

Men's And Women's Time-Use In Household Production:
A Finland-United States Comparison

by

Leena M. Kirjavainen

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APPROVED:

Nancy A. Barclay, Chairperson

Laura J. Harper

Julia Marlowe

Mary H. Rojas

Lee M. Wolfe

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Committee Chairman: Nancy A. Barclay

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(ABSTRACT)

The purposes of the study were to (1) investigate similarities and differences in household production of men and women in Finland and the United States, and (2) develop and test a structural equation model of socioeconomic factors (age, education, employment and family situation) for household production across countries and across sexes. The results indicate that (a) total household production of Finnish men is only slightly more than that of U.S. men (7 minutes); (b) total household production of U.S. women (417 minutes) is noticeably more than that of Finnish women (323 minutes); (c) equality ratios strongly suggest differences at almost all employment levels being smaller in Finland than in the United States and indicate that men contribute less time to household production; (d) socioeconomic variables explain a modest amount (3-5 percent) of men's household production but a substantial amount (21-23 percent) of wom-

en's household production; (e) the fit of the structural model across sexes and across cultures is significant, i.e., the variables explained similarly the causal effects for household production over groups. The results have implications for further development of cross-national time-use research tools and methods; for the development of a theoretical framework that includes both quantitative and qualitative factors related to sex role behavior in household production; and for the need to design separate models for the study of men and women. Data supported the conclusion that women in both countries still contribute the most time to household production.

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CHAPTER I

INTRODUCTION

Since the early 1900's time budget studies have been used by economists, home economists, policy makers, and social scientists as a tool for analyzing various social phenomena. Due to industrialization, urbanization, and technological development, households had to face rapid changes. Market labor force participation of women increased. Investment in material and human resources changed. Allocation of time and tasks both inside and outside the household varied. In summa summarum, the conditions of family life were transformed radically.

How did these changes affect the family? How did society respond to these changes? How was the course of action directed for the well-being of the family members? In many countries there has been a growing concern for the quality of life. Researchers have developed various approaches to study these complex phenomena and to determine the facts about people's social and economic well-being. Time budget research has become widely recognized and used. Today it is one of the most useful tools in empirical survey research to study the effects of social change on families,

to develop quality of life indicators, and to make predictions for the future.

Applications of time-diary data are used to illustrate four kinds of social indicator analyses (Robinson, 1977): (1) cross-time; to find out how daily life has changed over time, (2) cross-sectional; to analyze the major factors, such as sex, employment and education, that affect people's use of time, (3) cross-activity; to observe time-use differences in daily activities, and (4) cross-national; to see how the way of life in one country differs from that of another. Time budgets are also employed in economics to test the theory of utility using time as a resource factor (Becker, 1965), and to estimate the monetary value of household production for inclusion in the gross national product, an important economic indicator (Walker and Woods, 1976; Kilpio, 1981).

To date, most of the time-use projects have been conducted at national levels, using cross-sectional, cross-activity, or longitudinal approaches. However, quite a few cross-national and cross-cultural research endeavors have emerged (Szalai, 1972; Gronau, 1976; Adanczuk, Andorka, Harcsa, Niemi, 1982; Abdel-Ghany, 1983; Andorka, Harcsa, Niemi, 1983; Niemi, 1983), which is a sign of increasing international interest and concern for the study of the way of life transnationally.

The countries included in this present research, Finland and the United States, both represent societies with advanced stages of industrial development. Both have experienced dramatic changes in social and economic conditions during the past decades. New societal reforms have been introduced, new family policies implemented. Evidence suggests that greater equality of the sexes is gradually being achieved. But questions arise: What are the similarities and differences in the way of life in the household sphere in Finland and the United States? Are there real differences in sex-roles? What are the factors that affect variations in the use of time and allocation of resources?

One way to seek answers to these questions is to isolate an occurrence and analyze it. In this study, household production has been the basic object of observation. Cross-sectional and cross-national approaches have been applied to see how the way of life and, specifically, the differences in household production by men and women vary in these two countries.

Background and Importance of the Study

Home economists in Finland and the United States have been pioneers in household and time-use research (Wilson, 1929; Reid, 1934; Saurio, 1947). To study household work time the time-diary method was developed to gather data on

women's reallocation of time due to their increased labor force participation and other societal changes that took place as a consequence of industrial and technological developments.

A second wave of time-use research evolved in the 1960's and 1970's as economists, policy planners and social scientists adopted the time-budget technique in their research endeavors. Economists used time data in applying economic time allocation models to the study of intra-family division of labor and production functions (Becker, 1965; Leibovicz, 1974; Gronau, 1977; Gramm, 1976). Sociologists looked at time and task allocations by employing and testing psycho-social frameworks with various explanatory variables (Haavio-Mannila, 1972; Robinson, 1977). Policy makers and planners relied on time-use research in "social engineering", a term used by Staikov (1982) in his research on social technologies in Eastern European countries. As an outcome of the research conducted by these various individuals, time-budget methodologies and theoretical perspectives were further developed both quantitatively and qualitatively (Walker and Woods, 1976; Robinson, 1977). More accurate data were needed for the estimation of the monetary value of household production, and for the analysis of the division of household labor in the family. The need for research on

these issues was strongly addressed by contemporary researchers on women's issues (Myrdal, 1966; Jallinoja, 1983). Two insights were offered into the problems of women's inferior status in the society: (1) an economic critique of unpaid household labor with a demand for wages for household work, and (2) a social critique of the sexual division of labor both inside and outside the home, insisting upon male sharing of housework duties (Hayden, 1981).

