care time. However, age span, which was significant in hypothesis four did not show as a significant variable when the six selected variables were added to the regression. The $R^2$ for husbands' non-

TABLE 30.

Regression Results of Non-physical Care Time on Independent Demographic and Resource Variables

| Independent Variables | | Wives' Non-physical Care Time | | Husbands' Non-physical Care Time | |
|---|---|---|---|---|---|
| | | Regression Coefficient[a] | T Value | Regression Coefficient[a] | T Value |
| AGEYC | (A) | -3.980 (1.534) | -2.59** | -2.234 (1.087) | -2.05* |
| AGEOC | (B) | -1.569 (0.931) | -1.68 | -2.840 (0.660) | -4.30**** |
| AGESP | (AxB) | 0.114 (0.093) | 1.23 | 0.117 (0.066) | 1.78* |
| EmpW | (C) | -0.479 (0.091) | -5.27**** | -0.031 (0.064) | -0.47 |
| AgeW | (D) | 0.519 (0.392) | 1.32 | 0.638 (0.278) | 2.29* |
| EduW | (E) | 1.320 (0.894) | 1.48 | 1.315 (0.634) | 2.08* |
| AFI | (F) | 1.290 (1.049) | 1.23 | 0.061 (0.744) | 0.08 |
| NAu | (G) | -5.318 (2.171) | -2.45* | -0.033 (1.539) | -0.02 |
| ArR | (H) | -7.655 (3.104) | -2.47* | -0.123 (2.201) | -0.06 |
| Constant | | 75.781 | | 27.554 | |
| $R^2$ | | .145 | | .114 | |
| NPCT Means | | 52.015 | | 24.542 | |

[a] Standard errors are shown in parentheses
* Indicates significance at a level of .05
** Indicates significance at a level of .01
**** Indicates significance at a level of .0001

physical care time increased from 7.5% (Table 22) to 11.4% when the six variables were added to the regression procedure. Employment of wives, annual family income, number of automobiles, and area of residence were not significant to the amount of change in husbands' non-physical care time.

Time used for management was regressed on the extended set of variables. Only one variable, employment of the wife, showed any significant relationship to wives' management time (Table 31). The negative correlation indicated that wives use less time in management when employment time increases. The $R^2$ for wives' management time increased from .2% (Table 23) to .9% as a result of the additional selected variables to the regression procedure. Where husbands' time for this activity component was significantly related to age span in hypothesis four, it lacked that significance in this regression procedure. No variables showed any significance to husbands' management time. The $R^2$ increased from .5% (Table 23) to 1.1% as a result of the additional variables.

Two of the added six variables were significantly related to wives' paid work time (Table 32). The variables, employment time for wives (.0001 level) and annual family income (.05 level) were significantly

TABLE 31.

Regression Results of Management Time on Independent Demographic and Resource Variables

| Independent Variables | Wives' Management Time | | Husbands' Management Time | |
|---|---|---|---|---|
| | Regression Coefficient* | T Value | Regression Coefficient* | T Value |
| AGEYC (A) | -0.547 (0.818) | -0.67 | -0.561 (0.718) | -0.78 |
| AGEOC (B) | 0.560 (0.497) | 1.14 | -0.651 (0.436) | -1.49 |
| AGESP (AxB) | 0.006 (0.050) | 0.12 | 0.069 (0.044) | 1.54 |
| EmpW (C) | -0.108 (0.048) | -2.23* | 0.029 (0.043) | 0.69 |
| AgeW (D) | 0.142 (0.209) | 0.68 | 0.023 (0.184) | 0.13 |
| EduW (E) | 0.066 (0.477) | 0.14 | 0.466 (0.418) | 1.11 |
| AFI (F) | -0.754 (0.560) | -1.35 | 0.922 (0.491) | 1.11 |
| NAu (G) | 0.264 (1.158) | 0.23 | 0.015 (0.016) | 0.01 |
| ArR (H) | 1.015 (1.656) | 0.61 | 0.24 (1.452) | 0.02 |
| Constant | 19.159 | | 0.526 | |
| $R^2$ | .009 | | .011 | |
| MgtT Means | 17.833 | | 10.523 | |

* Standard errors are shown in parentheses
* Indicates significance at a level of .05

TABLE 32.

Regression Results of Paid Work Time on Independent Demographic and Resource Variables

| Independent Variables | | Wives' Paid Work Time | | Husbands' Paid Work Time | |
|---|---|---|---|---|---|
| | | Regression Coefficient* | T Value | Regression Coefficient* | T Value |
| AGEYC | (A) | 8.920<br>(4.222) | 2.11* | 11.388<br>(6.162) | 1.85 |
| AGEOC | (B) | 3.583<br>(2.563) | 1.40 | -2. 600<br>(3.741) | -0.69 |
| AGESP | (AxB) | -0.485<br>(0.256) | -1.89 | -0.175<br>(0.374) | -0.47 |
| EmpW | (C) | 5.789<br>(0.250) | 23.14**** | -0.598<br>(0.365) | -1.64 |
| AgeW | (D) | -1.653<br>(1.080) | -1.53 | -5.277<br>(1.577) | -3.35*** |
| EduW | (E) | -1.258<br>(2.460) | -0.51 | -7.774<br>(3.590) | -2.17* |
| AFI | (F) | 6.432<br>(2.888) | 2.23* | 4.978<br>(4.215) | 1.18 |
| NAu | (G) | 5.499<br>(5.976) | 0.92 | 10.585<br>(8.721) | 1.21 |
| ArR | (H) | -1.683<br>(8.545) | -0.20 | -5.195<br>(12.471) | -0.42 |
| Constant | | -31.980 | | 544.340 | |
| $R^2$ | | .387 | | .027 | |
| PdWT Means | | 156.810 | | 422.967 | |

* Standard errors are shown in parentheses
* Indicates significance at a level of .05
*** Indicates significance at a level of .001
**** Indicates significance at a level of .0001

related to wives' paid work time. Age span and age of the older child which were significant in hypothesis four, no longer were significant after the six selected variables were added to the regression. The $R^2$ increased from 5.9% (Table 24) to 38.7% over what resulted from age of the younger child, age of the older child and the interaction between the two ages. Age of the wife, educational level of the wife, number of automobiles, and area of residence were not significant to wives' paid work time.

Two of the six variables were significant for husbands' paid work time. Age of the wife and educational level of the wife (highly correlated with age and educational level of the husband) were negatively related (.0001 level) to husbands' paid work time. As wives (and probably husbands) aged, and advanced in educational level husbands apparently increased their time in paid work in this study. The addition of the six selected variables increased the $R^2$ from .1% (Table 24) to 2.7% for husbands' paid work time. Employment of the wife, annual family income, number of automobiles, and area of residence were not significant variables in determining husbands' paid work time.

Time used for volunteer work was regressed on the extended set of variables. Only one of the added variables, employment of the wife (.0001 level), was significantly related to wives' time used for this

activity (Table 33). Age span no longer was significant as it was in hypothesis four. The $R^2$ increased from 1.1% (Table 25) to 2.7% for wives' time used for volunteer activities. One variable, annual family income, in this regression was significantly related to husbands' volunteer time. As annual family income increased one level husbands decreased their volunteer time 3.12 minutes per day. The total effect of all variables raised the $R^2$ from .3% (Table 25) to 1.2%. No other variables were significant to husbands' volunteer time.

For social and recreational time, one of the six variables was significant for wives (Table 34). The addition of the six selected variables did increase the $R^2$ from .4% (Table 26) to 4.4%. When wives used more time for employment (.0001 level) they used less time for social and recreational activities. Age of wife, educational level of wife, annual family income, number of automobiles, and area of residence had no effect on wives' social and recreational time. None of the added variables were significantly related to husbands' social and recreational time. The $R^2$ changed from 1.4% (Table 26) to 2.8%.

The summary of the changes in the $R^2$s for the eight activity components are shown in Table 35. Adding the six selected variables resulted in increases in the $R^2$ for all time use variables except one. The hypothesis is

TABLE 33.

Regression Results of Volunteer Time on Independent Demographic and Resource Variables

| Independent Variables | | Wives' Volunteer Time | | Husbands' Volunteer Time | |
|---|---|---|---|---|---|
| | | Regression Coefficient* | T Value | Regression Coefficient* | T Value |
| AGEYC | (A) | 3.058 (1.523) | 2.01* | -1.089 (1.997) | -0.55 |
| AGEOC | (B) | 0.679 (0.924) | 0.73 | 1.162 (1.212) | 0.96 |
| AGESP | (AxB) | -0.148 (0.092) | -1.60 | 0.004 (0.121) | 0.03 |
| EmpW | (C) | -0.364 (0.090) | -4.03**** | -0.021 (0.118) | -0.18 |
| AgeW | (D) | 0.040 (0.390) | 0.10 | 0.323 (0.511) | 0.63 |
| EduW | (E) | 0.565 (0.887) | 0.64 | 0.202 (1.163) | 0.17 |
| AFI | (F) | -1.122 (1.042) | -1.08 | -3.123 (1.366) | -2.29* |
| NAu | (G) | 2.084 (2.155) | 0.97 | -1.576 (2.826) | -0.56 |
| ArR | (H) | -2.242 (3.082) | -0.73 | -7.395 (4.041) | -1.83 |
| Constant | | 23.671 | | 56.154 | |
| $R^2$ | | .027 | | .012 | |
| VWT Means | | 21.34 | | 22.201 | |

* Standard errors are shown in parentheses
* Indicates significance at a level of .05
**** Indicates significance at a level of .0001

TABLE 34.

Regression Results of Social/Recreational Time on Independent Demographic and Resource Variables

| Independent Variables | | Wives' Social/ Recreational Time | | Husbands' Social/ Recreational Time | |
|---|---|---|---|---|---|
| | | Regression Coefficient* | T Value | Regression Coefficient* | T Value |
| AGEYC | (A) | 4.642 (3.465) | 1.34 | 1.155 (4.015) | 0.29* |
| AGEOC | (B) | 3.782 (2.103) | 0.18 | 8.828 (2.437) | 3.62*** |
| AGESP | (AxB) | -0.263 (0.210) | -1.25 | -0.517 (0.244) | -2.12* |
| EmpW | (C) | -1.298 (0.205) | -6.32**** | 0.263 (0.238) | 1.10 |
| AgeW | (D) | -1.647 (0.886) | -1.86 | 1.062 (1.027) | 1.03 |
| EduW | (E) | -2.453 (2.018) | -1.22 | 0.618 (2.339) | 0.26 |
| AFI | (F) | -0.901 (2.370) | -0.38 | 0.530 (2.746) | 0.19 |
| NAu | (G) | 1.743 (4.904) | 0.36 | 4.216 (5.682) | 0.74 |
| ArR | (H) | 5.696 (7.012) | 0.81 | 14.095 (8.125) | 1.73 |
| Constant | | 271.409 | | 107.658 | |
| $R^2$ | | .044 | | .028 | |
| SRT Means | | 222.641 | | 234.053 | |

* Standard errors are shown in parentheses
* Indicates significance at a level of .05
*** Indicates significance at a level of .001
**** Indicates significance at a level of .0001

TABLE 35.

Summary of $R^2$ Increases in Time Use for each Activity Component from Regressions on Childrens' Age Variables to the Addition of Six Selected Demographic and Resource Variables

| Activity Component Of Time | $R^2$ | | |
|---|---|---|---|
| | Age Variables Only | Age Variables plus Selected Variables | Differences |
| Houseclean-ing | | | |
| Wives | .005 | .060 | .055 |
| Husbands | .001 | .012 | .011 |
| Maintenance Hm,Yd,Cr,Pt | | | |
| Wives | .015 | .030 | .015 |
| Husbands | .001 | .017 | .016 |
| Physical Care | | | |
| Wives | .491 | .510 | .019 |
| Husbands | .156 | .152 | -.004 |
| Non-physical Care | | | |
| Wives | .081 | .145 | .064 |
| Husbands | .075 | .114 | .039 |
| Management | | | |
| Wives | .002 | .009 | .007 |
| Husbands | .005 | .011 | .006 |
| Paid Work | | | |
| Wives | .059 | .387 | .328 |
| Husbands | .001 | .027 | .026 |
| Volunteer Wk. | | | |
| Wives | .011 | .027 | .016 |
| Husbands | .003 | .012 | .009 |
| Social/ Recreation | | | |
| Wives | .004 | .044 | .040 |
| Husbands | .014 | .028 | .014 |

supported for all of the analyses except for husbands' physical time where the $R^2$ decreased from 15.6% to 15.2%. The difference in the sample size (1,983 to 1,118) may have caused this decrease.

The greatest change in $R^2$ differences was in wives' paid work time where the age of children variables were responsible for 5.9% of wives' paid work time and after the six selected variables were added to the analysis the resulting $R^2$ increased to 38.7%, an increase of 32.8%. Adding the six selected variables to the wives' physical care time resulted in an $R^2$ of 51%, the highest of the analysis. The difference between the age variable regression and the regression of the age and six added variables was one of the smallest (1.9%) because the age variables were responsible for 49.1% of the change in wives' physical care time before the six selected variables were added.

Adding the six selected variables showed greater increases in wives' time than in husbands' time in seven of the eight component activities. Only in husbands' time for maintenance activities was the $R^2$ increase greater than in wives' time for the same activity.

## Relationships Between Age Span, Demographic and Resource Variables and Types of Time

H6: Where age span, the interaction, between children is significant, travel time associated with

primary time, and secondary time of wives or their husbands will be further explained by the following variables:

a. age of wife
b. educational level of wife
c. employment time of wife
d. annual family income
e. number of automobiles
f. area of residence

## Relationships Between Demographic and Resource Variables and Travel Time

Travel time in this study was combined with the primary activity to which and from which the traveling was necessary to accomplish that activity. The combination primary-travel time was the base for all aggregate time data that made up the 24 hour day. Travel time was subtracted from the primary-travel combination and studied as a type of time. The amount of the combination, the separated primary and travel time, and the proportion of travel time which was part of the combination for each activity is shown in Table 36.

The most travel time was used by wives in going and coming from social and recreational activities followed by shopping, paid work, and non-physical care activities of other family members. For husbands, the most travel time was used in going and coming from paid work followed by social and recreational activities, shopping, and non-physical care activities of other family members. Shopping used the highest percentage of travel time for both wives (28.3%) and husbands (35.5%).

Wives' mean primary-travel time for shopping was 59.18 minutes per day with 16.74 minutes of that time used for travel. Husbands, on the other hand, used less primary-travel time for shopping, 23 minutes per day, and 8.16 minutes were used for travel. No travel time was used in the care and construction of clothing and linens by either parent. Other negligible travel time use activities were dish washing, food preparation and laundry for wives. Husbands' activities that were associated with nearly no travel time were those of house cleaning, foodpreparation, dish washing, and laundry.

Travel time regressed on age of the younger child, age of the older child, the interaction between these two age variables plus six selected demographic and resource variables for each of 17 activity categories is summarized in Table 37. For each parent, the variables were not significantly related to eight of the activities. None were significant for wives' travel time used for food preparation, dishwashing, house cleaning, laundrying, caring and constructing clothes or linens, management, caring for oneself, and eating. Husbands' travel time used in conjunction with food preparation, dish washing, laundrying, caring and constructing clothes or linens, management, school work, paid work, and organizational

TABLE 36.

Amount of Primary and Travel Time, Percentage of Travel Time by Activity for Wives and Husbands

| | Wives | | | | Husbands | | | |
|---|---|---|---|---|---|---|---|---|
| | Total P + T | P Mean | T Mean | %T Mean | Total P + T | P Mean | T Mean | %T Mean |
| **HH Time** | | | | | | | | |
| Food | 71.48 | 71.40 | 0.08 | 0.1 | 8.43 | 8.42 | 0.01 | 0.1 |
| Dish | 29.42 | 29.38 | 0.04 | 0.1 | 3.24 | 3.22 | 0.02 | 0.6 |
| Shop | 59.18 | 42.44 | 16.74 | 28.3 | 23.00 | 14.84 | 8.16 | 35.5 |
| H.Cl | 53.63 | 52.74 | 0.89 | 1.7 | 2.04 | 2.03 | 0.01 | 0.5 |
| HYCP | 24.86 | 23.76 | 1.10 | 4.4 | 50.32 | 48.94 | 1.38 | 2.7 |
| Laun | 21.62 | 21.49 | 0.13 | 0.6 | 1.16 | 1.11 | 0.05 | 4.3 |
| Sew | 14.10 | 14.10 | 0.00 | 0.0 | 0.08 | 0.08 | 0.00 | 0.0 |
| Phys | 48.71 | 46.94 | 1.77 | 3.6 | 8.22 | 7.62 | 0.60 | 7.3 |
| NPCr | 52.12 | 41.22 | 10.90 | 20.9 | 26.04 | 20.55 | 5.49 | 21.1 |
| Mngt | 17.93 | 15.55 | 2.38 | 13.3 | 10.99 | 9.92 | 1.07 | 9.7 |
| **Work Time** | | | | | | | | |
| SchW | 6.90 | 6.02 | 0.88 | 12.8 | 8.07 | 6.99 | 1.08 | 13.4 |
| PdWk | 206.76 | 191.77 | 15.01 | 7.3 | 471.67 | 429.61 | 42.06 | 8.9 |
| VolW | 20.92 | 18.25 | 2.67 | 12.8 | 28.82 | 26.19 | 2.63 | 9.1 |
| **Leisure** | | | | | | | | |
| OrgP | 31.95 | 26.75 | 5.20 | 16.3 | 23.44 | 19.40 | 4.04 | 17.2 |
| SocR | 238.41 | 218.34 | 20.07 | 8.4 | 252.40 | 232.35 | 20.05 | 7.9 |
| **Personal** | | | | | | | | |
| CSlf | 567.45 | 556.19 | 1.26 | 0.2 | 533.60 | 532.88 | 0.72 | 0.1 |
| Eat | 64.77 | 61.25 | 3.52 | 5.4 | 71.20 | 67.66 | 3.54 | 5.0 |

TABLE 37.

Mean Minutes a Day, $R^2$, and Significance for Travel Time Use of Wives and Husbands

| Activity | Wives | | | | Husbands | | | |
|---|---|---|---|---|---|---|---|---|
| | Mean | R2 | Num | Sign | Mean | R2 | Num | Sign |
| **HH Time** | | | | | | | | |
| Food | 0.08 | .021 | ----- | | 0.01 | .042 | 2 | + + |
| Dish | 0.04 | .016 | ----- | | 0.02 | .020 | ----- | |
| Shop | 16.74 | .042 | 2 | + - | 8.16 | .016 | ----- | |
| H.Cl | 0.89 | .007 | ----- | | 0.01 | .106 | 2 | + + |
| HYCP | 0.10 | .037 | 1 | - | 1.38 | .046 | 1 | - |
| Laun | 0.13 | .023 | ----- | | 0.05 | .014 | ----- | |
| Sew | ---------- | | | | ---------- | | | |
| Phys | 1.77 | .049 | 3 | + + - | 0.60 | .020 | 1 | + |
| NPCr | 10.90 | .053 | 2 | + - | 5.49 | .044 | 2 | + - |
| Mngt | 2.38 | .007 | ----- | | 1.07 | .007 | ----- | |
| **Work Time** | | | | | | | | |
| SchW | 0.88 | .034 | 2 | + - | 1.08 | .030 | ----- | |
| PdWk | 15.01 | .110 | 1 | + | 42.06 | .008 | ----- | |
| VolW | 2.67 | .048 | 1 | + | 2.63 | .040 | 1 | - |
| **Leisure** | | | | | | | | |
| OrgP | 5.20 | .028 | 1 | + | 4.04 | .028 | ----- | |
| SocR | 20.07 | .041 | 2 | + - | 20.05 | .035 | 1 | + |
| **Personal** | | | | | | | | |
| CSlf | 1.26 | .013 | ----- | | 0.72 | .038 | 1 | + |
| Eat | 3.52 | .017 | ----- | | 3.54 | .016 | 1 | - |

Num = the number of variables that show significance
Sign = whether the significant variables were positively or negatively related

participation were not significantly related to the independent variables.

The $R^2$s in the regressions where significant variables existed for wives' travel time ranged from 2.8% for organizational participation activities to 11% for paid work. The $R^2$ ranges on husbands' travel time were similar to wives with 2% for physical care activities to 10.6% for house cleaning activities. The highest number of significant variables for either wives' or husbands' travel time was three related to wives' time for physical care of other family members.

The relationship of the variables to the travel time for each activity is shown in Table 38. Age of the younger child and the interaction between the ages of the children were not significantly related to any of the activities. Travel time associated with wives' physical care for other family members was correlated positively with employment time, and age of the wife; and negatively with annual family income. The most influential variable, employment of the wife, was significant to nine wife and husband travel time activities.

## Relationships Between Demographic and Resource Variables and Secondary Time

Secondary time in this study recognized that wives and husbands could be using their time for the accomplishment of more than one activity at one time.

TABLE 38.

Positive or Negative Significance for
Travel Time Use Activities of Wives and Husbands

| | EmpW | | AFI | | AOC | | AYC | | ASP | | AgW | | ELW | | NoA | | Are | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | W | H | W | H | W | H | W | H | W | H | W | H | W | H | W | H | W | H |
| **HH Time** | | | | | | | | | | | | | | | | | | |
| Food | | | | | | + | | | | | | + | | | | | | |
| Dish | na | | | | | | | | | | | | | | | | | |
| Shop | − | | + | | | | | | | | | | | | | | | |
| H.Cl | | | | | | + | | | | | | | | | | + | | |
| HYCP | − | | | | | | | | | | | | | | | | | − |
| Laun | na | | | | | | | | | | | | | | | | | |
| Sew | na | | | | | | | | | | | | | | | | | |
| Phys | + | + | − | | | | | | | | + | | | | | | | |
| NPCr | | + | | | | | | | | | | | + | | − | − | | |
| Mngt | na | | | | | | | | | | | | | | | | | |
| **Wk Time** | | | | | | | | | | | | | | | | | | |
| SchW | − | | | | | | | | | | | | + | | | | | |
| PdWk | + | | | | | | | | | | | | | | | | | |
| VolW | | | | − | + | | | | | | | | | | | | | |
| **Leisure** | | | | | | | | | | | | | | | | | | |
| OrgP | | | | | | | | | | | | | + | | | | | |
| SocR | − | | + | + | | | | | | | | | | | | | | |
| **Personal** | | | | | | | | | | | | | | | | | | |
| CSlf | | + | | | | | | | | | | | | | | | | |
| Eat | | | | | | − | | | | | | | | | | | | |

Second activities were performed while other activities were receiving the primary attention of the time user. Recognizing secondary time use prevented reporting an activity day of more than 24 hours in length. Secondary time was studied as a type of time. The amount of secondary time, total primary and secondary time, and the proportion of secondary time of the total time for each activity is shown in Table 39.

The most secondary time was used by wives for non-physical care of other family members. Wives used about three times more secondary time in this activity than they did in the combination of primary-travel time. Following non-physical care in decending order wives used secondary time for social and recreational activities, followed by shopping, paid work, and non-physical care activities of other family members. The highest percentage of secondary time was used for non-physical care by both wives (75.3%) and husbands (66.9%). More than 15% of wives' total time for laundry, management, social and recreational activities, and physical care of other family members was secondary time. Like wives, husbands used the most secondary time for non-physical care of other family members. They used about twice as much secondary time in this activity as they did in the combination primary-travel time. The other use of secondary time by husbands

TABLE 39.

Amount of Primary, Travel,and Secondary Time; Percentage of Secondary Time by Activity for Wives and Husbands

| | Wives | | | | Husbands | | | |
|---|---|---|---|---|---|---|---|---|
| | PT Mean | S Mean | PTS Mean | %S Mean | PT Mean | S Mean | PTS Mean | %S Mean |
| **HH Time** | | | | | | | | |
| Food | 71.48 | 3.71 | 75.19 | 4.9 | 8.43 | 0.61 | 9.04 | 6.7 |
| Dish | 29.42 | 1.57 | 30.99 | 5.1 | 3.24 | 0.03 | 3.27 | 0.9 |
| Shop | 59.18 | 0.74 | 59.92 | 1.2 | 23.00 | 0.08 | 23.08 | 0.3 |
| H.Cl | 53.63 | 2.76 | 56.39 | 4.9 | 2.04 | 0.08 | 2.12 | 3.8 |
| HYCP | 24.86 | 2.11 | 25.97 | 8.1 | 50.32 | 0.77 | 51.09 | 1.5 |
| Laun | 21.62 | 8.90 | 30.52 | 29.2 | 1.16 | 0.42 | 1.58 | 26.6 |
| Sew | 14.10 | 1.21 | 15.31 | 7.9 | 0.08 | 0.04 | 0.12 | 33.3 |
| Phys | 48.71 | 10.25 | 58.96 | 17.4 | 8.22 | 2.04 | 10.26 | 19.9 |
| NPCr | 52.12 | 158.58 | 210.70 | 75.3 | 26.04 | 52.54 | 78.58 | 66.9 |
| Mngt | 17.93 | 5.08 | 23.01 | 22.1 | 10.99 | 1.28 | 12.27 | 10.4 |
| **Work Time** | | | | | | | | |
| SchW | 6.90 | 0.19 | 7.09 | 2.7 | 8.07 | 0.30 | 8.37 | 3.6 |
| PdWk | 206.76 | 20.48 | 227.24 | 9.0 | 471.67 | 3.71 | 475.38 | 0.8 |
| VolW | 20.92 | 2.66 | 23.58 | 11.3 | 28.82 | 0.54 | 29.36 | 1.8 |
| **Leisure** | | | | | | | | |
| OrgP | 31.95 | 0.77 | 32.72 | 2.4 | 23.44 | 0.15 | 23.59 | 0.6 |
| SocR | 238.41 | 45.97 | 284.38 | 16.2 | 252.40 | 21.84 | 274.24 | 8.0 |
| **Personal** | | | | | | | | |
| CSlf | 567.45 | 5.74 | 573.19 | 1.0 | 533.60 | 1.89 | 535.49 | 0.4 |
| Eat | 64.77 | 10.79 | 75.56 | 14.3 | 71.20 | 5.61 | 76.81 | 7.3 |

PT = Primary time

S = Secondary time

PTS = Combined primary and secondary time

to any degree was that for social and recreational activities. Wives used less than one minute of secondary time for school work, shopping and organizational participation. Husbands, on the other hand, used less than one minute of secondary time for 11 of the 17 activities.

Secondary time regressed on age of the younger child, age of the older child, the interaction between these two age variables plus six selected demographic and resource variables for each of 17 activity categories is summarized in Table 40. The variables were not significantly related to eight of the activities for wives and nine of the activities for husbands. None were significant for wives' secondary time used for shopping; maintaining the house, yard, car or pets; caring and constructing clothes or linens; non-physical care; management; school work; volunteer work; and caring for oneself. Husbands' secondary time used in conjunction with shopping, house cleaning, caring and constructing clothes or linens, non-physical care, management, school work, volunteer work, organization participation and caring for oneself were not significantly related to the independent variables.

The $R^2$s in the regressions where significant variables existed for wives' secondary time ranged from 1.8% for house cleaning activities to 13.6% for activities dealing with physical care of other family members. The

TABLE 40.

Mean Minutes a Day, $R^2$, and Significance for Secondary Time Use of Wives and Husbands

| Activity | Wives | | | | Husbands | | | |
|---|---|---|---|---|---|---|---|---|
| | Mean | R2 | Num | Sign | Mean | R2 | Num | Sign |
| **HH Time** | | | | | | | | |
| Food | 3.71 | .025 | 1 | − | 0.61 | .034 | 2 | + − |
| Dish | 1.57 | .023 | 1 | + | 0.03 | .030 | 1 | + |
| Shop | 0.74 | .017 | ----- | | 0.08 | .010 | ----- | |
| H.Cl | 2.76 | .018 | 1 | + | 0.08 | .030 | ----- | |
| HYCP | 2.11 | .032 | ----- | | 0.77 | .025 | 1 | − |
| Laun | 8.90 | .021 | 1 | − | 0.42 | .036 | 2 | + − |
| Sew | 1.21 | .024 | ----- | | 0.04 | .012 | ----- | |
| Phys | 10.25 | .136 | 3 | − − − | 2.04 | .051 | 3 | + + − |
| NPCr | 158.58 | .095 | ----- | | 52.54 | .059 | ----- | |
| Mngt | 5.08 | .018 | ----- | | 1.58 | .022 | ----- | |
| **Wk Time** | | | | | | | | |
| SchW | 0.19 | .013 | ----- | | 0.30 | .027 | ----- | |
| PdWk | 20.48 | .105 | 2 | + − | 3.71 | .032 | 1 | + |
| VolW | 2.66 | .017 | ----- | | 0.54 | .022 | ----- | |
| **Leisure** | | | | | | | | |
| OrgP | | .041 | 3 | + − − | 0.15 | .012 | ----- | |
| SocR | 45.97 | .043 | 2 | − − | 21.84 | .036 | 1 | − |
| **Personal** | | | | | | | | |
| CSlf | 5.74 | .099 | ----- | | 1.89 | .018 | ----- | |
| Eat | 10.79 | .039 | 2 | − − | 5.61 | .019 | 1 | + |

Num = the number of variables that show significance
Sign = whether the significant variables were positively or negatively related

$R^2$ ranges on husbands' secondary time were lower than those of wives; husbands' secondary time ranged from 1.9% for eating activities to 5.1% for activities concerned with physical care for other family members.

Whether the variables were related to secondary time for each activity is shown in Table 41. Age span was significant to both wives' and husbands' secondary time used for physical care of other family members. Age of the younger child was negatively significant to both wives' and husbands' secondary time used for physical care of other family members and age of the older child was negatively significant only to wives' secondary time used for these physical care acitivities. Annual family income was significant to wives' secondary physical care time; and employment of wife was significant to husbands' secondary physical care time.

## Age Span and Secondary Time

Secondary time use regressed on age of the younger child, age of the older child, the interaction between the ages of the children (age span) and six selected demographic and resource variables resulted in age span being significantly related to laundry activities and activities concerned with the physical care of other family members for at least one parents' time. Age of the younger child (.05 level) was positively significant to

TABLE 41.

Positive or Negative Significance for
Secondary Time Use Activities of Wives and Husbands

| | EmpW | | AFI | | AOC | | AYC | | ASP | | AgW | | ELW | | NoA | | Are | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | W | H | W | H | W | H | W | H | W | H | W | H | W | H | W | H | W | H |
| **HH Time** | | | | | | | | | | | | | | | | | | |
| Food | − | | | | | | | | | | + | | | | − | | | |
| Dish | | + | | | | | | | | | | | | | | | | |
| Shop | na | | | | | | | | | | | | | | | | | |
| H.Cl | | | | | | | | | | | | | | | | | + | |
| HYCP | | | | | | | | | | | | | | | | | | − |
| Laun | | | − | | | | + | | − | | | | | | | | | |
| Sew | na | | | | | | | | | | | | | | | | | |
| Phys | | + | | − | | − | | − | | + | | | | | | | | |
| NPCr | na | | | | | | | | | | | | | | | | | |
| Mngt | na | | | | | | | | | | | | | | | | | |
| **Wk Time** | | | | | | | | | | | | | | | | | | |
| SchW | na | | | | | | | | | | | | | | | | | |
| PdWk | | + | | − | | | | | | | | | | | | | | |
| VolW | na | | | | | | | | | | | | | | | | | |
| **Leisure** | | | | | | | | | | | | | | | | | | |
| OrgP | | | | | | | | | | | − | | + | | − | | | |
| SocR | | | | | − | − | | | | | | | | | | | − | |
| **Personal** | | | | | | | | | | | | | | | | | | |
| CSlf | na | | | | | | | | | | | | | | | | | |
| Eat | | − | | | | | | | | | | | | + | | | | − |

husbands' secondary laundry time (Table 42). For every years' increase in the age of the younger child, husbands used .66 minutes more time doing the laundry. Wives laundry time was negatively associated with annual family income (.05 level). With every unit increase in annual family income wives used 1.69 minutes less doing laundry.

The regression results of secondary time used for physical care of other family members for wives and husbands showed that wives used more of their secondary time for this activity than did their husbands, both parents used the most time when the age of the youngest child was very young and the age of the oldest child was closest to the age of the youngest child (Table 43, Figure 15 & 16). The plots of the interaction show a gentle slope of husbands' secondary time which indicates age differences at any age of the younger child caused less change in secondary time use for husbands than is indicated by the greater slope in the plot of the wives' secondary time use. For wives, as the age of the youngest child increased, less substantial amounts of time was used for physical care as the differences between the ages increased until the age of the youngest child approached 5 years. Then, the amount of secondary time used by wives increased as the differences in the ages of the children increased. This finding may be explained by developmental needs and tasks of children. When children are very young

TABLE 42.

Regression Results of Secondary Laundry Time on Independent Demographic and Resource Variables

| Independent Variables | | Wives' Secondary Laundry Time | | Husbands' Secondary Laundry Time | |
|---|---|---|---|---|---|
| | | Regression Coefficient* | T Value | Regression Coefficient* | T Value |
| AGEYC | (A) | -0.991<br>(1.271) | -0.78 | 0.663<br>(0.306) | 2.17* |
| AGEOC | (B) | -0.566<br>(0.712) | -0.73 | -0.028<br>(0.189) | -0.15 |
| AGESP | (AxB) | 0.085<br>(0.076) | 1.11 | -0.043<br>(0.019) | -2.34* |
| EmpW | (C) | 0.058<br>(0.077) | 0.75 | 0.032<br>(0.019) | 1.71 |
| AgeW | (D) | -0.013<br>(0.316) | -0.04 | 0.087<br>(0.078) | 1.12 |
| EduW | (E) | 0.614<br>(0.749) | 0.82 | 0.186<br>(0.183) | 1.01 |
| AFI | (F) | -1.692<br>(0.840) | -2.01* | -0.099<br>(0.105) | -0.48 |
| NAu | (G) | -0.439<br>(1.743) | -0.25 | 0.784<br>(0.421) | 1.86 |
| ArR | (H) | 4.573<br>(2.583) | 1.77 | 0.808<br>(0.629) | 1.28 |
| Constant | | 22.449 | | -6.149 | |
| $R^2$ | | .021 | | .036 | |
| SLT Means | | 8.900 | | 0.423 | |

* Standard errors are shown in parentheses
* Indicates significance at a level of .05

TABLE 43.

Regression Results of Secondary Physical Care Time on Independent Demographic and Resource Variables

| Independent Variables | | Wives' Secondary Physical Care Time | | Husbands' Secondary Physical Care Time | |
|---|---|---|---|---|---|
| | | Regression Coefficient* | T Value | Regression Coefficient* | T Value |
| AGEYC | (A) | -4.143<br>(1.001) | -4.10**** | -1.409<br>(0.626) | -2.25* |
| AGEOC | (B) | -1.278<br>(0.598) | -2.14* | -0.653<br>(0.383) | -1.70 |
| AGESP | (AxB) | 0.239<br>(0.061) | 3.90**** | 0.082<br>(0.038) | 2.17* |
| EmpW | (C) | -0.057<br>(0.060) | -0.94 | 0.092<br>(0.038) | 2.42* |
| AgeW | (D) | 0.179<br>(0.257) | 0.70 | 0.165<br>(0.161) | 1.02 |
| EduW | (E) | 0.545<br>(0.590) | 0.92 | -0.595<br>(0.371) | -1.60 |
| AFI | (F) | -1.490<br>(0.666) | -2.24* | 0.369<br>(0.415) | 0.89 |
| NAu | (G) | -0.194<br>(1.383) | -0.14 | -0.994<br>(0.858) | -1.16 |
| ArR | (H) | 2.021<br>(2.021) | 1.00 | 0.923<br>(1.280) | 0.72 |
| Constant | | 34.218 | | 1.830 | |
| $R^2$ | | .136 | | .050 | |
| SPCT Means | | 10.249 | | 2.039 | |

* Standard errors are shown in parentheses
* Indicates significance at a level of .05
** Indicates significance at a level of .01
*** Indicates significance at a level of .005
**** Indicates significance at a level of .0001