These insights were fully supported by the several large scale time-use studies reported in the 1970's (Haavio-Mannila, 1972; Vanek, 1974; Walker and Woods, 1976; Robinson, 1977; Sanik, 1981). They consistently reported that (a) women's labor force participation did not increase their spouses' input into household work, (b) the total household work time by men was relatively small, and (c) the total work load of employed women was considerably greater than that of men.

The imbalance in the female-male division of household work was obvious. It was examined by family sociologists, who looked at the issue from various theoretical perspectives (Pleck, 1979). The final conclusion in Pleck's report indicated that in light of the available time-use data, there was some evidence that men's family-work roles were changing toward a direction more egalitarian with women.

However, the factual amount of the increase in housework time was just a few minutes. A similar trend was reported by Haavio-Mannila (1980) in Finland. She reasoned that the egalitarian sharing of household duties was dependent on the historical time period when the spouses had adopted their sex-role models. Younger and more highly educated men who had adopted their role models in the 1960's, contributed more to the household production than those who established their sex-role models prior to that time.

In the 1970's an international wave of time-budget research evolved. A group of key-researchers interested in time-use realized the value of time-use data in gaining more understanding of cultures, different lifestyles, equality between the sexes, social developments, and other social phenomena vital to increasing international interest in cultural exchange between countries. The most significant multinational time-budget research was conducted by Szalai (1972) in urban households in twelve countries. This research presented evidence that the sexual imbalance in household labor is a universal phenomenon even in countries where female labor force participation rates are high.

In addition to the work of Szalai (1972), other cross-national comparisons of sex-differences in household work were made. Haavio-Mannila (1972) included a housework com-

ponent in her comparative study on sex-roles in Finland, Sweden, and the Soviet Union. Andorka, Harcsa, and Niemi (1983) observed differences both in housework time and tasks by sex and nationality in a comparison of time-budget surveys of Hungary and Finland. Niemi (1983) introduced a new approach to study the sex-role equality by calculating the household work ratio between men and women in various countries in her international comparison.

In order to investigate the argued universal work-overload status of women, further comparative research was needed to determine the state of affairs of the sexual division of household labor in order to guide social policy making. Family sociologists both in Finland and the United States have already reported that men's and women's roles are changing and becoming more balanced in the household sphere (Pleck, 1979; Haavio-Mannila, 1980). Therefore, further research findings were needed as they could be utilized to influence the power and direction of social change. The intention of this research was to investigate the cross-national sex-role differences in these two countries.

The major value of this study was its contribution to international time-budget research. As an application of earlier theoretical frameworks (Robinson, 1977; Grønmo and Lingsom, 1982) it extended previous studies cross-national-

ly. By focusing the time allocation differences across sexes in both countries, useful information on sexual equality in both societies was obtained.

Purposes and Objectives of the Study

This study was based on sex and employment status of respondents in two-parent, two-child families in Finland and the United States. It was designed with two major purposes in mind. One purpose was to compare the mean use of time across nations within sex and employment categories. The specific objectives to achieve these comparisons were:

(1) to determine the amount of time spent in each country by men and women in the basic classes of daily time-use called: necessary time, contracted time, committed time, and free time;

(2) to determine the total daily labor time used in each nation by men and women in all productive activities;

(3) to determine the use of time spent in each nation by men and women in household production and its subcategories: basic housework, child and member care, maintenance, and shopping and management;

(4) to identify differences and similarities in (1), (2), and (3) for both sexes by country; and

(5) to identify the differences in the equality ratios in household production in both countries.

A second major purpose was to determine within a specific causal model the associations among four variables and household production time, and then to see whether these associations varied across countries. The objectives employed to obtain these associations and to make the comparisons were:

(1) to identify and select cross-nationally comparable socioeconomic variables for inclusion in the structural equation model;

(2) to examine and analyze the relationships of the selected factors for both men and women in the two countries; and

(3) to test the model by conducting comparisons of the structural coefficients across groups of men and women from both nations.

Research Questions

In order to accomplish the objectives of this study specific research questions were designed as follows:

1. How much time do men and women in Finland and the United States with varying employment status spend daily in the basic time-use classes: (a) necessary time (sleep, personal needs), (b) contracted time or gainful employment (market work and education), (c) committed time (household production), and (d) free time (leisure, hobbies, etc.)?

2. How much labor time do men and women in the two countries spend in all productive activities including gainful employment and household production?

3. How much time do men and women with varying employment statuses use daily in separate household production activity categories: (a) basic housework (food preparation, dishwashing, laundering, housecleaning and other clothing care), (b) child and member care (physical and non-physical care of children and members of own or neighborhood families), (c) maintenance (of house, yard, car, and pets), and (d) shopping and management?

4. How does the proportionate contribution (equality ratios) of men and women at various employment levels differ in household production in Finland and the United States?

5. How much variation in the household production by men and women in Finland and the United States can be explained by a structural model of the four comparable variables (family situation, employment status, educational attainment, and age)?

6. Are there differences in the relationships between the household production time of men and women in Finland or in the United States, and (a) employment status, (b) family situation, (c) educational attainment, and (d) age?

Definitions of Terms

Terminology used throughout the study is subject to the following definitions:

Age--recorded age of the respondent at the time of interview.

Basic Classes of Time Use--quadripartite division of the extent of daily time commitment to four segments or categories or aggregates classified as necessary, contracted, committed, and free time. (Niemi, 1981, p. 13).