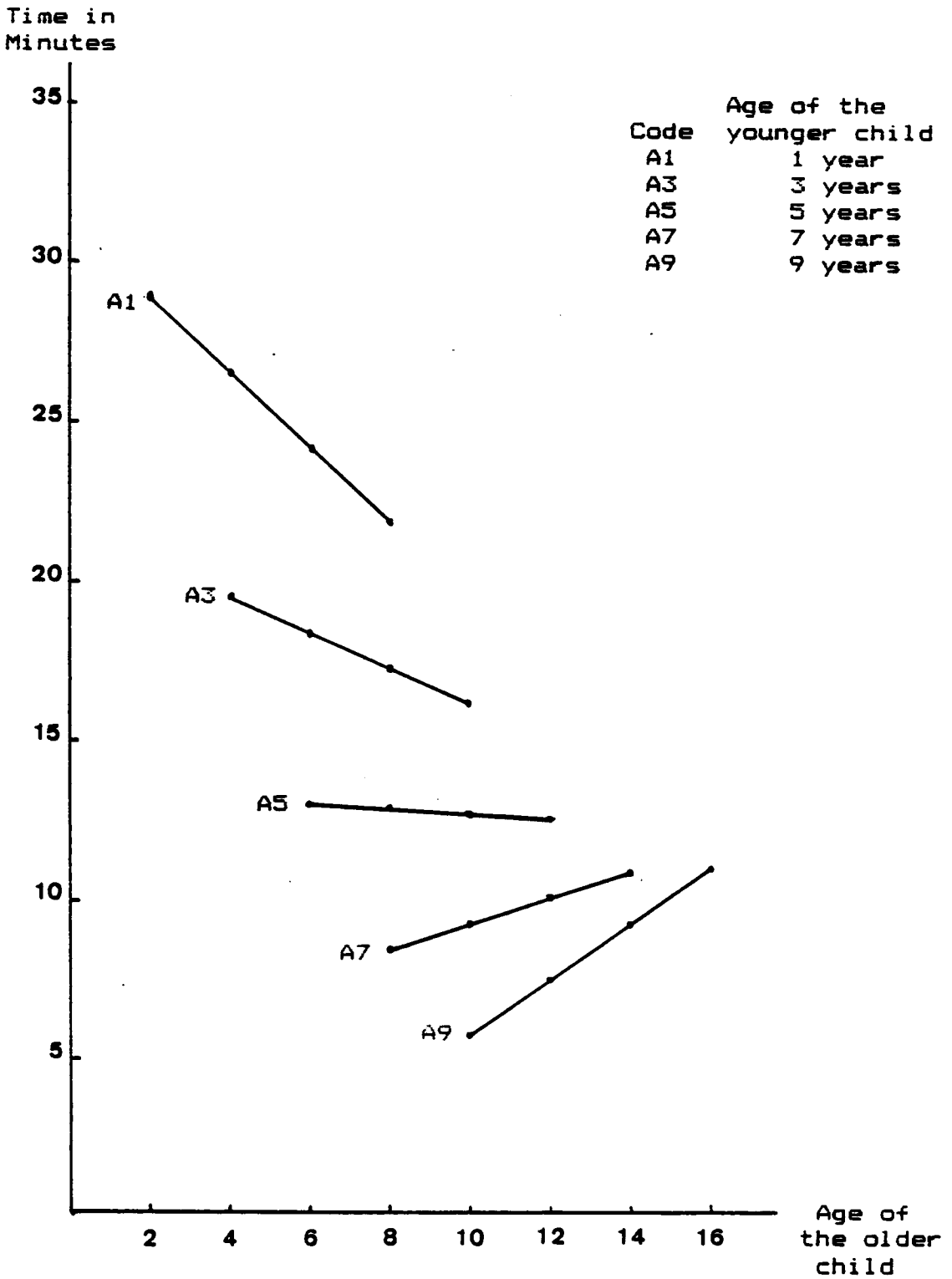



Figure 15. Interaction of the age of the younger child with age of the older child in wives' secondary physical care time

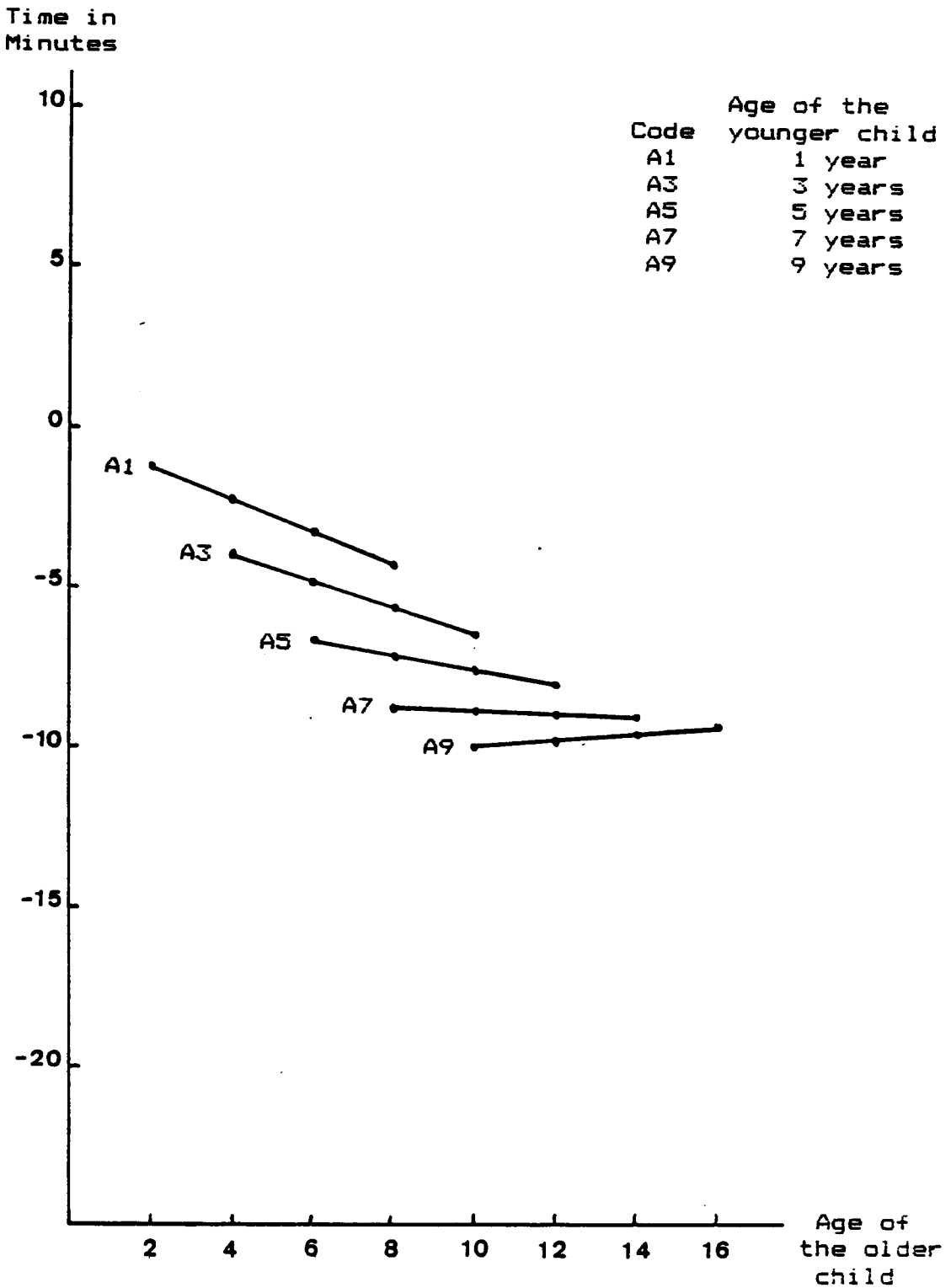



Figure 16. Interaction of the age of the younger child with age of the older child in husbands' secondary physical care time

they are less able to care for themselves and therefore, much parental secondary time is used to meet their children's physical needs, particularly in supervisory types of activities that can be done while time is being used for a primary activity. When they reach school age, perhaps activities that can be accomplished using secondary time, diminish. As the age of the older child increases, the older child may take on his or her primary physical care activities and the time that wives spend becomes secondary in nature as the differences in ages of the older child increase. Age of the younger child (.0001 level), age of the older child (.05 level), and annual family income (.05 level) were all negatively related to wives' secondary physical care time. In this sample, 13.6% of the variance in wives' secondary time and 5.0% of the variance in husbands secondary time used for the physical care of other family members could be explained by the linear combination of the predictor variables in this equation.

## Age Span and the Employment Time of Wives

H7: Age span, the interaction, will be significant between the ages of the younger and older child for wives employment time, and as age span between children increases, the employment time worked by wives will decrease.

Wives employment time was regressed on the age of the younger child, age of the older child and the interaction between the ages of the children (age span) in two-parent, two child families. Only the age of the older child (.05 level) was significantly related to the employment time of wives (Table 44). As the age of the older child increased by one year, the employment time of wives increased .875 minutes per day.

Age span was not significant but the coefficient was in a negative direction. The coefficient of determination ($R^2$) obtained in the model was statistically significant at the .0001 level. The linear combination of the predictor variables explained 5.9% of the variance in wives employment time in this sample. Because age span was not significant to the variation in employment time of wives, the hypothesis was not supported.

## Patterns of Interaction

Plotting of the interactions between the age of the younger and older child revealed five patterns of wives' and husbands' time use. The variables and the interaction of each pattern were consistently related to the particular time use of wives and husbands within the pattern. The signs of the coefficients of age of the younger child, age of the older child, and interaction were the same in each pattern.

TABLE 44.

Regression Results of Employment Time of Wives on Age of the Younger and Older Child and Age Span

| Independent Variables | Wives' Employment Time | |
|---|---|---|
| | Regression Coefficient* | T Value |
| AGEYC (A) | 0.875<br>(0.504) | 1.74 |
| AGEOC (B) | 0.586<br>(0.290) | 2.02* |
| AGESP (AxB) | -0.34<br>(0.30) | -1.14 |
| Constant | 12.672 | |
| R2 | .059 | |
| ETW Means | 20.550 | |

* Standard errors are shown in parentheses
* Indicates significance at a level of .05

In the first pattern of time use, the coefficients were negative for the age of the younger child, negative or non-significant for the age of the older child, and positive for the interaction. Wives used the greatest amounts of time for activities of this pattern when the age of the younger child was very young, and the age of the older child increased. As the age of the younger child approached school age, and the age of th older child increased, the amount of time wives used for these activities leveled off, or remained about the same. As the age of the younger child increased still further, and the age of the older child increased, wives used increasing amounts of time for these activities. Wives' time used for total work, household work, and physical care of other family members followed this pattern. With the same conditions, husbands time use for physical care of other family members followed this pattern. Both wives' and husbands' secondary time for physical care of other family members followed this pattern.

The coefficients of the second pattern resembled the first pattern. When the age of the younger child was very young, and the age of the older child increased, husbands used the greatest amounts of time for household work and non-physical of other family members. This pattern of time use differed from the first in that there was no leveling off or reverse in time use as the age of the

younger child increased and the age of the older child increased. Change seemed to be in the substantial amounts of time used by husbands for these activities, which decreased with the increase in age of the older child at each age of the younger child.

The characteristics of the third pattern was the reverse of the first pattern. In the third pattern of time use, the coefficients were positive for the age of the younger child, positive or non-significant for the age of the older child, and negative for the interaction. Wives used the least amounts of time for the activities of this pattern when the age of the younger child was very young, and the age of the older child increased. As the age of the younger child approached school age, and the age of th older child increased, the amount of time wives used for these activities leveled off, or remained about the same. As the age of the younger child increased still further, and the age of the older child increased, wives used decreasing amounts of time for these activities. Wives' time used for paid work and volunteer work followed this pattern.

The coefficients of the fourth pattern resembled those of the third pattern. When the age of the younger child was very young, and the age of the older child increased, husbands used the least amounts of time for social/recreational activities. This pattern of time use

differed from the third in that there was no leveling off or reverse in time use as the age of the younger child increased and the age of the older child increased. Change seemed to be in the substantial amounts of time used by husbands for these activities, which decreased with the increase in age of the older child at each age of the younger child.

In the fifth pattern of time use, the coefficients were negative for the age of the younger child, negative or non-significant for the age of the older child, and negative for the interaction. When the age of the younger child was very young, and the age of the older child increased, wives used increasing amounts of time at each age of the younger child for other work. As the age of the younger child approached school age, and the age of the older child increased, the amount of time wives use for these activities leveled off, or remained about the same. As the age of the younger child increased still further, and the age of the older child increased, wives used decreasing amounts of time for other work.

## Summary

In this chapter, the relationship of age span, the interaction between the age of the younger child and the age of the older child, to time use of wives and husbands in two-parent, two-child families was determined. The age

spans between children in this study for about 75% of the families were one to four years for all ages. Age span explained significant differences in household work time for both wives and husbands. Of the 10 activities classified as those that contributed to household work time, age of the younger child, age of the older child and age span were responsible for 49% of the variation in the time that wives use for giving physical care to other members of the family. The same predictors were responsible for nearly 16% of the variation in the time that husbands give to the physical care of other family members. Adding six selected demographic and resource variables, age of the wife, educational level of the wife, employment time of the wife, annual family income, number of autos, and area of residence, to the household work time model more than doubled the coefficient of determination from 13% to 28% for wives' time used for household work. Apparently, 72% of wives' household time is determined by factors other than ones entered in the regression analysis of this study. No improvement was evident in the same model for husbands. Adding these six selected demographic and resource variables did little to increase the coefficient of determination (49% to 51%) in the prediction model for wives' physical care time but they did not increase the prediction ability of the model for husbands' physical care time.

Travel time was used by wives and husbands for going to and coming from paid work, social and recreational activities and non-physical care activities. Regressing travel time on the total set of independent variables revealed that age span was not significantly related to travel time. Secondary time use for non-physical care exceeded wives' primary-travel time by three times and husbands' primary travel time by two times for non-physical care of other family members. Employment time of wives was regressed on age of the younger child, age of the older child and age span. Age span was negative but not significantly related to employment time of wives.

Plotting of the interactions between the age of the younger and older child revealed five patterns of wives' and husbands' time use. Time use seemed to be the greatest when the ages of the children were very young for activities that were related to the care of children, and, at least, decrease as the ages of the children increased. Time use for activities not related to children seemed to use the least amounts of time when the children were very young, and then, at least, increase as the ages of the children increased. The signs of the coefficients of age of the younger child, age of the older child, and interaction were the same in each pattern.

# CHAPTER V

# SUMMARY, CONCLUSIONS AND IMPLICATIONS, AND RECOMMENDATIONS

## Summary

This study was an examination of age span between children and its relationship to the time use of wives and husbands in two-parent, two-child families. The specific objectives were to compare similarities and differences of wives' time use and husbands' time use in regard to age span and to ascertain whether age span was significantly responsible for parents' use of time. Age span was determined by entering the age of the younger child and the age of the older child as independent variables in multiple regression equations and regressing a particular amount of time used by either wives or husbands on the age variables and the interaction between them. The interaction between the ages was defined as age span, the difference between and the control for the ages of the younger and older child in two-parent, two-child families. All initial analyses determined the significance of the age of the younger child and age of the older child as well as age span, the interaction.

The data were obtained from the USDA/SEA North-eastern Regional Project NE 113, An Interstate Urban/Rural Comparison of Families. Data were collected from 2100 families in 11 states during 1977-78. This study

researched time use of 1,983 families or smaller numbers of families if not all families reported all of the data. Families were excluded if: (1) homemakers were male and spouses were female; (2) ages of wives or husbands were coded as zero or 99; (3) ages of older children were coded as younger than that of the younger child; (4) ages of either the younger or older child were coded beyond the scope of the study, and (5) husbands were unemployed.

The average age of wives was 32.4 years and average age of husbands was 34.8 years. About 40% of the wives and 30% of the husbands had completed high school, 19% of wives and 22% of husbands had the bachelor's degree and, of these moderately young parents, seven wives and 122 husbands had advanced degrees. Of the families who reported their income, 50% had incomes between $10,000 and $20,000; 23% had incomes of $25,000 or above. Over 65% of the families in this study owned and used two automobiles for family activities. There were 50.1% living in a rural area as opposed to 49.9% living in an urban area.

Over half the children in the study had a sibling within an age span of two or three years. Fewer than 12% of the families had more than five years between the ages of their children. Nearly 58% of all wives were full time homemakers, 18% worked part-time, and 24% were full time employed.

Husbands' mean total work time, a combination of time used for household work and paid work, exceeded wives' mean total work time at all age differences increments except when nine years separated the ages of the younger and older child. The pattern of husbands' mean household work time approximated wives' mean paid work time and the pattern of wives' mean household work time approximated husbands' mean paid work at similar age differences. Age span was a significant factor in explaining wives' total work time but was not significant for husbands' total work time.

Time was divided into household work, other work, leisure, and personal maintenance time classifications. The age span interaction was a significant factor in explaining wives' and husbands' household work time. Both wives and husbands used the most time for household work when the age of the younger child was very young and the age of the older child was close to that age of the younger child. Wives' time use for household work leveled off when the age of the younger child approached school age, and when the age of the younger child increased further, wives used increasing amounts of time with increases of the age of the older child. Husbands' time use for household work continued to decrease with increases in the age of the older child but substantial amounts of time decreased with increases in the age of the

older child at each progressing age of the younger child. Age span between children along with age of the younger child and age of the older child explained 13.3% of wives' household work time and 2.5% of husbands' household work time.

Age span, the interaction, was a significant factor in explaining wives' but not husbands' other work time. Age span between children along with age of the younger child and age of the older child explained 7.6% of wives' other work time. Age span was not a significant factor in explaining wives' or husbands' leisure time or personal maintenance time.

Eight demographic and resource variables were analyzed for multicollinearity. Age of husbands and age of wives, and educational level of husbands and educational level of wives exceeded an acceptable level of intercorrelation to be independent predictors. Therefore, age of husbands and educational level of husbands were dropped from the list of selected variables added to the regression.

Six selected demographic and resource variables were added to the age of the younger child, age of the older child and the interaction in a regression model to determine whether they would improve the $R^2$ and if so, to what extent. Employment of wives and age of wives were significant for wives' household work time in addition to

age of the younger child, age of the older child and age span. The additional six variables increased the $R^2$ from 13.3% to 27.7% for wives' household work time. The $R^2$ was increased from 2.6% to 5.9% for husbands' household work time with the added variables.

Employment of wives and number of automobiles, were significant for wives' other work time in addition to age of the younger child and age span. The additional six variables increased the $R^2$ from 7.6% to 34.9%. Age of wives, was significant to husbands' other work time. Employment of wives was significant for wives' leisure time. Employment of wives and number of automobiles were significant to wives' personal maintenance time. There were no variables used in the husbands' personal maintenance regression that indicated significance to that particular time use.

To gain an increased understanding of what activities were influenced by age span between children, each component activity of the four time classifications for both wives and husbands were regressed on age of the younger child, age of the older child and their interaction. Of the 20 models for household time, six showed age span to be significant. Age span was related to wives' time used for maintenance of the house, yard, car and pets; house cleaning; and for physical care for other members of the family. Age span was related to

husbands' time for both physical care and non-physical care of other members of the family and for management activities. The only activity where age span was related for both wives and husbands was physical care of other family members. Both wives' and husbands' time use for physical care of other family members followed the same pattern as wives' time use for household work.

Of the six models proposed for other work time, two showed age span to be significant. Age span was significantly related to wives' paid work and volunteer work time. The pattern of time use for these work activities were opposite to the pattern for wives' household work and physical care of other family members. When the age of the younger child was very young and the age of the older child increased, wives used the least amount of time for paid work and volunteer work. As the age of the younger child approached school age, the amount of time used for these work activities leveled off; and as the age of the younger child increased still further, wives used decreasing amounts of time for paid and volunteer work with increases in the age of the older child. Age span was not significantly related to the time husbands spent in other work activities.

Four models were developed for leisure time and four for personal maintenance time. Of these, only one, husbands' social and recreational time, resulted in a

significant relationship to age span of the two children. The pattern of time used was opposite to husbands' time use for household work. Husbands used the least amount of time for social and recreational activities when the age of the younger child was very young and the age of the older child was close to the age of the younger child. Husbands' time use for social/recreational activities continued to increase with increases in the age of the older child but the substantial amounts of time decreased with increases in the age of the older child at each progressing age of the younger child. Age span was not significant for wives' social and recreational time, wives' or husbands' organizational participation time, wives' or husbands' personal care, and wives' or husbands' eating time.

The six selected demographic and resource variables were added to the activity regression models to determine whether they would improve the $R^2$ and if so, to what extent. Significant correlations were found between employment of wives and educational level of wives and wives' house cleaning time. The $R^2$ increased from .5% to 6% with the addition of the six selected variables for wives' house cleaning time. Employment of wives was found to be a significant variable for wives' time used for maintenance of house, yard, car, and pets in addition to

the age of the younger child. The $R^2$ for wives' time increased from 1.5% to 3%.