Child and Member Care--a subcategory of household production including the activities that deal with physical and non-physical care of household members other than self and members of neighbors.

Committed Time--time related to household production or domestic work covering basic housework, child and member care, maintenance, and shopping and management.

Contracted Time--"time related to gainful employment and school attendance" (Niemi, 1981, p. 13).

Educational Attainment--a tripartite classification of the educational level according to the highest grade, training or degree completed, or the number of years of education, and classified as first level, second level and third level.

Employment Status--respondent's labor force participation in gainful employment according to weekly hours of employment and classified as non-employed, part-time employed and full-time employed.

Equality Ratio--the ratio of the mean time spent by women in a certain activity category divided by the mean time spend by men in the same category.

Family situation--indication of the age group of the youngest child in the household. If the youngest child is age 1-5 in the United States or age 1-6 in Finland, he/she belongs to the pre-school category, otherwise to the school-age group.

Free Time--time free from necessary, contracted and committed time and used for leisure, relaxation, hobbies, etc.

Household Production--or household work or domestic work or committed time is the sum of time spent in the following activities: basic housework, child and member care, maintenance, and shopping and management.

Labor Time--time used in gainful employment or schooling and household production.

Maintenance--a subcategory of household production that deals with the maintenance of home, yard, car and pets.

Necessary Time--time related to basic needs like sleeping, eating, washing, etc.

Shopping and Management--a subcategory of household production that deals with shopping and management of goods and services for the household.

Time-Budget--or time-diary, is a record of an individual's activities during a specific period of time, usually a 24-hour period.

Time Duration--refers to the quantity of time devoted to a specific activity, traditionally recorded in minutes or hours per day or week.

The definition of household production used in this study is consistent with a definition developed by a working party of nine international home economists under the auspices of the Department of Home Economics of the Agricultural University of the Netherlands (Walker and Woods, 1976):

Household work comprises the activities performed for and by the household member(s) that result in household production; the goods and services that enable a household to function (p. 261).

This definition agrees with Honkanen's (1982) terminology, which in Finnish reads "kotitaloustyo" and can be translated in English as "household work" meaning "all human efforts used for household production" (p. 1). Further, she defines the word "tuotanto" meaning "production" in household economics as "all functions in the household that create value."

Limitations of the Study

This study was inherently limited by the following:

(1) it relied on respondents' interpretation of the interview terminology, memory errors, and accuracy in recalling and reporting on the daily activities and the length of them;

(2) it used pre-existing data files, in which the limited comparability of variables prevented the inclusion of broader dimensions in the research model, and lost some information due to necessary recoding;

(3) Finnish government regulations did not allow access of the Central Statistical Office data tapes by foreign research institutes. Required data tabulations, therefore, were conducted in Finland and further analyses made in the United States.

Delimitations

The following were delimitations imposed by the investigator:

(1) the research focused only on a cluster of household production time and activities and on the cohorts of men and women excluding children's contribution to household production which was only available in the U.S. data;

(2) the participation criteria in the U.S. data specified that all households consist of two adults and two children under the age of eighteen; this rationale was based upon the Walker and Wood (1976) study, which revealed that the two-parent, two-child family was the most common household group (Sanik, 1981);

(3) the Finnish data base used individual selection of male and female respondents; thus comparison of men and women living in the same household unit was not possible.

Summary

In this chapter background information and the importance of a cross-national study relating to household production time-use were presented. The problems of the unequal allocation of household work between men and women were discussed and the use of time-budget research in support of the sex-role theories justified. The purposes and objectives of the study were identified and specific research

questions outlined. Terminology was defined and the contributions, limitations, and delimitations of the study were considered.

CHAPTER II

REVIEW OF LITERATURE

A review of relevant research in the areas of time-use and the division of labor in household production is presented. Since the work reported here is a comparative study between Finland and the United States the research studies and papers cited are those which the investigator has been able to obtain from both countries. In search of such studies done in the Nordic countries, especially in Finland, the researcher initiated correspondence with the Central Statistical Office of Finland, the Ministry of Social Affairs and Health, and the University of Helsinki, Department of Household Economics. Positive responses were received, and several pieces of reference literature were obtained from all these institutions.

Because of the international nature of the study, brief accounts are given of the historical development of time-budget research both in Finland and the United States, and of cross-national and multinational time-use research attempts. The references include a mix of works by communication specialists, economists, home economists, psychologists, social scientists, and other interested researchers.

They reflect the worldwide interest in time-use research, and encourage cooperation and exchange to develop, use and expand the interdisciplinary time-use research. A review of literature of the theoretical frameworks and factors related to time-use by men and women in household production is included.

Finnish Time-Use Research Experience

Research in time-use in household work started in Finland as early as in the 1930's as Professor Saurio (1947) at the University of Helsinki collected data on the time-use of farm families. The data were collected in 1936, but because of Finland's involvement in World War II, the data were not analyzed until 1947. Later, small scale surveys were conducted from the 1940's to 1960's, both on farm and nonfarm family time-use (Westermarck, 1947; Oittila, 1963; Jokelainen, 1970).

A new phase in the time-use studies performed by home economists was brought about by the impact of technology in the form of household equipment and appliances, and in the use of ready made foods. Modern marketing systems and transportation facilities changed food shopping practices. Women's increased participation in the labor force and awareness of the inequality of labor in the household sector brought an interest in developing a method to evaluate the

monetary value of unpaid household work (Honkanen, 1967; Oinonen, 1973).

At the same time, communication and media experts used time-budget techniques to examine the living conditions of the population and the time-use patterns during leisure hours and weekends in order to plan media programming for radio and television. The studies included a component of household work time, as home economics programs for the housewives were also considered in the planning. These surveys are regularly repeated and ongoing, due to increasing complexity in program development and changing time-use patterns (Soramäki and Sauri, 1977).

Simultaneously, feminists, planners, politicians, sociologists, and spokespersons for women's affairs started to pay attention to more egalitarian sharing of both market and home labor. Various research projects were conducted to study the occurring changes in sex differentiation and role performance of men and women (Haavio-Mannila, 1967, 1969).

Haavio-Mannila's (1980) later study observed changes in the division of household labor using the data from Finland's Gallup Polls, gathered in 1966 and 1977. A major conclusion of the study was that male participation in household activities was increasing somewhat and that this phenomenon should be recognized as a sign of more egalitarian status in the household work and family sphere.

Comparisons of the sexual division of labor and household responsibilities among the Nordic countries were conducted as new ideas for the women's movements and social policy implementation infiltrated into Finland, mainly from Sweden (Myrdal, 1967; Haavio-Mannila, 1972). Sociologists interested in the Marxist view of societal development conducted studies and comparisons using time-budget techniques as a tool of measurement of the living conditions of working class men and women (Julkunen, 1977).

A strong wave of time-use research evolved at the end of 1970's and the early 1980's. Home economists, policy makers, sociologists, and other interested parties became interested in researching the facts of sexual inequalities in the household sphere, and on monetary value of household production.

An extensive series of Housework Studies was conducted by the Research Department of the Ministry of Social Affairs and Health on the monetary value of unpaid housework in various household production activities as produced by various family members (Suviranta and Heinonen, 1980; Kilpiö, 1981; Suviranta and Mynttinen, 1981; Sääntti, Oiva and Kilpiö, 1982; Sääntti and Väliäho, 1982; Sääntti and Vesikkala, 1983). These studies form a unique reference base of facts and figures about the time-use, value, and contribution that house-

hold production forms in the estimation of the important macroeconomic indicator, gross national product (GNP).

Kilpiö (1981) noted that the determination of the value of unpaid housework was absolutely necessary for the following purposes:

(1) to evaluate the economic importance of unpaid work done in the home; (2) to follow economic and social changes; (3) to promote equality between the sexes; (4) to help plan social services and family policy, particularly child allowance systems; (5) to develop social security and pension provisions for housewives; (6) to develop provisions for children's day-care and care for the aged, the handicapped and those with long-term illness; (7) to help determine property ownership relations; (8) for the production and planning of social and commercial services (p. 2).

Another nationwide research study of the use of time by Finns was carried out by the Central Statistical Office of Finland (hereafter called "CSO"), in 1979 (Niemi, 1981). CSO included the entire population in this study using a nationally representative sample of all 10-64 year old population. A map of the basic sampling areas in Finland is presented in Appendix B. Szalai's (1977) international time use classification framework was incorporated in the Finnish study, so that the data would allow international comparisons. This CSO-data base was used for the analysis of the Finnish part of this research project.

Review of Major Time-Use Research
Projects in the United States

In the United States, time-use studies among farm homemakers were started in the early 1900's, in numerous agricultural experiment stations, mainly through the Home Economics Bureau of the United States Department of Agriculture (USDA) (Walker and Woods, 1976). Studies providing historical time-use information were carried out by the land-grant colleges and universities in the 1940's and 1950's. During the 1950's interest in housework time-use studies intensified. This was due to increased participation of women in the labor force, technological developments changing household work patterns, and the growing consumerism movement.

The early time-use studies in the rural settings were oriented to identifying time-use patterns in various activities, measuring the length of time used in each activity, and finding methods to reduce the overload of homemakers household work. Later the research included the urban sector households, where changes were more rapid. These time-use studies were associated with extensive changes in technology, living patterns, use and development of commercial services, changing consumption patterns, family roles, values, and priorities (Walker, 1976).

One of the most frequently quoted of these studies was the one conducted at Cornell University by Kathryn Walker and her coworkers (Walker and Woods, 1976). They developed a method for measurement of household production. The major accomplishment of this research was the recognition of the contribution that household production could make to national indicators. Another contribution of this study was the identification of the most significant factors associated with time-use in household work of men and women. These include the number and age of children, and wife's employment status, among others. Several similar research projects were initiated after Walker and Wood's (1976) research was reported.

Vanek (1974) conducted a historical review of the time-use change in housework from 1920 to 1970. She reported that the total time used by women in housework had not changed during the fifty years; but, that it had somewhat reduced among women in labor force. Vanek also stated that:

Furthermore husbands of employed women gave no more help than husbands of nonemployed women. Contrary to popular belief, American husbands do not share the responsibilities of household work. They spend only a few hours a week at it, and most of what they do is shopping (p. 118).

Sanik (1981) reported a decade comparison of 1967-1977 in household work time in two-parent, two-child families.

She used data from the 1967 Walker-study of Syracuse, New York, and comparable data of the Northeast Regional Research Project, NE-113, for replication purposes. Sanik's conclusions maintained that the input to all household production by the total family remained approximately 10 hours per day. Although changes in the labor force participation by women had taken place during the decade, they were not accompanied by changes in household division of labor in two-parent, two-child families.

A most extensive household time-use study, the Interstate Urban/Rural Comparison of Family Time-Use, was conducted under the sponsorship from the U.S. Department of Agriculture, Science and Education Administration, Cooperative Research Section (USDA). The project included 11 U.S. states with a sample of 2100 urban and rural two-parent, two-child families (See Appendix B). This so-called "NE-113 Study" provided an extensive data base for numerous time-use research projects. The NE-113 data bank was also used for the research project reported here.