Employment of wives and annual family income, were significant to wives' physical care time. As employment time for wives increased and as family income went up, wives devoted less time to physical care of other family members. The $R^2$ increased from 49.1% to 51.0% with the addition of the six selected variables to the model for wives' physical care time. None of the six additional variables were significant for husbands' physical care time. The $R^2$ for this regression for husbands' physical care time was 15.2%, a decrease from the 15.6% value in the regression where age of the younger child, age of the older child, and the interaction term were the only independent variables.

Significant correlations were found between wives' non-physical care time of other family members and employment of wives, number of automobiles, and area of residence in addition to age of the younger child. The added variables were responsible for the increase in the $R^2$ of 8.1% to 14.5%. This regression was the only one in this study where area of residence was significant. When families lived in rural areas, wives spent 7.7 fewer minutes per day in non-physical care activities than did their urban counterparts. Age of wives and educational level of wives, in addition to age of the younger child

and age of the older child, added to the significance of husbands' non-physical care time. The $R^2$ for husbands' non-physical care time increased from 7.5% to 11.4%. When the six selected variables were added to husbands' management time, no added variable was significant. The $R^2$ did increase from .5% to 1.1%.

Employment of wives and annual family income were significantly related to wives paid work time in addition to age of the younger child. The $R^2$ increase, from 5.9% to 38.7% was the largest increase of the study. Employment of wives was the only added variable that was significantly related to wives' volunteer work time. The $R^2$ increased from 1.1% to 2.7%. Although the $R^2$ increased from 1.4% to 2.8% when the six selected variables were added to the social and recreational activity time for husbands, none were significantly related to the dependent variable.

Travel time was subtracted from the combination wives' and husbands' primary-travel time and analyzed. Wives used most of their travel time going to and coming from social and recreational activities, shopping, paid work, and non-physical care activities. Husbands used most of their travel time going to and coming from paid work, social and recreational activities, shopping, and non-physical care activities. Travel time was regressed on all of the demographic and resource variables for each

of the activity components of each of the wives' and husbands' classes of time, household work, other work, leisure, and personal maintenance. The independent variables were responsible for 11% of wives' travel time associated with paid work and 10.6% of husbands' travel time associated with house cleaning. Age span was not significant in any travel time regression model.

Wives used most of their secondary time for non-physical care activities, social and recreational activities, and shopping. Husbands used most of their secondary time for non-physical care activities, and social and recreational activities. Wives' secondary non-physical care time exceeded their primary-travel non-physical care time, threefold. Husbands used about twice as much secondary time in non-physical care as they did primary-travel time. Secondary time was then regressed on all of the demographic and resource variables for each of the activity components of each of the wives' and husbands' classes of time, household work, other work, leisure, and personal maintenance. The independent variables were responsible for 13.6% of wives' secondary time and 5% of husbands' secondary time associated with non-physical care. Age span was significant for both wives' and husbands' secondary time used for non-physical care. Age of the older child was significant to employment time for wives. Neither age span nor age of

the younger child was significant to the employment time of wives.

## Conclusions and Implications

The results of this investigation indicated that age span is significantly related to the time use of wives and husbands in this study. Differences do exist between wives' and husbands' time use and those differences are associated with various parental roles. Previous studies revealed the importance of the age of the younger and older child in determining time use in families. This study reveals that something more than the ages of the younger and older children, the interaction, designated as age span, influences the time use of wives and husbands. The very young ages of children were associated with the greatest amounts of time used by parents for child care. These findings were supported by previous research.

For activities where the most time was used with very young children by wives and husbands, age span showed decreases of time used as the age of the older child increased when the age of the younger child was very young; but as the age of the younger child approached school age these decreases leveled off, and as the age of the younger child increased even further, the pattern of time use reversed itself and increases of time were associated with increases in age of the older child. In

activities where the least time was used with very young children, this pattern reversed itself, and still other patterns of time use seemed to increase or decrease but in less substantial amounts of time as age of the younger child increased. These findings give support to the theory developed for this study that as age span increases so too will the variety of the children's developmental needs and tasks which will in turn expand the variety of demands on the roles of parents. The supposition is that as greater demands are put upon parents, they will reallocate their time to meet those demands. The variance associated with the age of the younger child, age of the older child, and the interaction between them was generally low. Adding six selected demographic and resource variables improved the coefficient of determination somewhat, however, the underlying outcome of the study was that many unexplored factors contribute to the time use of wives and husbands that were not included in this design. One notable difference was that age span consistently affected wives' time more than husbands' time. The predictability of time use for both wives and husbands was improved when four factors: age, educational level, and employment time of the wife and number of automobiles were considered, in addition to ages of children and age span. Family income

and area of residence showed little significance to time use in this study.

## Recommendations

Recommendations for future research are summarized as follows:

1. Research designs are needed that explore in greater depth, age span relationships to the employment of wives. Specifically, researching the participation of wives in the labor market and the consistency of their working when age span between children varys. The influence of buying child care services as opposed to full time homemakers that provide these services directly should be explored. Such research would be pertinent to economists concerned with labor trends of wives.

2. Further study is needed with large populations of families whose children's age differences are moderately large. In this study the percentage of the families with more than five years between their children dropped significantly. Generalizations based on small samples, need to be supported with further research using larger samples.

3. Research designs are needed to focus on age span and its relationship to children in what are generally considered atypical families such as blended families. Time use, centered on custody and child activity time in

blended families would be helpful when considering the time management in combination of parent and step-parent families and physical and non-physical care of children and step-children.

4. Further exploration of the relationship of other material resources to age span between children over time is needed to help families consider the best use of such resources as housing and net worth.

5. Further exploration of the relationship of age span between children to time use with adjustments in the dependent variables used in this study is justified. Specifically, area of residence could be omitted. Age and education of husbands, omitted to avoid multicollinearity, might better be included. The variables used in this study were better at explaining wives' time use than that of husbands. Other variables, directed toward husbands' time use, should be explored to increase our understanding of known variances of time use in families.

6. Existing studies report differing results related to ages of the children in families, future research should explore whether the interaction between ages of children could explain such differences.

Recommendations for education in family life and related areas:

Educators can use the information about the impact of age span in their educational classes. Such information

is particularly relevant in relation to family planning and decision making. The research reported here on two-parent, two child families could be viewed as a preliminary study on the spacing of child births in families. The idea of controlling when children are born into families is a rather new perception resulting from the acceptance and use of birth control devices in our society. To use birth control techniques in order to consciously space the birth of children to economize family resources, like time, is an even newer concept.

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# APPENDIX A

## NE-113 PROJECT OBJECTIVES

The three major objectives of the NE-113 North-eastern Regional Research Project, Family Time Use: An eleven-state urban/rural comparison, are described in the project data book as follows:

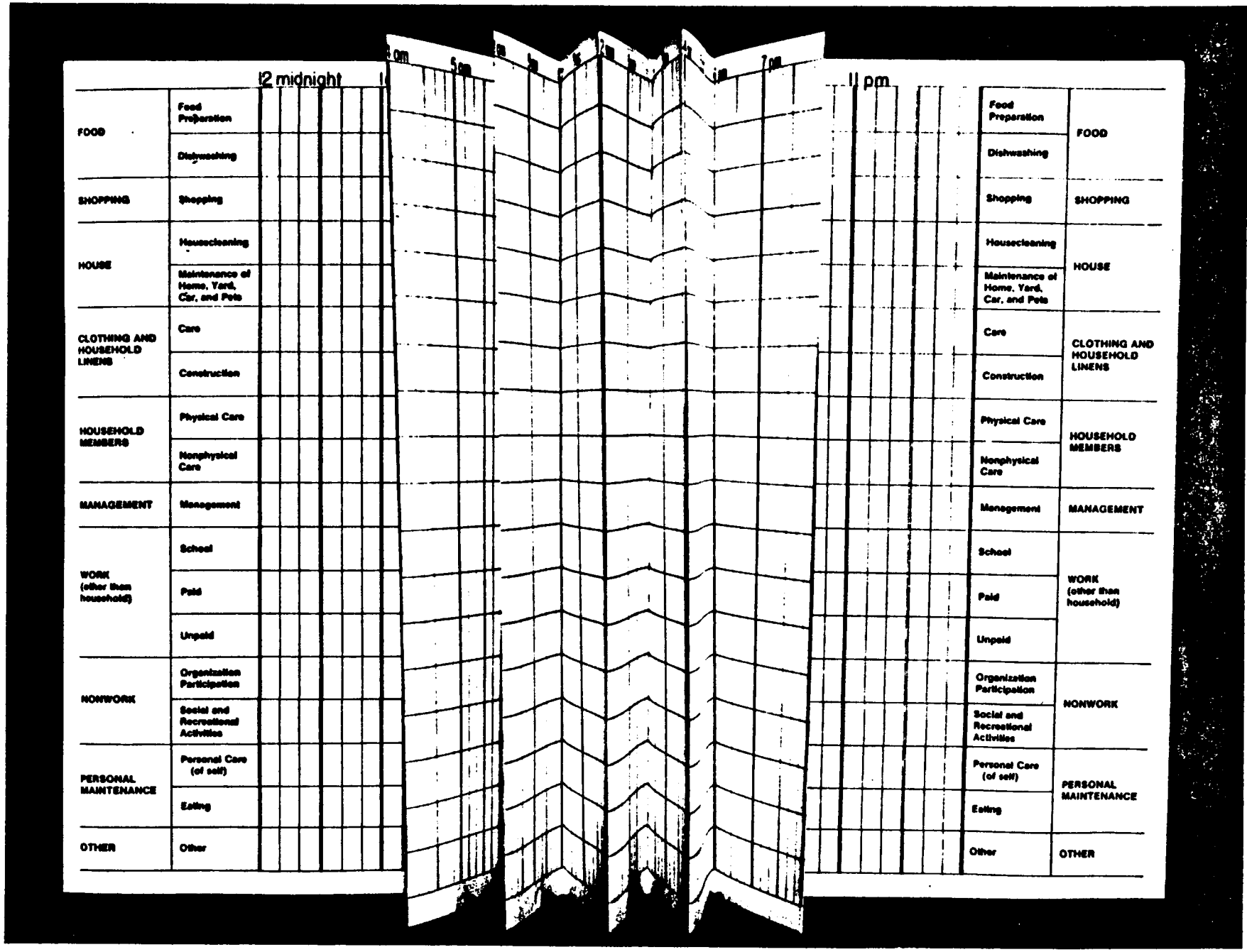
1. to establish a data bank for urban and rural families on use of time for household, paid, and volunteer work and for nonwork activities;

2. to compare similarities and differences in use of time in work (household, paid, and volunteer) among urban and rural populations in various geographic areas in the United States; and

3. to determine the extent of change in time use for household work, paid work, and volunteer work, and the total of these kinds of work over the past decade.

# APPENDIX B

## TIME USE CHART


12 midnight
11 pm
FOOD
Food Preparation
Dishwashing
SHOPPING
Shopping
HOUSE
Housecleaning
Maintenance of Home, Yard, Car, and Pets
CLOTHING AND HOUSEHOLD LINENS
Care
Construction
HOUSEHOLD MEMBERS
Physical Care
Nonphysical Care
MANAGEMENT
Management
WORK (other than household)
School
Paid
Unpaid
NONWORK
Organization Participation
Social and Recreational Activities
PERSONAL MAINTENANCE
Personal Care (of self)
Eating
OTHER
Other

# APPENDIX C

## FAMILY CONTACT RECORD

Sampling Code

Household Code

FAMILY TIME USE: AN INTERSTATE RURAL/URBAN COMPARISON

Name _____ Telephone _____

Address _____ rural/ farm _____
(number) (street) nonfarm _____

urban/suburban _____

_____
(city) (state) (zip code)

How many children under 18 are living in your home? _____
CONTINUE INTERVIEW IF ONLY 2 CHILDREN

How many persons 18 and over are living in your home? _____
CONTINUE INTERVIEW IF THERE ARE ONLY 2 ADULTS

Who is primarily responsible for the operation of your household? _____
We will call this person "Homemaker". What is the birthdate of the homemaker?
INTERVIEWER FILL IN HOMEMAKER SPACE BELOW -- LISTING MONTH, DATE AND YEAR OF BIRTH

Who is the adult in the household? _____
What is his/her birthdate? CONTINUE INTERVIEW IF A TWO-PARENT HOUSEHOLD

Starting with the oldest child under 18 living at home, (Child 1) please tell me for each child if it is a boy or girl and the child's birthdate. LIST IN BOX BELOW

| | FAMILY MEMBER | SEX | BIRTHDATE (mo., date, year) | AGE | CODE |
|---|---|---|---|---|---|
| ADULT | Homemaker | m f | | | H |
| ADULT | Spouse | m f | | | S |
| | | m f | | | |
| CHILD | 1 | m f | | | |
| CHILD | 2 | m f | | | |
| | | m f | | | |
| | | m f | | | |

INTERVIEWER: CODE AGE OF EACH CHILD USING CODE FROM CHART BELOW AND MAKE CERTAIN NUMBER OF ADULTS AND CODED AGE OF YOUNGEST CHILD FITS SAMPLE CODE BEFORE ARRANGING FOR INTERVIEW.

Code for age of children

1 = under 1 year
2 = 1 year
3 = 2-5 years
4 = 6-11 years
5 = 12-17 years

The sample code is _____.

Records should be for days _____ and _____.

Sampling Code _____

Letter mailed _____
(date)

Household Code _____

RECORD OF CALLS

| Date | Day of the week | Time | This call was made: daytime | evening | weekend |
|---|---|---|---|---|---|
| 1 | | am pm | | | |
| 2 | | am pm | | | |
| 3 | | am pm | | | |
| 4 | | am pm | | | |

NONINTERVIEW REASON

_____ does not fit sample
_____ no one at home after 4 calls
_____ refused
_____ vacant
_____ moved out of sampling area
_____ other _____

Interview arranged for:

Day 1 _____ Day 2 _____
Date _____ Date _____
Time _____ Time _____

| | Date Interview Taken | By Whom | Data reported for: day of week | and date | Time Interview Began | Time Interview Ended |
|---|---|---|---|---|---|---|
| First day | | | | | | |
| Second day | | | | | | |

Structure is:

_____ a detached single family house
_____ two family house
_____ row house (3 or more units)
_____ a building with 3 or 4 apartments
_____ a building with 5 or more apartments
_____ mobile home
_____ other _____

Apartment is located on the _____ floor

Building has an elevator Yes _____ No _____

Respondent received payment _____ _____
(date) Social Security Number

Interviewer's Comments _____

# APPENDIX D

## SURVEY QUESTIONNIARE

HOUSEHOLD CODE: DO NOT WRITE IN THIS SPACE

Would you give me information about the meals prepared at home yesterday, whether they were eaten at home or elsewhere. If the total time for preparing the meal or snack was less than 3 minutes, do not include it. Start with the first meal of the day.

1. Recording Day I Recording Day II

2. What meal was it? morning noon evening snack packed lunch other

3. How many persons were served? 1 2 3 4 5 6 7 8 9+

4. Time preparation started :

| 5. Number of items prepared | 6. What were the items prepared or eaten at this meal? | 7. How much preparation was required for each item? None / Very limited / Simple / Moderate / Extensive | 8. What kind of cooking was done? No cooking done / Top of range / Oven / Broiler / Microwave / Charcoal / Small Appliance |
|---|---|---|---|
| | | | |

9. Recording Day I Recording Day II

10. What meal was it? morning noon evening snack packed lunch other

11. How many persons were served? 1 2 3 4 5 6 7 8 9+

12. Time preparation started :

| 13. Number of items prepared | 14. What were the items prepared or eaten at this meal? | 15. How much preparation was required for each item? None / Very limited / Simple / Moderate / Extensive | 16. What kind of cooking was done? No cooking done / Top of range / Oven / Broiler / Microwave / Charcoal / Small Appliance |
|---|---|---|---|
| | | | |

I

HOUSEHOLD CODE:

1. Yesterday did you or any household member eat a meal away from home that had NOT been prepared at home?
YES NO

2. IF YES, how many times were meals eaten away? 1 2 3 4 5 6 7 8 DK

(USE SEPARATE COLUMNS FOR EACH MEAL EATEN, WHETHER BY ONE OR MORE THAN ONE FAMILY MEMBER)

| | | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|---|---|---|---|---|---|---|---|---|---|---|
| 3. | Recording Day I<br>Recording Day II | 1<br>2 | 1<br>2 | 1<br>2 | 1<br>2 | 1<br>2 | 1<br>2 | 1<br>2 | 1<br>2 | 1<br>2 |
| 4. Starting with the first meal eaten away was it? | a morning meal (1)<br>a noon meal (2)<br>an evening meal (3)<br>a snack (4) | 1<br>2<br>3<br>4 | 1<br>2<br>3<br>4 | 1<br>2<br>3<br>4 | 1<br>2<br>3<br>4 | 1<br>2<br>3<br>4 | 1<br>2<br>3<br>4 | 1<br>2<br>3<br>4 | 1<br>2<br>3<br>4 | 1<br>2<br>3<br>4 |
| 5. How many household members ate this meal? | | 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 00 | | | | | | | | |
| 6. From which of the following was this food obtained? | fast food (1)<br>school cafeteria (2)<br>industrial cafeteria (3)<br>private cafeteria (4)<br>a restaurant (5)<br>private club or resort (6)<br>social gathering (7)<br>friend's or relative's house (8)<br>D.K. _____ (9) | 1 2 3 4 5 6 7 8 9 | 1 2 3 4 5 6 7 8 9 | 1 2 3 4 5 6 7 8 9 | 1 2 3 4 5 6 7 8 9 | 1 2 3 4 5 6 7 8 9 | 1 2 3 4 5 6 7 8 9 | 1 2 3 4 5 6 7 8 9 | 1 2 3 4 5 6 7 8 9 | 1 2 3 4 5 6 7 8 9 |
| 7. What was the approximate cost including the tip, of this meal for all household members who ate it? | | | | | | | | | | |

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1. 2. 3. 4.
5. 6. 7. 8.
9.