As soon as the topic of household division of labor was included among debate issues in public policy, several family economists, sexual equality supporters, and sociologists became interested in time-use and role discussions. The Wellesley College Center for Research on Women conducted

several studies on husband/wife differentials in household work and work-family role identity questions (Lein, 1979; Pleck, 1979; 1981). Several other researchers also studied roles and time-use. They initiated research in which they analyzed the effects of socioeconomic factors and their associations with time use in household work, both quantitatively and qualitatively (Leibovitz, 1974; Nichols and Metzen, 1978; Berk, 1980; Strober and Weinberg, 1980).

A well-known time-budget research in the United States, using a national sample, was the 1965-1966 study of American's use of time conducted by the Survey Research Center of the University of Michigan (Robinson, 1977). From a research methodology point of view the major feature in the study was the fact that it used the time-diary technique for the collection of data. Individuals kept a diary for a single day on all major activities, secondary activities, social partners, and location for each time period during the day. A new technique was developed in which precategorized activity codes were used for reporting. Activities were reported for two days; the first one before the interview and the second one the day later.

The Institute of Social Research in Michigan has since conducted several studies of time use in American households (1965-66, 1975-76, and a follow-up study of the 1975 study

in 1981-82). New cross-sectional time-use surveys are being planned at the Institute in order to improve the usefulness of the data (Juster, 1983).

International Time Budget Research

The first broad international comparative time-budget research project was a multinational study in twelve socialist and capitalist countries, including the United States. However, none of the Nordic countries were included in the study. It was carried out by the UNESCO-sponsored European Coordination Center for Research and Documentation in Social Sciences. The study included only urban adult populations, and although the major emphasis of the research was on non-work-time, comparisons were made from other categories such as paid work and household work. The major publication resulting from these studies was edited by Szalai (1972) and it later provided the basic framework for the time-use classifications in international research forums.

In the 1970's a few enterprising cross-national time-use comparisons were initiated (Gronau, 1977; Adanczuk, et al., 1982; Niemi, 1983). Gronau carried out a comparison of time use by Israeli and U.S. women, in which selected explanatory factors affecting the family's allocations of time were analyzed and discussed.

Adanczuk, et al. (1982) conducted a cross-national time-use study of Finland, Hungary and Poland. This study matched the comparable activity categories as adequately as possible and analyzed the average daily time spent in different activities by men and women in these countries.

In a recent research report by Niemi (1983) time-use studies from Finland, Great Britain, Japan, Norway, Switzerland, Hungary, Poland, and the United States were compared by the structure of basic time aggregates and by gender. The uniform framework for time-use classifications developed by Szalai (1972) was used in these studies, thus allowing comparisons among the data of different countries. According to Niemi (1983), large differences were noted with respect to sexual division of labor in domestic work (i.e., household work). In all countries women spent more time on household chores than men. The equality between men and women was studied by using a ratio of the hours spent by women divided by the hours spent by men in the same tasks:

$$\text{equality ratio} = \frac{\text{time used by women for domestic work}}{\text{time used by men for domestic work}}$$

The ratios varied by country as can be seen in the following table (Niemi, 1983, p. 17):

Country	Housework time ratio by employed women/men
Finland	1.9
Norway	2.1
Poland	2.2
USA	2.3
Hungary	2.6
Great Britain	2.8
Switzerland	3.8
Japan	5.5

The outcome of Niemi's research indicated clearly how much the equality ratios vary cross-nationally. Employed women in Finland spend almost twice as much time in household work as men. Nevertheless, time-use ratios in household chores seemed to be smaller in Finland when compared to the other countries. The equality ratio for the United States was 2.3 as opposed to 1.9 in Finland. The biggest difference between men's and women's inputs in household work was found in Japan with an equality ratio of 5.5.

Overall, this study lends itself to an interesting further investigation of the time use patterns between women and men in Finland and the United States, not only in total household production, but also in various activity groups. A more thorough comparative study including the factors affecting time-use would provide deeper insights on family life in both countries.

In East European and other socialist countries extensive time-budget studies have also been carried out with national and multinational settings since early 1900 (Szalai, 1972). The major purpose of these studies has been to find out how the category of time can be used as a tool in the planned development of a socialist society, called "social engineering" (Staikov, 1982, p. 3). In general, in the socialist tradition, time-budgets have played an important role in the quantitative description of the way of life, and especially in describing how the development of a nation in a socialist economic system can change their way of life (Julkunen, 1977).

In western countries, time-budget studies have received considerably less recognition by policy makers and social planners. After the Second World War, time-use studies increased and emphasized leisure and consumerism. The research centered on analyzing time-use patterns for the media, radio and television, and for supporting marketing and advertising practices. In the 1960's and 1970's time-use researchers started to pay more attention to the division of labor between sexes both in the marketplace and in the home. They were motivated by ideological movements, which stressed women's liberation and sexual equality, and demanded new social policies. Economists also recognized time as a re-

source factor in their theoretical models of household production function (Becker, 1965; Gronau, 1976). Simultaneously, home economists started to use time-data in the determination of the economic value of household production as a contribution to the national economic indicator, the gross national product (GNP) (Walker and Woods, 1976).

In the international sphere, time-budget studies have been used for developing quality of life measures (OECD, 1976; Szalai and Andrews, 1980), so that comparative research on the lifestyles across cultures and countries could be developed. With the time-budget instrument one can examine objectively the circumstances of various population groups like women, children, elderly, or other special groups, and thus contribute to the international investigation of the quality of life.

Julkunen (1977) summarized the importance of the indicators, indexes, and balances derived from the use of time in the "conscious regulation and planning of society" as follows:

Data based on the use of time can be significant in economic, social, physical and cultural planning as well as in the planning of different services: search for labour reserves, search for leisure time reserves, timing of work and off-work time, rationalization of the use of off-work time, need for services to help households and families, need and timing of cultural services, traffic flows and timing, rationality of housing areas. In other words, it concerns both the management of

economic processes per se and the creation of practical conditions for the development of a desirable way of life (p. 20).

Based on the review of literature of time-use and sex-role studies in numerous countries, it appears that gender differences exist in the allocation of time to household tasks. In order to further explore these differences across sexes and across countries the following three hypotheses were derived:

- Hypothesis 1: Mean time spent in household production and its subcategories is greater for Finnish men than for men from the United States regardless of employment status.
- Hypothesis 2: Mean time spent in household production and its subcategories is greater for U.S. women than for Finnish women regardless of employment status.
- Hypothesis 3: The equality ratios of household production and its subcategories are smaller in Finland than in the United States.

Theoretical Frameworks

Based on preliminary findings in past time-use research, various sets of factors determining time-use were identified. Robinson (1977) developed a schematic model presented in Figure 1, which indicates four sets of factors: personal, role, resource, and environmental. Of these factors the personal ones, such as sex and age, are the most basic. According to Robinson, these factors are "linked

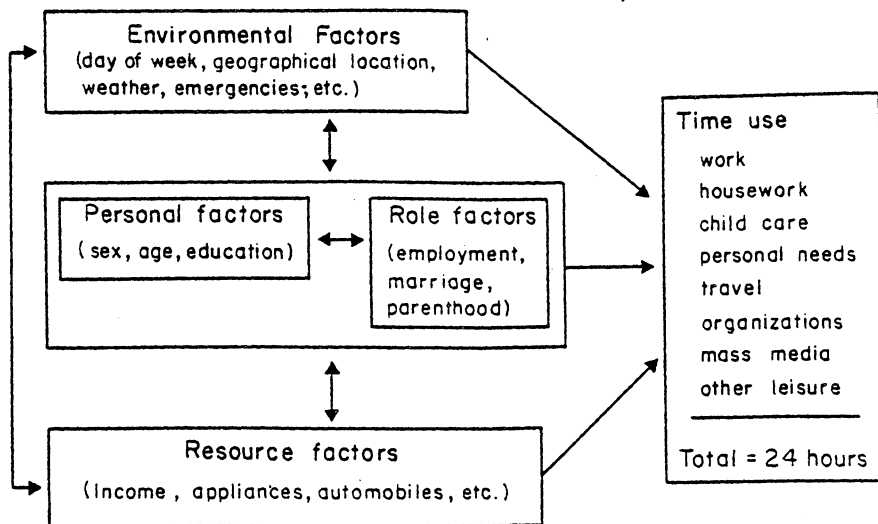


Figure 1

Schematic model of factors affecting time use

Source: Robinson, J.I., 1977

closely to the social role requirements that people assume, the main time-relevant ones being improved by the responsibilities of employment, marriage and parenthood" (1977, p. 27). As seen in the diagram, all four sets of factors are mutually interacting. In this general framework of time-use, Robinson found that personal factors (sex, age, and education) explained surprisingly little variance in time-use, in general. However, he, like several other researchers, later concluded that if a special emphasis is placed on the household work time, these variables are very important (Leibovitz, 1974; Farkas, 1976; Haavio-Mannila, 1980).

In 1982, Grønmo and Lingsom, Norwegian time-use researchers, presented another structural model explaining allocation of time for household tasks. This study observed only women with a special emphasis on their sex-role change in Norway. Constraining variables (family situation and employment) and productivity variables (education and technology) were the strategic indicators included in the study. A model presenting the adopted framework for the empirical analyses is presented in Figure 2. The findings of the study revealed that women's housework time-use was significantly decreasing in Norway in the 1970's. The authors suggest-

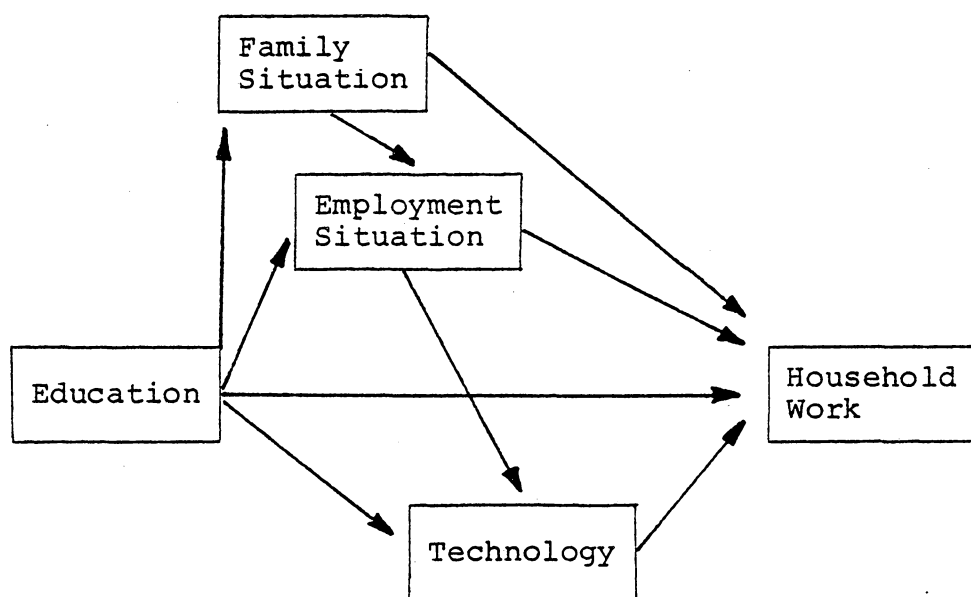


Figure 2

Structural factors explaining change in
women's use of time for household work:
a general model