HOUSEHOLD CODE:

1. Do you own or rent your home?
   Own or buying  Rent  Other _____

2. About what year was your home built? _____

3. Is your household responsible for care of the yard? yes no
   IF YES, what is the approximate size of the lot that you take care of? _____

4. How many rooms are in your home? (DO NOT COUNT BATHROOMS OR HALLS) 0 1 2 3 4 5 6 7 8 9+

5. How many full bathrooms do you have? 0 1 2 3 4+ 6. How many partial bathrooms do you have? 0 1 2 3 4+

7. What is the main source of heat for your home? Electric Gas Oil Coal Wood Other D.K.

8. What is the main source of heat for cooking? Electric Gas Oil Coal Wood Other

9. How many motor vehicles do you have that are used for transportation by members of your household? 0 1 2 3 4 5 6 7+

10. How many drivers are in your household? 0 1 2 3 4 5 6 7+ 11. Do you have any household pets? yes no

12. What is approximate size of your refrigerator(s)?

| a. Refrigerator 1 | b. Refrigerator 2 |
|---|---|
| small (less than 7 cu. ft.) | small (less than 7. cu. ft.) |
| medium (7-12 cu. ft.) | medium (7-12 cu. ft.) |
| large (12.1-19 cu. ft.) | large (12.1-19 cu. ft.) |
| extra large (19.1+ cu. ft.) | extra large (19.1+ cu. ft.) |
| not applicable | not applicable |

13. Is your refrigerator(s) unit:

| a. Refrigerator 1 | b. Refrigerator 2 |
|---|---|
| 1 door model? | 1 door model? |
| 2 door model? | 2 door model? |
| not applicable | not applicable |

14. Is your refrigerator/freezer a frost-free model?

| a. Refrigerator 1 | b. Refrigerator 2 |
|---|---|
| Yes, refrigerator only | Yes, refrigerator only |
| Yes, both freezer/ refrigerator | Yes, both freezer/ refrigerator |
| Not applicable | Not applicable |
| No | No |

15. Do you have a separate freezer(s) (free-standing)? yes no

16. IF YES, is your freezer space
   small (less than 12 cu. ft.)?
   medium (12-19 cu. ft.)?
   large (19.1+ cu. ft.)?
   not applicable

17. IF 1 OR MORE FREEZERS, ASK:
   How many of your free-standing freezers are frost-free? 0 1 2 3 4

18. Is your oven  continuous cleaning?  self cleaning?  neither?

---

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YEAR

SQ FEET

HOUSEHOLD CODE:

1. On how many of the last seven days were the following done by a household member for your family:

   shopping for items or services priced over $100? 0 1 2 3 4 5 6 7
   special housecleaning? 0 1 2 3 4 5 6 7
   painting, redecorating? 0 1 2 3 4 5 6 7
   washing or waxing motor vehicles? 0 1 2 3 4 5 6 7
   repairing appliances? 0 1 2 3 4 5 6 7
   working in the yard, garden, including harvesting? 0 1 2 3 4 5 6 7
   working on outside areas of the house or property? 0 1 2 3 4 5 6 7

2. On how many of the last seven days was any household member ill? 0 1 2 3 4 5 6 7

3. On how many of the last seven days did any household member chauffeur another household member:

   to and/or from doctor, dentist or barber? 0 1 2 3 4 5 6 7
   to and/or from paid work? 0 1 2 3 4 5 6 7
   to and/or from school or classes? 0 1 2 3 4 5 6 7
   to and/or from a social function? 0 1 2 3 4 5 6 7
   to and/or from an organization, including church? 0 1 2 3 4 5 6 7
   to and/or from an educational or athletic activity? 0 1 2 3 4 5 6 7
   to and/or from a store? 0 1 2 3 4 5 6 7

4. On how many of the last seven days were the following modes of transportation used by one or more household members:

   family car? 0 1 2 3 4 5 6 7
   company car? 0 1 2 3 4 5 6 7
   school bus? 0 1 2 3 4 5 6 7
   car pool? 0 1 2 3 4 5 6 7
   city bus? 0 1 2 3 4 5 6 7
   taxi? 0 1 2 3 4 5 6 7
   bicycle? 0 1 2 3 4 5 6 7
   other, ? _____ 0 1 2 3 4 5 6 7

5. In the last seven days, did you or any family member have someone from outside the household do any of the following:

| | YES | NO | NA | 6. How many hours did it take? | 7. How much did it cost? |
|---|---|---|---|---|---|
| take care of your children -- in your home? | | | | | |
| take care of your children -- in someone else's home? | | | | | |
| take care of your children -- in day care center? | | | | | |
| take care of other household member(s)? | | | | | |
| do housecleaning? | | | | | |
| do lawn or yard work? | | | | | |
| do painting, redecorating? | | | | | |
| service appliances? | | | | | |
| work on your motor vehicles? | | | | | |
| do house maintenance? | | | | | |
| other services? _____ | | | | | |

HOUSEHOLD CODE:

1. On how many of the last seven days were the following done by a household member for your family:

shopping for items or services priced over $100? 0 1 2 3 4 5 6 7 NA
special housecleaning? 0 1 2 3 4 5 6 7 NA
painting, redecorating? 0 1 2 3 4 5 6 7 NA
washing or waxing motor vehicles? 0 1 2 3 4 5 6 7 NA
repairing appliances? 0 1 2 3 4 5 6 7 NA
working in the yard, garden, including harvesting? 0 1 2 3 4 5 6 7 NA
working on outside areas of the house or property? 0 1 2 3 4 5 6 7 NA

2. On how many of the last seven days was any household member ill? 0 1 2 3 4 5 6 7

3. On how many of the last seven days did any household member chauffeur another household member:

to and/or from doctor, dentist or barber? 0 1 2 3 4 5 6 7
to and/or from paid work? 0 1 2 3 4 5 6 7
to and/or from school or classes? 0 1 2 3 4 5 6 7
to and/or from a social function? 0 1 2 3 4 5 6 7
to and/or from an organization, including church? 0 1 2 3 4 5 6 7
to and/or from an educational or athletic activity? 0 1 2 3 4 5 6 7
to and/or from a store? 0 1 2 3 4 5 6 7

4. On how many of the last seven days were the following modes of transportation used by one or more household members:

family car? 0 1 2 3 4 5 6 7
company car? 0 1 2 3 4 5 6 7
school bus? 0 1 2 3 4 5 6 7
car pool? 0 1 2 3 4 5 6 7
city bus? 0 1 2 3 4 5 6 7
taxi? 0 1 2 3 4 5 6 7
bicycle? 0 1 2 3 4 5 6 7
other, ? _____ 0 1 2 3 4 5 6 7

5. In the last seven days, did you or any family member have someone from outside the household do any of the following:

| | YES | NO | NA | 6. How many hours did it take? | 7. How much did it cost? |
|---|---|---|---|---|---|
| take care of your children -- in your home? | | | | | |
| take care of your children -- in someone else's home? | | | | | |
| take care of your children -- in day care center? | | | | | |
| take care of other household member(s)? | | | | | |
| do housecleaning? | | | | | |
| do lawn or yard work? | | | | | |
| do painting, redecorating? | | | | | |
| service appliances? | | | | | |
| work on your motor vehicles? | | | | | |
| do house maintenance? | | | | | |
| other services? _____ | | | | | |

I

HOUSEHOLD CODE:

1. How many of your children, 12-17 years of age, worked for pay last week? 0 1 2 3 4 5 NA

If none or NA, go to next page.

| | | CHILD I | CHILD II | CHILD III |
|---|---|---|---|---|
| 2. | What is the age and sex of the child? | M 12 13 14 F 15 16 17 | M 12 13 14 F 15 16 17 | M 12 13 14 F 15 16 17 |
| 3. | What kind of work did he/she do? | | | |
| 4. | How many hours did he/she work last week? | _____hrs | _____hrs | _____hrs |
| 5. | Approximately how much did he/she earn last week? | $_____ | $_____ | $_____ |

| | | CHILD IV | CHILD V | CHILD VI |
|---|---|---|---|---|
| 2a. | What is the age and sex of the child? | M 12 13 14 F 15 16 17 | M 12 13 14 F 15 16 17 | M 12 13 14 F 15 16 17 |
| 3a. | What kind of work did he/she do? | | | |
| 4a. | How many hours did he/she work last week? | _____hrs | _____hrs | _____hrs |
| 5a. | Approximately how much did he/she earn last week? | $_____ | $_____ | $_____ |

DO NOT WRITE BELOW THIS LINE--FOR OFFICE USE ONLY

WAGES

1.
2.
3.
4.

HOURS

1.
2.
3.
4.

WAGES

5.

HOURS

5.

WAGES

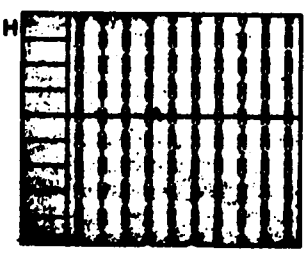
6.

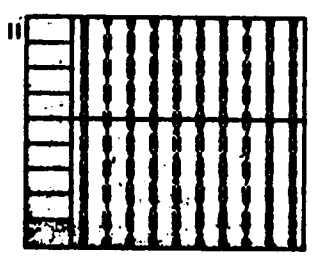
6.

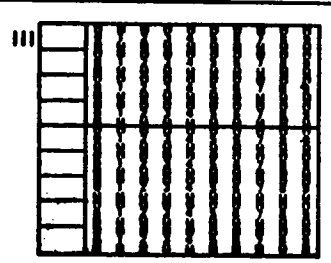
HOUSEHOLD CODE:

(FOR EACH ADULT ASK THE FOLLOWING QUESTIONS)

| | HOMEMAKER | ADULT II | ADULT III |
|---|---|---|---|
| 1. What was the highest grade in school you completed? (IF DEGREE MENTIONED NOTE) | | | |
| 2. Last week were you employed? FOR EACH EMPLOYED ASK: | | | |
| 3. Was this for pay? (CODE 1)<br>For pay, but not at work, example, illness or vacation? (CODE 2)<br>Without pay, example, family farm or business? (CODE 3) | | | |
| 4. What kind of work did you do? (IF MORE THAN 1 JOB, ASK FOLLOWING QUESTIONS ABOUT THE FIRST OR PRIMARY JOB | | | |
| 5. What kind of industry or business were you employed in? | | | |
| 6. How many hours did you work for pay last week? H — II — III | | | |
| 7. What is the usual number of hours you work for pay a week? | | | |
| 8. Are you:<br>an hourly wage earner? (CODE 1)<br>salaried? (CODE 2)<br>on commission? (CODE 3)<br>self-employed? (CODE 4)<br>other?_____ (CODE 5)<br>GO TO Q. 9<br>GO TO Q. 10 | | | |
| 9. What is your hourly wage rate? | $_____ | $_____ | $_____ |
| 10. If you were salaried, self-employed, or on commission, what amount did you earn last week? (USE INCOME BEFORE DEDUCTIONS) | $_____ | $_____ | $_____ |



HOUSEHOLD CODE:

| | HOMEMAKER | ADULT II | ADULT III |
|---|---|---|---|
| 1. Did you have more than one paid job last week? (IF NO, GO TO Q 9) | | | |
| 2. (IF YES,) What kind of work was this? | | | |
| 3. What industry or business was it in? | | | |
| 4. How many hours did you work for pay last week on this job? | | | |
| 5. What is the usual number of hours you work for pay per week on this job? | | | |
| 6. For this second job are you: an hourly wage earner (CODE 1) / salaried? (CODE 2) / on commission? (CODE 3) / self-employed? (CODE 4) / other?_____ (CODE 5) — GO TO Q. 7 / GO TO Q. 8 | | | |
| 7. What is your hourly wage for your second job? | $_____ | $_____ | $_____ |
| 8. If you were salaried, self-employed, or on commission for a second job, what amount did you earn last week? (USE INCOME BEFORE DEDUCTIONS) | $_____ | $_____ | $_____ |

| | | | |
|---|---|---|---|
| 9. If you worked without pay in family business or farm, how many hours did you work last week? | | | |

10. Which category on this card represents the total income before taxes for your household in the past twelve months? This includes wages and salaries, net income from business or farm, pensions, dividends, interest, rent, Social Security payments and any other money received by members of your household?

BLOCK OUT ONE LETTER ONLY

HOUSEHOLD CODE:_____

Were there unusual weather conditions that affected household members' time use?

on the 1st day _____

_____

on the 2nd day _____

_____

Were there any unusual physical conditions or situations regarding your residence that affected household members' time use?

on the 1st day _____

_____

on the 2nd day _____

_____

Were there any unusual activities of your family or household members that affected household members' time use?

on the 1st day _____

_____

on the 2nd day _____

_____

Are there any special situations in your home, for example: handicapped or chronically ill family members, that affected household members' time use?

_____

_____

_____

_____

Are there special ways your household members "save" time on household activities? _____

_____

_____

_____

# APPENDIX E

## ACTIVITY DEFINITIONS AND EXAMPLES

# DEFINITION OF ACTIVITIES OF HOUSEHOLD MEMBERS IN THE NE-113 TIME USE DATA

## FOOD

1. Food preparation

All tasks relating to the preparation of food for meals, snacks, and future use. Include time spent setting the table and serving the food. Examples:

- Baby formula and food preparation
- Barbequing
- Canning
- Freezing food
- Jam and jelly making
- Outdoor cooking
- Refreshments, making and serving
- Serving food
- Setting table

2. Dishwashing

In addition to washing and drying dishes, loading and unloading dishwasher or dish drainer. Include after-meal cleanup of table, leftovers, kitchen equipment and refuse. Examples:

- Cleanup of table, leftovers, refuse
- Leftovers, putting away after meal
- Loading and unloading dishwasher or drainer
- Putting away kitchen equipment
- Washing and drying dishes

## SHOPPING

3. Shopping

All activities related to shopping for food, supplies, equipment, furnishings, clothing, durables, and services, whether or not a purchase was made (by telephone, by mail at home, or at the store). Also include:

- Comparison shopping
- Hiring services (cleaning, repair, maintenance, other)
- Mail order purchasing
- Mail or packages, getting or sending
- Picking vegetables, fruits to purchase
- Putting purchases away
- Rewrapping, labeling food for storage
- Telephone, shopping by
- Window shopping, no purchase made

## HOUSE

4. Housecleaning

Any regular or periodic cleaning of house and appliances. Examples:

Cleaning the oven
Defrosting and cleaning refrigerator or freezer
Dusting
Making or changing beds
Mopping
Putting rooms in order
Shampooing rug
Sweeping
Washing windows or walls
Waxing

5. Maintenance of Home, Yard, Car and Pets

Any repair and upkeep of home, appliances, and furnishings. Examples:

Care of sidewalks, driveways, patios, porches
Carpentry
Chopping wood
Feeding and care of household pets
Flower arranging
Garage, care of
Garbage or trash, taking out
Kennel or veterinarian visits
Motor vehicle, taking to service station, car wash
Picking vegetables, fruits, flowers from garden
Rearranging furniture
Redecorating
Repairing equipment, plumbing, furniture
Storm windows or screens, care of
Tennis court, care of
Tool-shed care of
Wall papering
Watering and caring for house plants
Swimming pool maintenance
Changing oil, rotating tires and other maintenance and repair
Include: Daily and periodic care of outside areas
Include: Maintenance and care of family motor vehicles (car, truck, van, motor-cycle, snowmobile, boat appliances, and lawn equipment)
Include: Feeding and care of house-

hold pets.
Also include trips to kennel veterinarian

CLOTHING AND HOUSEHOLD LINENS

6. Care

Washing by machine at home or away from home.
Include: handwashing. Examples:

Care of shoes and other non-washable items
Collecting, sorting and preparing items to wash
Dyeing fabric
Folding clothes
Hand washing
Hanging up items, removing them from the line
Ironing and pressing, getting out equipment and sprinkling
Jewelry cleaning
Loading and unloading washer and dryer
Putting away cleaned items and equipment
Shoe polishing
Storage of clothing and textiles (seasonal)
Washing clothing by machine at home or away
Waterproofing leather or fabric

7. Construction

Include: Making alterations or mending. Include: Making clothing and household accessories (draperies, slip-covers, napkins, macrame, etc.)

If these activities are to make product for self, immediate family members or to give as gift, then include under Construction.

If the activity is primarily to produce product for sale, include time under Paid Work, not Construction.

If the activity is primarily as recreation rather than goal motivated, include time under Recreation, not Construction.
Examples:

Alterations to clothes, draperies
Crocheting (not for sale or hobby)
Jewelry making (not for sale or hobby)

Knitting (not for sale or hobby)
Sewing by hand
Macrame (not for sale or hobby)
Mending (not for hire)
Quilting (not for sale or hobby)
Sewing by machine (not for sale or hobby)
Weaving (not for sale or hobby)

HOUSEHOLD MEMBERS

8. Physical Care

All activities related to physical care of household members other than self.

The marking of shared activities has sometimes caused incorrect coding of individual's time. For example:

A. Physical care given to family members should be codes under Physical Care, but physical care of "self" should be under Personal Care of Self.

B. If an adult chauffeurs a child to the dentist, the adult's time is coded as Physical Care, but the child's time is coded as Personal Care.

C. If another family member goes along for the ride to the dentist (see example B), then his or her time would be coded as Social and Recreational Activities.

Examples:

Barber, Beautician, taking other family members
Bathing other family members
Doctor, dentist, taking other family members
Dressing other family members
Driving family members to doctor or barber
Feeding other family members
First aid or bedside care
Supervising child-brushing care, getting dressed

9. Nonphysical Care

All activities related to the social and educational development of household members. Examples:

Accompanying children to social and

educational events
Attending functions involving child
Driving children to school, or social events
Helping children with homework
Playing with children, giving them attention
Reading aloud to family members
Talking with family members
Teaching children

MANAGEMENT

10. Management

Making decisions and planning. Supervising and coordinating activities. Thinking about, discussing and investigating ideas. Checking plans as they are carried out. Thinking back to see how plans worked. Investigating and applying for any transaction that is related to financial govern-meetings assistance. Activities such as applying for college or for employment should be coded as management. Examples:

Assessing resources available
Bank statements, checking
Bank deposits, making
College, applying to
Figuring income taxes
Food stamps, applying or buying
Jobs, applying, seeking
Medical benefits
Paying bills
Receipts and expenses, recording
Social Security, applying or seeking information about
Unemployment
Welfare

WORK (OTHER THAN hOUSEHOLD)

11. School

This category includes school on any classes related to the present or future employment. Include time spent in preparation for each or the above.

Examples:

Classes, attending and preparing for
Homework
Library
Reading for school assignments
Typing or writing class assignments

12. Paid

Paid employment and work-related activities such as work brought home, professional and business. Paid

work for family farm or business, babysitting or paper route. Examples:

Baking items to sell
Family farm or business
Growing corps to sell
Jury duty
Military service training
Paid Employment
Professional business or union meetings
Sewing items to sell
Work brought home from paid employment

13. Unpaid

Work or service done either as a volunteer or as an unpaid worker for relatives, friends, family business, or farm, social, civic or community organization. Examples:

Baking donations for club sale
Canvassing for political candidate
Committee work for organizations
Sewing donations for club sale
Unpaid work for relatives, friends
Work or service done voluntarily

NONWORK

14. Organization Participation

Attending and participation in religiousactivities and services; civic and political organizations and other clubs ororganizations. Examples:

Civic or fraternal meetinga
Extracurricular school activities
Political club meetings
Religious activities or services

15. Social and Recreational Activities

Examples:

Boating
Cycling
Entertaining at home
Exercising
Going to movie, museum, concert
Jogging
Listening to music
Particapating in a sport, hobby
Playing cards, games,
Playing an instrument
Pleasure driving
Reading for pleasure
Sports events
Taking classes or lessons for fun
Talking with others by phone or in

person
Training animals
Visiting with friends or relatives
Walking
Watching television
Writing letters or cards to friends or relatives

PERSONAL MAINTENANCE

16. Personal Care (of self)

Examples:

Barber, beautician, appointments for self
Bathing self
Doctor, dentist, appointments for self
Dressing self
Meditation
Relaxing, loafing, resting
Sleeping

17. Eating

Eating any meal or shack, alone, with family or friends at home or away from home.