Source: Grønmo, S. & Lingsom, S., 1982

ed that sex-roles were becoming a weaker force in determining the allocation of activities within the household. As to the variables of the model, employment and education retained their predictive negative strength.

From both of these theoretical frameworks, several variables associated with household work time were detected and further examined for the purpose of the development of the research model used in this study. In the following section a review of literature on the four major factors is presented by order of their inclusion in the proposed causal model.

Factors Associated With Time-Use in Household Production

Number and Age of Children

One of the factors having the greatest impact on household production time is the number and age of children. This research finding has been supported by several studies (Walker and Woods, 1976; Gronau, 1976; Robinson, 1977; Nichols and Metzen, 1978; Lerber, Malkavaara, Paatola and Takala, 1979; Sanik, 1981; Grønmo, 1982; and Hafstrom and Schram, 1983).

Robinson (1977) concluded that in the subcategory of child care in household production, the age of children is

more significant than the number of children as to time-use by women. This was consistent with Gronau's findings (1976), which indicated that one child below school age increased the time spent on daily child care by about thirty-five minutes. However, the burden declined as the child grew older. Although the heaviest burden of the child care for pre-school children was shouldered by the mother, the presence of a pre-school child may induce the father to help in household chores or child care. Gronau also reported that a child of 0-5 years of age increased the father's housework time approximately half an hour, or 30 percent, per day.

Lerber et al., (1979) maintained that in Finnish families father's time in household duties increased when the family has a preschool child. However, his contribution was in other household work rather than child care. Haavio-Manila (1980) noted that if the families had children age 0-6 the father did participate in selected child care tasks, such as putting the child to bed, feeding, and dressing.

Employment

If a person participates in the labor force, his or her time constraint increases, and rearrangements have to be made in household routines to keep up the same standards. Otherwise, the missing time has to be taken from the free

time sector or the housework time simply has to be reduced or divided among household members. Jackson (1981) concluded that women's increasing labor market commitment resulted in a decrease in absolute household production. Abdel-Ghany (1983) found further that "both spouses reduced their household production time approximately 20 minutes for each additional hour of paid work" (p.165). As to the division of labor, one might logically assume that if the homemaker is employed fulltime in market work, the spouse would contribute more to household production. Several studies, however, do not support this assumption but indicate that women's employment has affected minimally men's time allocation to household chores (Walker and Woods, 1976; Robinson, 1977; Gronau, 1977; Pleck, 1979; Nichols and Metzen, 1982; Fox and Nichols, 1983).

A few research findings documented that employment of women caused spouses' increased participation in home production activities (Sanik, 1981). This type of shift usually occurred in conjunction with other factors, such as age of the youngest child (Lerber, 1979). In Finland Haavio-Mannila (1966, 1972) reported that in families where women participated in the labor force, men increasingly shared housework tasks more than in families where wives stayed at home.

Women's employment has substantially affected their time spend on home production (Jokelainen, 1970; Oinonen, 1973; Vanek, 1974; Walker and Woods, 1976; Kilpio, 1977; Robinson, 1977; Nichols and Metzen, 1978; Fox, 1983; and Abdel-Ghany, 1983). Both Walker and Woods (1976) and Robinson (1977) considered the labor force status of women the most significant factor affecting their time for home production. Employment has caused women to adjust to the constraining and stressing situation, to reduce their time in home chores, to change preferences and attitudes toward the intrafamily allocation of household labor, or to squeeze extra time needed from their "own" time of leisure in the evenings or weekends. Oinonen (1973) reported that women employed full-time in Finland used only about half the amount of time for selected home activities (food preparation, housecleaning and shopping) compared to women who were full-time homemakers.

Walker and Woods (1976) documented that employed homemakers used 5.3 hours per day in household work, and that fulltime homemakers used 8 hours per day on the average. This also reported a 30-minute shift in the time-use from food preparation and cleanup activities to marketing and management duties. Grønmo and Lingsom (1982) found that holding all other factors constant the increase in married

women's employment rate would lead to a 0.3 hours reduction in the average housework time per day.

One of the ways to recover the time loss due to employment is to be more productive in less time. According to Kilpiö (1977) and Strober and Wineberg (1980), if the time constraint due to labor force participation increases, the person becomes more productive and efficient. Kilpiö (1977) observed that if the homemaker had plenty of time, she could easily engage herself in unnecessary production due to "created needs." Kilpiö (1977) thus supported Jokelainen's earlier research (1970), in which she reported that employed homemakers could conduct home chores faster if they improved organizational and planning skills, thus contributing greatly to home production by using less time.


Although the overall relationship between homemaker's employment and home production time is negative, Stafford (1983) reported interesting trends of increased time-use in certain production categories. According to Stafford, employed wives participated more in maintenance, shopping and management activities, which could be explained with changes in transport needs and mobility outside the home sphere.