OTHER

18. Other

Any activity not classified in categories 1-17. Any time bloc for which you cannot recall, or do not wish to report.

# APPENDIX F

# STATISTICAL REGRESSION MODELS

## STATISTICAL REGRESSION MODELS

For H1:

$TWT_W = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOC$ (1)
$TWT_H = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOC$ (2)

where,

$TWT_W$ = Total work time for wives
$TWT_H$ = Total work time for husbands
AgYC = Age of the younger child
AgOC = Age of the older child
AgYC * AgOC = the interaction between and controlling for the ages or age span
$b_3$ = will be a positive significant coefficient

For H2:

$HHW_W = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOC$ (3)
$HHW_H = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOC$ (4)
$OTW_W = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOC$ (5)
$OTW_H = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOC$ (6)
$LT_W = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOC$ (7)
$LT_H = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOC$ (8)
$PMT_W = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOC$ (9)
$PMT_H = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOC$ (10)

where,

$HHW_W$ = Household work time for wives
$HHW_H$ = Household work time for husbands
$OWT_W$ = Other work time for wives
$OWT_H$ = Other work time for husbands
$LT_W$ = Leisure work time for wives
$LT_H$ = Leisure work time for husbands
$PMT_W$ = Personal Maintenance time for wives
$PMT_H$ = Personal Maintenance time for husbands
AgYC = Age of the younger child
AgOC = Age of the older child
AgYC * AgOC = the interaction between and controlling for the ages or age span
$b_3$ = will be a positive significant coefficient for models (3) and (4)
$b_3$ = will be a negative significant coefficient for models (5) and (6)
$b_3$ = will be a negative significant coefficient for models (7) and (8)
$b_3$ = will be a non-significant coefficient

for models (9) and (10)

For H3:

$$HHW_W = a + b_1\,AgYC + b_2\,AgOc + b_3\,AgYC * AgOC + b_4\,EmpW + b_5\,AgW + b_6\,AgH + b_7\,EdW + b_8\,EdH + b_9\,AFI + b_{10}\,NAu + b_{11}\,ArR \quad (11)$$

$$HHW_H = a + b_1\,AgYC + b_2\,AgOc + b_3\,AgYC * AgOC + b_4\,EmpW + b_5\,AgW + b_6\,AgH + b_7\,EdW + b_8\,EdH + b_9\,AFI + b_{10}\,NAu + b_{11}\,ArR \quad (12)$$

$$OWT_W = a + b_1\,AgYC + b_2\,AgOc + b_3\,AgYC * AgOC + b_4\,EmpW + b_5\,AgW + b_6\,AgH + b_7\,EdW + b_8\,EdH + b_9\,AFI + b_{10}\,NAu + b_{11}\,ArR \quad (13)$$

$$OWT_H = a + b_1\,AgYC + b_2\,AgOc + b_3\,AgYC * AgOC + b_4\,EmpW + b_5\,AgW + b_6\,AgH + b_7\,EdW + b_8\,EdH + b_9\,AFI + b_{10}\,NAu + b_{11}\,ArR \quad (14)$$

$$LT_W = a + b_1\,AgYC + b_2\,AgOc + b_3\,AgYC * AgOC + b_4\,EmpW + b_5\,AgW + b_6\,AgH + b_7\,EdW + b_8\,EdH + b_9\,AFI + b_{10}\,NAu + b_{11}\,ArR \quad (15)$$

$$LT_H = a + b_1\,AgYC + b_2\,AgOc + b_3\,AgYC * AgOC + b_4\,EmpW + b_5\,AgW + b_6\,AgH + b_7\,EdW + b_8\,EdH + b_9\,AFI + b_{10}\,NAu + b_{11}\,ArR \quad (16)$$

$$PMT_W = a + b_1\,AgYC + b_2\,AgOc + b_3\,AgYC * AgOC + b_4\,EmpW + b_5\,AgW + b_6\,AgH + b_7\,EdW + b_8\,EdH + b_9\,AFI + b_{10}\,NAu + b_{11}\,ArR \quad (17)$$

$$PMT_H = a + b_1\,AgYC + b_2\,AgOc + b_3\,AgYC * AgOC + b_4\,EmpW + b_5\,AgW + b_6\,AgH + b_7\,EdW + b_8\,EdH + b_9\,AFI + b_{10}\,NAu + b_{11}\,ArR \quad (18)$$

where,

$HHW_W$ = Household work time for wives
$HHW_H$ = Household work time for husbands
$OWT_W$ = Other work time for wives
$OWT_H$ = Other work time for husbands
$LT_W$ = Leisure work time for wives
$LT_H$ = Leisure work time for husbands
$PMT_W$ = Personal Maintenance time for wives
$PMT_H$ = Personal Maintenance time for husbands
AgYC = Age of the younger child
AgOC = Age of the older child
AgYC * AgOC = the interaction between and controlling for the ages or age span

EmpW = Employment status of the wife
AgW = Age of wife
AgH = Age of husband
EdW = Educational level of wife
EdH = Educational level of husband
AFI = Annual Family Income
NAu = Number of automobiles
ArR = Area of residence

For model (11)

$b_3$, $b_5$, $b_6$, and $b_{10}$ will be positively related;
$b_1$, $b_2$, $b_4$, and $b_9$ will be negatively related; and
$b_7$, $b_8$ and $b_{11}$ will no effect on household work time for wives

For model (12)

$b_1$, $b_2$, $b_3$, $b_5$, $b_6$, will be positively related;
$b_9$, and $b_{10}$, will be negatively related; and
$b_4$, $b_7$, $b_8$, and $b_{11}$ will have no effect on household work time for husbands

For model (13)

$b_1$, $b_2$, $b_4$, $b_7$, and $b_8$, will be positively related;
$b_3$, $b_5$, and $b_6$, will be negatively related; and
$b_9$, $b_{10}$, and $b_{11}$ will have no effect on other work time for wives

For model (14)

$b_5$, $b_6$, and $b_{10}$ will be positively related;
$b_7$, $b_8$, and $b_9$ will be negatively related; and
$b_1$, $b_2$, $b_3$, $b_4$, and $b_{11}$ will have no effect on other work time for husbands

For model (15)

$b_1$, $b_2$, $b_9$, and $b_{10}$ will be positively related;
$b_3$, $b_4$, $b_7$ and $b_8$ will be negatively related; and
$b_5$, $b_6$ and $b_{11}$ will have no effect on leisure time for wives

For model (16)

$b_1$, $b_2$, $b_5$, $b_6$, $b_9$, and $b_{10}$ will be positively related;
$b_3$, and $b_{10}$, will be negatively related; and
$b_4$, $b_7$, $b_8$, and $b_{11}$ will have no effect on leisure time for husbands

For model (17)

$b_3$, and $b_{10}$ will be negatively related; and $b_1$, $b_2$, $b_4$, $b_5$, $b_6$, $b_7$, $b_8$, $b_9$, and $b_{11}$ will have no effect on personal maintenance time for wives

For model (18)

$b_1$, $b_2$, $b_3$, $b_4$, $b_5$, $b_6$, $b_7$, $b_8$, $b_9$, $b_{10}$ and $b_{11}$ will have no effect on personal maintenance time for husbands

For H4:

The models for the expected positive correlations for $b_3$ are presented.

$FPrp_W = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc$ (19)
$DWsh_W = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc$ (20)
$Shop_W = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc$ (21)
$Shop_H = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc$ (22)
$HYCP_W = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc$ (23)
$PhCO_W = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc$ (24)
$PhCO_H = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc$ (25)
$NPCO_W = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc$ (26)
$NPCO_H = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc$ (27)

The models for the expected negative correlations for $b_3$ are presented.

$PdWk_W = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc$ (28)
$VoWk_W = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc$ (29)
$VoWk_H = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc$ (30)
$SoRc_W = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc$ (31)
$SoRc_H = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc$ (32)

The models for the correlations where age span is expected to have no effect are presented.

$FPrp_H = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc$ (33)
$DWsh_H = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc$ (34)
$HsCl_W = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc$ (35)
$HsCl_H = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc$ (36)
$HYCP_H = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc$ (37)
$Laun_W = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc$ (38)
$Laun_H = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc$ (39)
$SewC_W = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc$ (40)
$SewC_H = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc$ (41)
$Mngt_W = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc$ (42)
$Mngt_H = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc$ (43)
$PdWk_H = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc$ (44)

$ScWk_W = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc$ (45)
$ScWk_H = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc$ (46)
$OrgP_W = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc$ (47)
$OrgP_H = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc$ (48)
$Self_W = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc$ (49)
$Self_H = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc$ (50)
$Eatg_W = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc$ (51)
$Eatg_H = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc$ (52)

where,

$FPrp_W$ = Food preparation time for wives
$DWsh_W$ = Dish washing time for wives
$Shop_W$ = Shopping time for wives
$Shop_H$ = Shopping time for husbands
$HYCP_W$ = Maintenance time for home, yard, car, and pets by wives
$PhCO_W$ = Physical care time for other members of the family by wives
$PhCO_H$ = Physical care time for other members of the family by husbands
$NPCO_W$ = Non-physical care time for other members of the family by wives
$NPCO_H$ = Non-physical care time for other members of the family by husbands
$PdWk_W$ = Paid work time by wives
$VoWk_W$ = Volunteer time by wives
$VoWk_H$ = Volunteer time by husbands
$SoRc_W$ = Social/recreational time by wives
$SoRc_H$ = Social/recreational time by husbands
$FPrp_H$ = Food preparation time for husbands
$DWsh_H$ = Dish washing time for husbands
$HsCl_W$ = House cleaning time for wives
$HsCl_H$ = House cleaning time for husbands
$HYCP_H$ = Maintenance time for home, yard, car, and pets by husbands
$Laun_W$ = Laundry time for wives
$Laun_H$ = Laundry time for husbands
$SewC_W$ = Clothing construction time for wives
$SewC_H$ = Clothing construction time for husbands
$Mngt_W$ = Management time for wives
$Mngt_H$ = Management time for husbands
$PdWk_H$ = Paid work time for husbands
$ScWk_W$ = School work time for wives
$ScWk_H$ = Schood work time for husbands
$OrgP_W$ = Organizational participation time for wives
$OrgP_H$ = Organizational participation time for husbands
$Self_W$ = Personal maintenance time for wives
$Self_H$ = Personal maintemance time for husbands
$Eatg_W$ = Eating time for wives

$Eatg_H$ = Eating time for husbands

The following hypothesis to establish whether selected variables will add to the explanation of time use by significant component activities was proposed:

For H5:

$$FPrp_W = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc + b_4\ EmpW + b_5\ AgW + b_6\ AgH + b_7\ EdW + b_8\ EdH + b_9\ AFI + b_{10}\ NAu + b_{11}\ ArR \quad (53)$$

$$FPrp_H = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc + b_4\ EmpW + b_5\ AgW + b_6\ AgH + b_7\ EdW + b_8\ EdH + b_9\ AFI + b_{10}\ NAu + b_{11}\ ArR \quad (54)$$

$$DWsh_W = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc + b_4\ EmpW + b_5\ AgW + b_6\ AgH + b_7\ EdW + b_8\ EdH + b_9\ AFI + b_{10}\ NAu + b_{11}\ ArR \quad (55)$$

$$DWsh_H = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc + b_4\ EmpW + b_5\ AgW + b_6\ AgH + b_7\ EdW + b_8\ EdH + b_9\ AFI + b_{10}\ NAu + b_{11}\ ArR \quad (56)$$

$$Shop_W = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc + b_4\ EmpW + b_5\ AgW + b_6\ AgH + b_7\ EdW + b_8\ EdH + b_9\ AFI + b_{10}\ NAu + b_{11}\ ArR \quad (57)$$

$$Shop_H = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc + b_4\ EmpW + b_5\ AgW + b_6\ AgH + b_7\ EdW + b_8\ EdH + b_9\ AFI + b_{10}\ NAu + b_{11}\ ArR \quad (58)$$

$$HsCl_W = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc + b_4\ EmpW + b_5\ AgW + b_6\ AgH + b_7\ EdW + b_8\ EdH + b_9\ AFI + b_{10}\ NAu + b_{11}\ ArR \quad (59)$$

$$HsCl_H = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc + b_4\ EmpW + b_5\ AgW + b_6\ AgH + b_7\ EdW + b_8\ EdH + b_9\ AFI + b_{10}\ NAu + b_{11}\ ArR \quad (60)$$

$$HYCP_W = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc + b_4\ EmpW + b_5\ AgW + b_6\ AgH + b_7\ EdW + b_8\ EdH + b_9\ AFI + b_{10}\ NAu + b_{11}\ ArR \quad (61)$$

$$HYCP_H = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc + b_4\ EmpW + b_5\ AgW + b_6\ AgH + b_7\ EdW + b_8\ EdH + b_9\ AFI + b_{10}\ NAu + b_{11}\ ArR \quad (62)$$

$$SewC_W = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc + b_4\ EmpW + b_5\ AgW + b_6\ AgH + b_7\ EdW + b_8\ EdH + b_9\ AFI + b_{10}\ NAu + b_{11}\ ArR \quad (63)$$

$$SewC_H = a + b_1\,AgYC + b_2\,AgOc + b_3\,AgYC * AgOc + b_4\,EmpW + b_5\,AgW + b_6\,AgH + b_7\,EdW + b_8\,EdH + b_9\,AFI + b_{10}\,NAu + b_{11}\,ArR \quad (64)$$

$$Laun_W = a + b_1\,AgYC + b_2\,AgOc + b_3\,AgYC * AgOc + b_4\,EmpW + b_5\,AgW + b_6\,AgH + b_7\,EdW + b_8\,EdH + b_9\,AFI + b_{10}\,NAu + b_{11}\,ArR \quad (65)$$

$$Laun_H = a + b_1\,AgYC + b_2\,AgOc + b_3\,AgYC * AgOc + b_4\,EmpW + b_5\,AgW + b_6\,AgH + b_7\,EdW + b_8\,EdH + b_9\,AFI + b_{10}\,NAu + b_{11}\,ArR \quad (66)$$

$$PhCO_W = a + b_1\,AgYC + b_2\,AgOc + b_3\,AgYC * AgOc + b_4\,EmpW + b_5\,AgW + b_6\,AgH + b_7\,EdW + b_8\,EdH + b_9\,AFI + b_{10}\,NAu + b_{11}\,ArR \quad (67)$$

$$PhCO_H = a + b_1\,AgYC + b_2\,AgOc + b_3\,AgYC * AgOc + b_4\,EmpW + b_5\,AgW + b_6\,AgH + b_7\,EdW + b_8\,EdH + b_9\,AFI + b_{10}\,NAu + b_{11}\,ArR \quad (68)$$

$$NPCO_W = a + b_1\,AgYC + b_2\,AgOc + b_3\,AgYC * AgOc + b_4\,EmpW + b_5\,AgW + b_6\,AgH + b_7\,EdW + b_8\,EdH + b_9\,AFI + b_{10}\,NAu + b_{11}\,ArR \quad (69)$$

$$NPCO_H = a + b_1\,AgYC + b_2\,AgOc + b_3\,AgYC * AgOc + b_4\,EmpW + b_5\,AgW + b_6\,AgH + b_7\,EdW + b_8\,EdH + b_9\,AFI + b_{10}\,NAu + b_{11}\,ArR \quad (70)$$

$$Mngt_W = a + b_1\,AgYC + b_2\,AgOc + b_3\,AgYC * AgOc + b_4\,EmpW + b_5\,AgW + b_6\,AgH + b_7\,EdW + b_8\,EdH + b_9\,AFI + b_{10}\,NAu + b_{11}\,ArR \quad (71)$$

$$Mngt_H = a + b_1\,AgYC + b_2\,AgOc + b_3\,AgYC * AgOc + b_4\,EmpW + b_5\,AgW + b_6\,AgH + b_7\,EdW + b_8\,EdH + b_9\,AFI + b_{10}\,NAu + b_{11}\,ArR \quad (72)$$

$$PdWk_W = a + b_1\,AgYC + b_2\,AgOc + b_3\,AgYC * AgOc + b_4\,EmpW + b_5\,AgW + b_6\,AgH + b_7\,EdW + b_8\,EdH + b_9\,AFI + b_{10}\,NAu + b_{11}\,ArR \quad (73)$$

$$PdWk_H = a + b_1\,AgYC + b_2\,AgOc + b_3\,AgYC * AgOc + b_4\,EmpW + b_5\,AgW + b_6\,AgH + b_7\,EdW + b_8\,EdH + b_9\,AFI + b_{10}\,NAu + b_{11}\,ArR \quad (74)$$

$$VoWk_W = a + b_1\,AgYC + b_2\,AgOc + b_3\,AgYC * AgOc + b_4\,EmpW + b_5\,AgW + b_6\,AgH + b_7\,EdW + b_8\,EdH + b_9\,AFI + b_{10}\,NAu + b_{11}\,ArR \quad (75)$$

$$VoWk_H = a + b_1\,AgYC + b_2\,AgOc + b_3\,AgYC * AgOc + b_4\,EmpW + b_5\,AgW + b_6\,AgH + b_7\,EdW + b_8\,EdH + b_9\,AFI + b_{10}\,NAu + b_{11}\,ArR \quad (76)$$

$$ScWk_W = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc + b_4\ EmpW + b_5\ AgW + b_6\ AgH + b_7\ EdW + b_8\ EdH + b_9\ AFI + b_{10}\ NAu + b_{11}\ ArR \quad (77)$$

$$ScWk_H = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc + b_4\ EmpW + b_5\ AgW + b_6\ AgH + b_7\ EdW + b_8\ EdH + b_9\ AFI + b_{10}\ NAu + b_{11}\ ArR \quad (78)$$

$$OrgP_W = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc + b_4\ EmpW + b_5\ AgW + b_6\ AgH + b_7\ EdW + b_8\ EdH + b_9\ AFI + b_{10}\ NAu + b_{11}\ ArR \quad (79)$$

$$OrgP_H = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc + b_4\ EmpW + b_5\ AgW + b_6\ AgH + b_7\ EdW + b_8\ EdH + b_9\ AFI + b_{10}\ NAu + b_{11}\ ArR \quad (80)$$

$$SoRc_W = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc + b_4\ EmpW + b_5\ AgW + b_6\ AgH + b_7\ EdW + b_8\ EdH + b_9\ AFI + b_{10}\ NAu + b_{11}\ ArR \quad (81)$$

$$SoRc_H = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc + b_4\ EmpW + b_5\ AgW + b_6\ AgH + b_7\ EdW + b_8\ EdH + b_9\ AFI + b_{10}\ NAu + b_{11}\ ArR \quad (82)$$

$$Self_W = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc + b_4\ EmpW + b_5\ AgW + b_6\ AgH + b_7\ EdW + b_8\ EdH + b_9\ AFI + b_{10}\ NAu + b_{11}\ ArR \quad (83)$$

$$Self_H = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc + b_4\ EmpW + b_5\ AgW + b_6\ AgH + b_7\ EdW + b_8\ EdH + b_9\ AFI + b_{10}\ NAu + b_{11}\ ArR \quad (84)$$

$$Eatg_W = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc + b_4\ EmpW + b_5\ AgW + b_6\ AgH + b_7\ EdW + b_8\ EdH + b_9\ AFI + b_{10}\ NAu + b_{11}\ ArR \quad (85)$$

$$Eatg_H = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc + b_4\ EmpW + b_5\ AgW + b_6\ AgH + b_7\ EdW + b_8\ EdH + b_9\ AFI + b_{10}\ NAu + b_{11}\ ArR \quad (86)$$

For model (53)

$b_3$, $b_5$, $b_6$, and $b_{10}$ will be positively related;
$b_4$, and $b_9$ will be negatively related; and
$b_1$, $b_2$, $b_7$, $b_8$ and $b_{11}$ will no effect on food preparation time for wives

For model (54)

$b_4$, $b_5$, and $b_6$, will be positively related;
$b_9$, and $b_{10}$, will be negatively related; and

$b_1$, $b_2$, $b_3$, $b_7$, $b_8$, and $b_{11}$ will have no effect on food preparation time for husbands

For model (55)

$b_3$, $b_5$, $b_6$, $b_9$, and $b_{10}$ will be positively related;
$b_4$, will be negatively related; and
$b_1$, $b_2$, $b_7$, $b_8$ and $b_{11}$ will no effect on dish washing time for wives

For model (56)

$b_4$, $b_5$, $b_6$, $b_7$, and $b_8$, will be positively related;
$b_9$, and $b_{10}$, will be negatively related; and
$b_1$, $b_2$, $b_3$, and $b_{11}$ will have no effect on dish washing time for husbands

For model (57)

$b_3$, $b_5$, $b_6$, $b_9$, and $b_{10}$ will be positively related;
$b_1$, $b_2$, and $b_4$ will be negatively related; and
$b_7$, $b_8$ and $b_{11}$ will have no effect on shopping time for wives

For model (58)

$b_1$, $b_2$, $b_3$, $b_4$, $b_9$, and $b_{10}$ will be positively related;
$b_7$, and $b_8$ will be negatively related; and
$b_5$, $b_6$, and $b_{11}$ will have no effect on shopping time for husbands

For model (59)

$b_5$, and $b_6$, will be positively related;
$b_4$, $b_9$, and $b_{10}$, will be negatively related; and
$b_1$, $b_2$, $b_3$, $b_7$, $b_8$, and $b_{11}$ will have no effect on house cleaning time for wives

For model (60)

$b_4$, $b_5$, and $b_6$, will be positively related;
$b_9$, and $b_{10}$, will be negatively related; and
$b_1$, $b_2$, $b_3$, $b_7$, $b_8$, and $b_{11}$ will have no effect on house cleaning time for husbands

For model (61)

$b_1$, $b_2$, $b_3$, $b_5$, and $b_6$, will be positively related;
$b_4$, $b_7$, $b_8$, $b_9$, and $b_{10}$, will be negatively related; and

$b_{11}$ will have no effect on maintenance time for wives

For model (62)

$b_4$, $b_5$, and $b_6$, will be positively related;
$b_9$, and $b_{10}$, will be negatively related; and
$b_1$, $b_2$, $b_3$, $b_7$, $b_8$, and $b_{11}$ will have no effect on maintenance time for husbands

For model (63)

$b_5$, and $b_6$, will be positively related;
$b_4$, $b_9$, and $b_{10}$, will be negatively related; and
$b_1$, $b_2$, $b_3$, $b_7$, $b_8$, and $b_{11}$ will have no effect on clothes construction time for wives

For model (64)

$b_5$, and $b_6$, will be positively related;
$b_4$, will be negatively related; and
$b_1$, $b_2$, $b_3$, $b_7$, $b_8$, $b_9$, $b_{10}$, and $b_{11}$ will have no effect on clothes construction time for husbands

For model (65)

$b_5$, and $b_6$, will be positively related;
$b_4$, $b_9$, and $b_{10}$, will be negatively related; and
$b_1$, $b_2$, $b_3$, $b_7$, $b_8$, and $b_{11}$ will have no effect on laundry time for wives

For model (66)

$b_5$, and $b_6$, will be positively related;
$b_4$, will be negatively related; and
$b_1$, $b_2$, $b_3$, $b_7$, $b_8$, $b_9$, $b_{10}$, and $b_{11}$ will have no effect on laundry time for husbands

For model (67)

$b_3$, $b_5$, and $b_6$, will be positively related;
$b_1$, $b_2$, $b_4$, $b_9$, and $b_{10}$, will be negatively related; and
$b_7$, $b_8$, and $b_{11}$ will have no effect on physical care time for wives

For model (68)

$b_3$, $b_4$, $b_5$, and $b_6$, will be positively related;
$b_1$, $b_2$, $b_9$, and $b_{10}$, will be negatively related; and
$b_7$, $b_8$, and $b_{11}$ will have no effect on physical care time for husbands

For model (69)

$b_3$, $b_5$, $b_6$, and $b_{10}$ will be positively related;
$b_1$, $b_2$, $b_4$, and $b_9$ will be negatively related; and
$b_7$, $b_8$, and $b_{11}$ will have no effect on non-physical care time for wives

For model (70)

$b_3$, $b_4$, $b_5$, $b_6$, $b_7$, and $b_8$ will be positively related;
$b_1$, $b_2$, $b_9$, and $b_{10}$, will be negatively related; and
$b_{11}$ will have no effect on non-physical care time for husbands

For model (71)

$b_9$ and $b_{10}$ will be positively related;
$b_{11}$ will be negatively related; and
$b_1$, $b_2$, $b_3$, $b_4$, $b_5$, $b_6$, $b_7$, and $b_8$ will have no effect on management time for wives

For model (72)

$b_7$, and $b_8$ will be positively related;
$b_9$, and $b_{10}$ will be negatively related; and
$b_1$, $b_2$, $b_3$, $b_4$, $b_5$, $b_6$, and $b_{11}$ will have no effect on managment time for husbands

For model (73)

$b_4$, and $b_9$, will be positively related;
$b_3$, $b_5$, $b_6$, and $b_{10}$, will be negatively
$b_1$, $b_2$, $b_7$, $b_8$, and $b_{11}$ will have no related; and effect on paid work time for wives

For model (74)

$b_9$ will be positively related;
$b_5$, $b_6$, $b_7$, $b_8$, and $b_{10}$ will be negatively related; and
$b_1$, $b_2$, $b_3$, $b_4$, and $b_{11}$ will have no effect on paid work time for husbands

For model (75)

$b_1$, $b_2$, $b_3$, and $b_6$ will be positively related;
$b_3$, $b_4$, $b_9$, and $b_{10}$ will be negatively related; and
$b_7$, $b_8$, and $b_{11}$ will have no effect on volunteer work time for wives

For model (76)

$b_1$, $b_2$, $b_8$, and $b_6$ will be positively related;
$b_3$, $b_4$, $b_9$, and $b_{10}$ will be negatively related; and
$b_7$, $b_8$, and $b_{11}$ will have no effect on volunteer work time for husbands

For model (77)

$b_4$, $b_7$, and $b_8$ will be positively related;
$b_5$, $b_6$, $b_9$, and $b_{10}$ will be negatively related; and
$b_1$, $b_2$, $b_3$, and $b_{11}$ will have no effect on school work time for wives

For model (78)

$b_4$, $b_7$, and $b_8$ will be positively related;
$b_5$, $b_6$, $b_9$, and $b_{10}$ will be negatively related; and
$b_1$, $b_2$, $b_3$, and $b_{11}$ will have no effect on school work time for husbands

For model (79)

$b_5$, and $b_6$, will be positively related;
$b_4$, $b_9$, and $b_{10}$, will be negatively related; and
$b_1$, $b_2$, $b_3$, $b_7$, $b_8$, and $b_{11}$ will have no effect on organizational participation time for wives

For model (80)

$b_7$, and $b_8$ will be positively related;
$b_9$, and $b_{10}$, will be negatively related; and
$b_1$, $b_2$, $b_3$, $b_4$, $b_5$, $b_6$, and $b_{11}$ will have no effect on organizational participation time for husbands

For model (81)

$b_1$, and $b_2$, will be positively related;
$b_4$, $b_5$, $b_6$, $b_9$, and $b_{10}$, will be negatively related; and
$b_3$, $b_7$, $b_8$, and $b_{11}$ will have no effect on social and recreational time for wives

For model (82)

$b_1$, and $b_2$, will be positively related;
$b_4$, and $b_{10}$, will be negatively related; and
$b_3$, $b_5$, $b_6$, $b_7$, $b_8$, $b_9$, and $b_{11}$ will have no effect social and recreational time for husbands

For model (83)

$b_1$, $b_2$, $b_3$, $b_4$, $b_5$, $b_6$, $b_7$, $b_8$, $b_9$, $b_{10}$, and $b_{11}$ will have no effect on personal care time for wives

For model (84)

$b_1$, $b_2$, $b_3$, $b_4$, $b_5$, $b_6$, $b_7$, $b_8$, $b_9$, $b_{10}$, and $b_{11}$ will have no effect on personal care time for husbands

For model (85)

$b_1$, $b_2$, $b_3$, $b_4$, $b_5$, $b_6$, $b_7$, $b_8$, $b_9$, $b_{10}$, and $b_{11}$ will have no effect on eating time for wives

For model (86)

$b_1$, $b_2$, $b_3$, $b_4$, $b_5$, $b_6$, $b_7$, $b_8$, $b_9$, $b_{10}$, and $b_{11}$ will have no effect on eating time for husbands

For H6:

The following models proposed for travel time were:

$$FPrp_W = a + b_1\,AgYC + b_2\,AgOc + b_3\,AgYC * AgOc + b_4\,EmpW + b_5\,AgW + b_6\,AgH + b_7\,EdW + b_8\,EdH + b_9\,AFI + b_{10}\,NAu + b_{11}\,ArR \quad (87)$$

$$FPrp_H = a + b_1\,AgYC + b_2\,AgOc + b_3\,AgYC * AgOc + b_4\,EmpW + b_5\,AgW + b_6\,AgH + b_7\,EdW + b_8\,EdH + b_9\,AFI + b_{10}\,NAu + b_{11}\,ArR \quad (88)$$

$$DWsh_W = a + b_1\,AgYC + b_2\,AgOc + b_3\,AgYC * AgOc + b_4\,EmpW + b_5\,AgW + b_6\,AgH + b_7\,EdW + b_8\,EdH + b_9\,AFI + b_{10}\,NAu + b_{11}\,ArR \quad (89)$$

$$DWsh_H = a + b_1\,AgYC + b_2\,AgOc + b_3\,AgYC * AgOc + b_4\,EmpW + b_5\,AgW + b_6\,AgH + b_7\,EdW + b_8\,EdH + b_9\,AFI + b_{10}\,NAu + b_{11}\,ArR \quad (90)$$

$$Shop_W = a + b_1\,AgYC + b_2\,AgOc + b_3\,AgYC * AgOc + b_4\,EmpW + b_5\,AgW + b_6\,AgH + b_7\,EdW + b_8\,EdH + b_9\,AFI + b_{10}\,NAu + b_{11}\,ArR \quad (91)$$

$$Shop_H = a + b_1\,AgYC + b_2\,AgOc + b_3\,AgYC * AgOc + b_4\,EmpW + b_5\,AgW + b_6\,AgH + b_7\,EdW + b_8\,EdH + b_9\,AFI + b_{10}\,NAu + b_{11}\,ArR \quad (92)$$

$$HsCl_W = a + b_1\,AgYC + b_2\,AgOc + b_3\,AgYC * AgOc + b_4\,EmpW + b_5\,AgW + b_6\,AgH + b_7\,EdW + b_8\,EdH + b_9\,AFI + b_{10}\,NAu + b_{11}\,ArR \quad (93)$$

$$HsCl_H = a + b_1\,AgYC + b_2\,AgOc + b_3\,AgYC * AgOc + b_4\,EmpW + b_5\,AgW + b_6\,AgH + b_7\,EdW + b_8\,EdH + b_9\,AFI + b_{10}\,NAu + b_{11}\,ArR \quad (94)$$

$$HYCP_W = a + b_1\,AgYC + b_2\,AgOc + b_3\,AgYC * AgOc + b_4\,EmpW + b_5\,AgW + b_6\,AgH + b_7\,EdW + b_8\,EdH + b_9\,AFI + b_{10}\,NAu + b_{11}\,ArR \quad (95)$$

$$HYCP_H = a + b_1\,AgYC + b_2\,AgOc + b_3\,AgYC * AgOc + b_4\,EmpW + b_5\,AgW + b_6\,AgH + b_7\,EdW + b_8\,EdH + b_9\,AFI + b_{10}\,NAu + b_{11}\,ArR \quad (96)$$

$$SewC_W = a + b_1\,AgYC + b_2\,AgOc + b_3\,AgYC * AgOc + b_4\,EmpW + b_5\,AgW + b_6\,AgH + b_7\,EdW + b_8\,EdH + b_9\,AFI + b_{10}\,NAu + b_{11}\,ArR \quad (97)$$

$$SewC_H = a + b_1\,AgYC + b_2\,AgOc + b_3\,AgYC * AgOc + b_4\,EmpW + b_5\,AgW + b_6\,AgH + b_7\,EdW + b_8\,EdH + b_9\,AFI + b_{10}\,NAu + b_{11}\,ArR \quad (98)$$

$$Laun_W = a + b_1\,AgYC + b_2\,AgOc + b_3\,AgYC * AgOc + b_4\,EmpW + b_5\,AgW + b_6\,AgH + b_7\,EdW + b_8\,EdH + b_9\,AFI + b_{10}\,NAu + b_{11}\,ArR \quad (99)$$

$$Laun_H = a + b_1\,AgYC + b_2\,AgOc + b_3\,AgYC * AgOc + b_4\,EmpW + b_5\,AgW + b_6\,AgH + b_7\,EdW + b_8\,EdH + b_9\,AFI + b_{10}\,NAu + b_{11}\,ArR \quad (100)$$

$$PhCO_W = a + b_1\,AgYC + b_2\,AgOc + b_3\,AgYC * AgOc + b_4\,EmpW + b_5\,AgW + b_6\,AgH + b_7\,EdW + b_8\,EdH + b_9\,AFI + b_{10}\,NAu + b_{11}\,ArR \quad (101)$$

$$PhCO_H = a + b_1\,AgYC + b_2\,AgOc + b_3\,AgYC * AgOc + b_4\,EmpW + b_5\,AgW + b_6\,AgH + b_7\,EdW + b_8\,EdH + b_9\,AFI + b_{10}\,NAu + b_{11}\,ArR \quad (102)$$

$$NPCO_W = a + b_1\,AgYC + b_2\,AgOc + b_3\,AgYC * AgOc + b_4\,EmpW + b_5\,AgW + b_6\,AgH + b_7\,EdW + b_8\,EdH + b_9\,AFI + b_{10}\,NAu + b_{11}\,ArR \quad (103)$$

$$NPCO_H = a + b_1\,AgYC + b_2\,AgOc + b_3\,AgYC * AgOc + b_4\,EmpW + b_5\,AgW + b_6\,AgH + b_7\,EdW + b_8\,EdH + b_9\,AFI + b_{10}\,NAu + b_{11}\,ArR \quad (104)$$

$$Mngt_W = a + b_1\,AgYC + b_2\,AgOc + b_3\,AgYC * AgOc + b_4\,EmpW + b_5\,AgW + b_6\,AgH + b_7\,EdW + b_8\,EdH + b_9\,AFI + b_{10}\,NAu + b_{11}\,ArR \quad (105)$$

$$Mngt_H = a + b_1\,AgYC + b_2\,AgOc + b_3\,AgYC * AgOc + b_4\,EmpW + b_5\,AgW + b_6\,AgH + b_7\,EdW + b_8\,EdH + b_9\,AFI + b_{10}\,NAu + b_{11}\,ArR \quad (106)$$

$$PdWk_W = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc + b_4\ EmpW + b_5\ AgW + b_6\ AgH + b_7\ EdW + b_8\ EdH + b_9\ AFI + b_{10}\ NAu + b_{11}\ ArR \quad (107)$$

$$PdWk_H = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc + b_4\ EmpW + b_5\ AgW + b_6\ AgH + b_7\ EdW + b_8\ EdH + b_9\ AFI + b_{10}\ NAu + b_{11}\ ArR \quad (108)$$

$$VoWk_W = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc + b_4\ EmpW + b_5\ AgW + b_6\ AgH + b_7\ EdW + b_8\ EdH + b_9\ AFI + b_{10}\ NAu + b_{11}\ ArR \quad (109)$$

$$VoWk_H = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc + b_4\ EmpW + b_5\ AgW + b_6\ AgH + b_7\ EdW + b_8\ EdH + b_9\ AFI + b_{10}\ NAu + b_{11}\ ArR \quad (110)$$

$$ScWk_W = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc + b_4\ EmpW + b_5\ AgW + b_6\ AgH + b_7\ EdW + b_8\ EdH + b_9\ AFI + b_{10}\ NAu + b_{11}\ ArR \quad (111)$$

$$ScWk_H = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc + b_4\ EmpW + b_5\ AgW + b_6\ AgH + b_7\ EdW + b_8\ EdH + b_9\ AFI + b_{10}\ NAu + b_{11}\ ArR \quad (112)$$

$$OrgP_W = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc + b_4\ EmpW + b_5\ AgW + b_6\ AgH + b_7\ EdW + b_8\ EdH + b_9\ AFI + b_{10}\ NAu + b_{11}\ ArR \quad (113)$$

$$OrgP_H = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc + b_4\ EmpW + b_5\ AgW + b_6\ AgH + b_7\ EdW + b_8\ EdH + b_9\ AFI + b_{10}\ NAu + b_{11}\ ArR \quad (114)$$

$$SoRc_W = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc + b_4\ EmpW + b_5\ AgW + b_6\ AgH + b_7\ EdW + b_8\ EdH + b_9\ AFI + b_{10}\ NAu + b_{11}\ ArR \quad (115)$$

$$SoRc_H = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc + b_4\ EmpW + b_5\ AgW + b_6\ AgH + b_7\ EdW + b_8\ EdH + b_9\ AFI + b_{10}\ NAu + b_{11}\ ArR \quad (116)$$

$$Self_W = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc + b_4\ EmpW + b_5\ AgW + b_6\ AgH + b_7\ EdW + b_8\ EdH + b_9\ AFI + b_{10}\ NAu + b_{11}\ ArR \quad (117)$$

$$Self_H = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc + b_4\ EmpW + b_5\ AgW + b_6\ AgH + b_7\ EdW + b_8\ EdH + b_9\ AFI + b_{10}\ NAu + b_{11}\ ArR \quad (118)$$

$$Eatg_W = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc + b_4\ EmpW + b_5\ AgW + b_6\ AgH + b_7\ EdW + b_8\ EdH + b_9\ AFI + b_{10}\ NAu + b_{11}\ ArR \quad (119)$$

$$Eatg_H = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc + b_4\ EmpW + b_5\ AgW + b_6\ AgH + b_7\ EdW + b_8\ EdH + b_9\ AFI + b_{10}\ NAu + b_{11}\ ArR \quad (120)$$

For models (87) to (120) on travel time:

$b_3$, $b_4$, $b_9$, and $b_{10}$ will be positively related;
$b_7$, and $b_8$ will be negatively related; and
$b_1$, $b_2$, $b_5$, $b_6$, and $b_{11}$ will have
no effect on travel time for wives or husbands

The following models proposed for secondary time were:

$$FPrp_W = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc + b_4\ EmpW + b_5\ AgW + b_6\ AgH + b_7\ EdW + b_8\ EdH + b_9\ AFI + b_{10}\ NAu + b_{11}\ ArR \quad (121)$$

$$FPrp_H = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc + b_4\ EmpW + b_5\ AgW + b_6\ AgH + b_7\ EdW + b_8\ EdH + b_9\ AFI + b_{10}\ NAu + b_{11}\ ArR \quad (122)$$

$$DWsh_W = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc + b_4\ EmpW + b_5\ AgW + b_6\ AgH + b_7\ EdW + b_8\ EdH + b_9\ AFI + b_{10}\ NAu + b_{11}\ ArR \quad (123)$$

$$DWsh_H = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc + b_4\ EmpW + b_5\ AgW + b_6\ AgH + b_7\ EdW + b_8\ EdH + b_9\ AFI + b_{10}\ NAu + b_{11}\ ArR \quad (124)$$

$$Shop_W = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc + b_4\ EmpW + b_5\ AgW + b_6\ AgH + b_7\ EdW + b_8\ EdH + b_9\ AFI + b_{10}\ NAu + b_{11}\ ArR \quad (125)$$

$$Shop_H = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc + b_4\ EmpW + b_5\ AgW + b_6\ AgH + b_7\ EdW + b_8\ EdH + b_9\ AFI + b_{10}\ NAu + b_{11}\ ArR \quad (126)$$

$$HsCl_W = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc + b_4\ EmpW + b_5\ AgW + b_6\ AgH + b_7\ EdW + b_8\ EdH + b_9\ AFI + b_{10}\ NAu + b_{11}\ ArR \quad (127)$$

$$HsCl_H = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc + b_4\ EmpW + b_5\ AgW + b_6\ AgH + b_7\ EdW + b_8\ EdH + b_9\ AFI + b_{10}\ NAu + b_{11}\ ArR \quad (128)$$

$$HYCP_W = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc + b_4\ EmpW + b_5\ AgW + b_6\ AgH + b_7\ EdW + b_8\ EdH + b_9\ AFI + b_{10}\ NAu + b_{11}\ ArR \quad (129)$$

$$HYCP_H = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc + b_4\ EmpW + b_5\ AgW + b_6\ AgH + b_7\ EdW +$$

$$b_8\ EdH + b_9\ AFI + b_{10}\ NAu + b_{11}\ ArR \quad (130)$$

$$SewC_W = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc + b_4\ EmpW + b_5\ AgW + b_6\ AgH + b_7\ EdW + b_8\ EdH + b_9\ AFI + b_{10}\ NAu + b_{11}\ ArR \quad (131)$$

$$SewC_H = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc + b_4\ EmpW + b_5\ AgW + b_6\ AgH + b_7\ EdW + b_8\ EdH + b_9\ AFI + b_{10}\ NAu + b_{11}\ ArR \quad (132)$$

$$Laun_W = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc + b_4\ EmpW + b_5\ AgW + b_6\ AgH + b_7\ EdW + b_8\ EdH + b_9\ AFI + b_{10}\ NAu + b_{11}\ ArR \quad (133)$$

$$Laun_H = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc + b_4\ EmpW + b_5\ AgW + b_6\ AgH + b_7\ EdW + b_8\ EdH + b_9\ AFI + b_{10}\ NAu + b_{11}\ ArR \quad (134)$$

$$PhCO_W = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc + b_4\ EmpW + b_5\ AgW + b_6\ AgH + b_7\ EdW + b_8\ EdH + b_9\ AFI + b_{10}\ NAu + b_{11}\ ArR \quad (135)$$

$$PhCO_H = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc + b_4\ EmpW + b_5\ AgW + b_6\ AgH + b_7\ EdW + b_8\ EdH + b_9\ AFI + b_{10}\ NAu + b_{11}\ ArR \quad (136)$$

$$NPCO_W = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc + b_4\ EmpW + b_5\ AgW + b_6\ AgH + b_7\ EdW + b_8\ EdH + b_9\ AFI + b_{10}\ NAu + b_{11}\ ArR \quad (137)$$

$$NPCO_H = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc + b_4\ EmpW + b_5\ AgW + b_6\ AgH + b_7\ EdW + b_8\ EdH + b_9\ AFI + b_{10}\ NAu + b_{11}\ ArR \quad (138)$$

$$Mngt_W = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc + b_4\ EmpW + b_5\ AgW + b_6\ AgH + b_7\ EdW + b_8\ EdH + b_9\ AFI + b_{10}\ NAu + b_{11}\ ArR \quad (139)$$

$$Mngt_H = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc + b_4\ EmpW + b_5\ AgW + b_6\ AgH + b_7\ EdW + b_8\ EdH + b_9\ AFI + b_{10}\ NAu + b_{11}\ ArR \quad (140)$$

$$PdWk_W = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc + b_4\ EmpW + b_5\ AgW + b_6\ AgH + b_7\ EdW + b_8\ EdH + b_9\ AFI + b_{10}\ NAu + b_{11}\ ArR \quad (141)$$

$$PdWk_H = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc + b_4\ EmpW + b_5\ AgW + b_6\ AgH + b_7\ EdW + b_8\ EdH + b_9\ AFI + b_{10}\ NAu + b_{11}\ ArR \quad (142)$$

$$VoWk_W = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc +$$

$$b_4\ EmpW + b_5\ AgW + b_6\ AgH + b_7\ EdW + b_8\ EdH + b_9\ AFI + b_{10}\ NAu + b_{11}\ ArR \quad (143)$$

$$VoWk_H = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc + b_4\ EmpW + b_5\ AgW + b_6\ AgH + b_7\ EdW + b_8\ EdH + b_9\ AFI + b_{10}\ NAu + b_{11}\ ArR \quad (144)$$

$$ScWk_W = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc + b_4\ EmpW + b_5\ AgW + b_6\ AgH + b_7\ EdW + b_8\ EdH + b_9\ AFI + b_{10}\ NAu + b_{11}\ ArR \quad (145)$$

$$ScWk_H = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc + b_4\ EmpW + b_5\ AgW + b_6\ AgH + b_7\ EdW + b_8\ EdH + b_9\ AFI + b_{10}\ NAu + b_{11}\ ArR \quad (146)$$

$$OrgP_W = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc + b_4\ EmpW + b_5\ AgW + b_6\ AgH + b_7\ EdW + b_8\ EdH + b_9\ AFI + b_{10}\ NAu + b_{11}\ ArR \quad (147)$$

$$OrgP_H = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc + b_4\ EmpW + b_5\ AgW + b_6\ AgH + b_7\ EdW + b_8\ EdH + b_9\ AFI + b_{10}\ NAu + b_{11}\ ArR \quad (148)$$

$$SoRc_W = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc + b_4\ EmpW + b_5\ AgW + b_6\ AgH + b_7\ EdW + b_8\ EdH + b_9\ AFI + b_{10}\ NAu + b_{11}\ ArR \quad (149)$$

$$SoRc_H = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc + b_4\ EmpW + b_5\ AgW + b_6\ AgH + b_7\ EdW + b_8\ EdH + b_9\ AFI + b_{10}\ NAu + b_{11}\ ArR \quad (150)$$

$$Self_W = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc + b_4\ EmpW + b_5\ AgW + b_6\ AgH + b_7\ EdW + b_8\ EdH + b_9\ AFI + b_{10}\ NAu + b_{11}\ ArR \quad (151)$$

$$Self_H = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc + b_4\ EmpW + b_5\ AgW + b_6\ AgH + b_7\ EdW + b_8\ EdH + b_9\ AFI + b_{10}\ NAu + b_{11}\ ArR \quad (152)$$

$$Eatg_W = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc + b_4\ EmpW + b_5\ AgW + b_6\ AgH + b_7\ EdW + b_8\ EdH + b_9\ AFI + b_{10}\ NAu + b_{11}\ ArR \quad (153)$$

$$Eatg_H = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc + b_4\ EmpW + b_5\ AgW + b_6\ AgH + b_7\ EdW + b_8\ EdH + b_9\ AFI + b_{10}\ NAu + b_{11}\ ArR \quad (154)$$

For models (121) to (154) on secondary time:

$b_3$, $b_4$, $b_7$, and $b_8$ will be positively related;
$b_5$, and $b_6$, will be negatively related; and

$b_1$, $b_2$, $b_7$, $b_{10}$, and $b_{11}$ will have no effect on secondary time for wives or husbands

For H7:

$$Emp_w = a + b_1\ AgYC + b_2\ AgOc + b_3\ AgYC * AgOc \quad (155)$$

For model (155)

$b_1$ will be positively related;
$b_3$ will be negatively related; and
$b_2$ will have no effect on employment time for wives

# APPENDIX G

# REFERENCE TABLES

Table 1

Descriptive Statistics: Distribution of Wives by Age

| Age | Frequency of Wives N = 1983 | Percent of Total | Cumulative Frequency | Cumulative Percent |
|---|---|---|---|---|
| 18 | 2 | 0.101 | 2 | 0.101 |
| 19 | 4 | 0.202 | 6 | 0.303 |
| 20 | 5 | 0.252 | 11 | 0.555 |
| 21 | 24 | 1.210 | 35 | 1.765 |
| 22 | 35 | 1.765 | 70 | 3.530 |
| 23 | 54 | 2.723 | 124 | 6.253 |
| 24 | 58 | 2.925 | 182 | 9.178 |
| 25 | 73 | 3.681 | 255 | 12.859 |
| 26 | 126 | 6.354 | 381 | 19.213 |
| 27 | 121 | 6.102 | 502 | 25.315 |
| 28 | 113 | 5.698 | 615 | 31.014 |
| 29 | 134 | 6.757 | 749 | 37.771 |
| 30 | 177 | 8.926 | 926 | 46.697 |
| 31 | 123 | 6.203 | 1049 | 52.900 |
| 32 | 116 | 5.850 | 1165 | 58.749 |
| 33 | 105 | 5.295 | 1270 | 64.044 |
| 34 | 83 | 4.186 | 1353 | 68.230 |
| 35 | 97 | 4.892 | 1450 | 73.122 |
| 36 | 73 | 3.681 | 1523 | 76.803 |
| 37 | 56 | 2.824 | 1579 | 79.627 |
| 38 | 48 | 2.421 | 1627 | 82.047 |
| 39 | 57 | 2.874 | 1684 | 84.922 |
| 40 | 31 | 1.563 | 1715 | 86.485 |
| 41 | 40 | 2.017 | 1755 | 88.502 |
| 42 | 36 | 1.815 | 1791 | 90.318 |
| 43 | 33 | 1.664 | 1824 | 91.982 |
| 44 | 20 | 1.009 | 1844 | 92.990 |
| 45 | 22 | 1.109 | 1866 | 94.100 |
| 46 | 12 | 0.605 | 1878 | 94.705 |
| 47 | 24 | 1.210 | 1902 | 95.915 |
| 48 | 15 | 0.756 | 1917 | 96.672 |
| 49 | 8 | 0.403 | 1925 | 97.075 |
| 50 | 17 | 0.857 | 1942 | 97.932 |
| 51 | 12 | 0.605 | 1954 | 98.538 |
| 52 | 13 | 0.656 | 1967 | 99.193 |
| 53 | 3 | 0.151 | 1970 | 99.344 |
| 54 | 7 | 0.353 | 1977 | 99.697 |
| 55 | 2 | 0.101 | 1979 | 99.798 |
| 57 | 3 | 0.151 | 1982 | 99.950 |
| 58 | 1 | 0.050 | 1983 | 100.000 |

Table 2

Descriptive Statistics: Distribution of Husbands by Age

| Age | Frequency of Husbands N = 1983 | Percent of Total | Cumulative Frequency | Cumulative Percent |
|---|---|---|---|---|
| 20 | 3 | 0.151 | 3 | 0.151 |
| 21 | 5 | 0.252 | 8 | 0.403 |
| 22 | 15 | 0.756 | 23 | 1.160 |
| 23 | 28 | 1.412 | 51 | 2.572 |
| 24 | 44 | 2.219 | 95 | 4.791 |
| 25 | 49 | 2.471 | 144 | 7.262 |
| 26 | 61 | 3.076 | 205 | 10.338 |
| 27 | 86 | 4.337 | 291 | 14.675 |
| 28 | 114 | 5.749 | 405 | 20.424 |
| 29 | 117 | 5.900 | 522 | 26.324 |
| 30 | 151 | 7.615 | 673 | 33.938 |
| 31 | 131 | 6.606 | 804 | 40.545 |
| 32 | 99 | 4.992 | 903 | 45.537 |
| 33 | 109 | 5.497 | 1012 | 51.034 |
| 34 | 110 | 5.547 | 1122 | 56.581 |
| 35 | 91 | 4.589 | 1213 | 61.170 |
| 36 | 76 | 3.833 | 1289 | 65.003 |
| 37 | 85 | 4.286 | 1374 | 69.289 |
| 38 | 86 | 4.337 | 1460 | 73.626 |
| 39 | 47 | 2.370 | 1507 | 75.996 |
| 40 | 44 | 2.219 | 1551 | 78.215 |
| 41 | 45 | 2.269 | 1596 | 80.484 |
| 42 | 56 | 2.824 | 1652 | 83.308 |
| 43 | 35 | 1.765 | 1687 | 85.073 |
| 44 | 48 | 2.421 | 1735 | 87.494 |
| 45 | 33 | 1.664 | 1768 | 89.158 |
| 46 | 36 | 1.815 | 1804 | 90.973 |
| 47 | 26 | 1.311 | 1830 | 92.284 |
| 48 | 26 | 1.311 | 1856 | 93.596 |
| 49 | 24 | 1.210 | 1880 | 94.806 |
| 50 | 18 | 0.908 | 1898 | 95.714 |
| 51 | 9 | 0.454 | 1907 | 96.167 |
| 52 | 14 | 0.706 | 1921 | 96.873 |
| 53 | 11 | 0.555 | 1932 | 97.428 |
| 54 | 11 | 0.555 | 1943 | 97.983 |
| 55 | 13 | 0.656 | 1956 | 98.638 |
| 56 | 9 | 0.454 | 1965 | 99.092 |
| 57 | 6 | 0.303 | 1971 | 99.395 |
| 58 | 5 | 0.252 | 1976 | 99.647 |
| 59 | 2 | 0.101 | 1978 | 99.748 |
| 60 | 1 | 0.050 | 1979 | 99.798 |
| 61 | 1 | 0.050 | 1980 | 99.849 |
| 63 | 3 | 0.151 | 1983 | 100.000 |

FREQUENCIES OF AGES OF YOUNGER BY OLDER CHILDREN IN TWO-PARENT, TWO-CHILD FAMILIES

| Age of the older child | Age of the younger child | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | |
| 0 | 4 | | | | | | | | | | | | | | | | | | 4 |
| 1 | 20 | 6 | | | | | | | | | | | | | | | | | 26 |
| 2 | 81 | 21 | 0 | | | | | | | | | | | | | | | | 102 |
| 3 | 128 | 87 | 5 | 0 | | | | | | | | | | | | | | | 220 |
| 4 | 57 | 85 | 31 | 4 | 3 | | | | | | | | | | | | | | 180 |
| 5 | 41 | 80 | 24 | 26 | 11 | 0 | | | | | | | | | | | | | 182 |
| 6 | 20 | 44 | 20 | 28 | 17 | 4 | 0 | | | | | | | | | | | | 133 |
| 7 | 11 | 37 | 15 | 23 | 26 | 30 | 8 | 2 | | | | | | | | | | | 152 |
| 8 | 13 | 26 | 7 | 10 | 19 | 20 | 28 | 11 | 1 | | | | | | | | | | 135 |
| 9 | 7 | 5 | 1 | 8 | 8 | 14 | 17 | 16 | 6 | 1 | | | | | | | | | 83 |
| 10 | 6 | 5 | 0 | 4 | 2 | 12 | 10 | 12 | 20 | 13 | 2 | | | | | | | | 86 |
| 11 | 3 | 1 | 1 | 1 | 4 | 4 | 6 | 14 | 15 | 21 | 4 | 0 | | | | | | | 74 |
| 12 | 1 | 1 | 0 | 1 | 1 | 6 | 4 | 8 | 13 | 20 | 15 | 6 | 1 | | | | | | 77 |
| 13 | 1 | 2 | 1 | 2 | 0 | 0 | 0 | 4 | 7 | 9 | 17 | 12 | 12 | 1 | | | | | 68 |
| 14 | 1 | 2 | 0 | 0 | 0 | 2 | 2 | 1 | 1 | 5 | 4 | 16 | 30 | 17 | 1 | | | | 82 |
| 15 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 2 | 2 | 5 | 9 | 26 | 34 | 17 | 3 | | | 103 |
| 16 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 6 | 6 | 16 | 31 | 30 | 17 | 0 | | 109 |
| 17 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 2 | 9 | 13 | 20 | 29 | 38 | 35 | 2 | 150 |
| 18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 2 | 3 | 5 | 2 | 2 | 17 |
| | 396 | 402 | 105 | 107 | 92 | 93 | 76 | 73 | 67 | 71 | 55 | 58 | 99 | 105 | 80 | 63 | 37 | 4 | 1983 |

# APPENDIX H

## CORRELATION TABLE

Correlations used to determine intercorrelation between variables

| | AGEOG | AGEYC | EMPW | AGEW | AGEH | EDUW | EDUH | AFI | NAU | ARR |
|---|---|---|---|---|---|---|---|---|---|---|
| AGEOC | 1.00 | | | | | | | | | |
| AGEYC | .923 | 1.00 | | | | | | | | |
| EMPW | .238 | .236 | 1.00 | | | | | | | |
| AGEW | .787 | .770 | .096 | 1.00 | | | | | | |
| AGEH | .737 | .724 | .110 | .882 | 1.00 | | | | | |
| EDUW | -.120 | -.094 | .011 | .099 | .043 | 1.00 | | | | |
| EDUH | -.103 | -.084 | -.142 | .081 | .051 | .608 | 1.00 | | | |
| AFI | .217 | .219 | .112 | .260 | .228 | .270 | .311 | 1.00 | | |
| NAU | .307 | .314 | .192 | .261 | .259 | -.034 | -.047 | .199 | 1.00 | |
| ARR | .033 | -.021 | -.045 | .042 | .037 | .120 | .196 | .182 | -.092 | 1.00 |

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