Husband's employment was the only variable found to relate somewhat to his household work (Walker and Woods, 1976; Nichols and Metzen, 1982). The negative relationship, however, was not very strong.

Educational Attainment

Educational attainment has had an impact on hours spent in household production of both men and women. Robinson (1977) found that women with higher education spent less time in home production tasks. On the contrary, for men higher education was positively correlated with home production. Gronau (1977) reported that home production increased with higher educated persons. He also concluded that the amount of time spent in child care was positively correlated with education, although the result was not significant.

According to Leibovitz (1974), more educated women were more likely to be in the labor force, which meant that indirectly education had a negative effect on household work time. This notion could be supported by the household production analysis due to higher opportunity costs of the time if participating in the labor force. On the other hand women with higher educational attainment changed their priorities between the household tasks; for example, spending more time in child care. Education also increased productivity by orienting women toward more efficient home management, which was consistent with Kilpiö's (1977) reasoning about the increase in productivity during time pressures. Likewise, Michael's (1972) study of the effects of education on productivity suggested with considerable evidence that



education yields efficiency in household production. The higher the educational level one has, the more productive and skillful one is, thus being able to cope with the time constraint.

An earlier study by Vanek (1974) suggested that women of higher socioeconomic status, one indicator of which is educational attainment, performed household production in child care more than women with lower status. Vanek also observed that contemporary women frequently lowered their standards for housework when the child care demands were highest.

Both Farkas (1976) and Ericksen, et al. (1979) reported that higher schooling level has a tendency to increase the husband's housework participation leading to greater housework sharing in general. However, the effects of schooling were reasonably strong only for younger couples.

Haavio-Mannila (1980) contended that education is an important factor in providing possibilities for both men and women to follow up news and tendencies of change in the society, and thus understand better the family expectations of today's society. An educated woman is in the position to demand more egalitarian sharing of household duties from the spouse. Because of the rapid change in the attitudes toward the intrafamily division of labor, educational attainment

and age should be observed simultaneously. In summa summa-rum Haavio-Manilla (1980) concluded that the higher level of schooling of women has a positive effect on a more equal division of household labor, especially in child care and house cleaning activities.

Jackson (1981) wrote that education was positively related to a man's time spent in housework and child care. He suggested that education serves as a better predictor of the role changes in the family than wage rate.

Age

Haavio-Mannila (1980) used life-cycle variables in a study of division of labor in the household, and classified the life-cycle stages according to spouses' ages and children's presence. She proposed that age reflects the personal growth and the life experiences obtained by the parents at a certain historically remarkable time-period of the society. Therefore, sex-roles are greatly determined by the "era" during which a person learns his or her family role. Haavio-Mannila (1980) further contended that men participate more in household production at the life-cycle stage when children are small, which is directly related to father's age. Younger men apparently had adopted their role models during recent decades, when sex-role discussions and women's movements strongly influenced their perception of equity

both at home and in the labor force. Haavio-Mannila (1980) reported that the younger the family was the more men participated in traditional women's housework tasks (food preparation, cleaning and child care). However, as to traditionally male tasks such as maintenance and money management, no correlation was found with age and the time allocated.

Grønmo and Lingsom (1982) found that the sex-role differences in household work in Norway were smallest for the youngest (less than 25) and the oldest (over 51) age groups. Further, sexual differences were largest for the 25-33 year old group and smallest or "most egalitarian" among people of 34-51 years of age.

Abdel-Ghany (1983) reported that a wife's age was positively and significantly related to time spend in housework, although his definition of "housework" did not include time spent in child care activities. For husbands, age was negatively related to time spent in housework.

Other Factors

In addition to the role factors related to parenthood and employment and the personal factors of age and educational level, several other variables were reviewed during the preliminary work of developing the modfl. From the environmental variable group, the day of the week would obviously be of special interest for analyzing the housework

time allocations between weekdays and weekend-days. However, the NE-113 data included time-use information for "yesterday" and "tomorrow", thus making it impossible to calculate daily means from the data base.

Resource factors, such as technology and income, were also considered but the noncomparability of the variables could not be overcome. To illustrate the technology-problem, for example in the Finnish data, subjective measures to indicate the provision of technology in the household were used (well-equipped, poorly equipped, etc.) whereas the number and type of appliances were the indicators of the technology-level available in American homes. Thus it was not possible to compare data in relation to technology.

Information on income, a frequently used economic resource indicator, was not included in the Finnish data base; neither was the wage-level of the respondents available. Moreover, the socioeconomic status and occupational status categorizations differed so much that their comparison was not possible.

From the exploration of the theoretical frameworks related to time-use in general (Robinson, 1977) and to women's household work in particular (Grønmo and Lingsom, 1982), four major cross-culturally comparable variables were proposed for inclusion in a structural model for this research.

The following hypotheses were developed to study the relationships of these factors to household production:

Hypothesis 4: Time used in household production by men is related positively to education in both countries.

Hypothesis 5: Time used in household production by men is related negatively to family situation, employment, and age in both countries.

Hypothesis 6: Time used for household production by women is related positively to age in both countries.

Hypothesis 7: Time used for household production by women is related negatively to family situation, education, and employment in both countries.

Summary

The review of literature is a brief summary of the most relevant time-use studies conducted in Finland and the United States. International time-budget research projects were included. Theoretical frameworks, from which the research model was developed, were presented. A closer examination of research outcomes related to selected key variables was presented, and a summary of the problems in investigating the inclusion of other variables included.

Studies on household production have taken two major theoretical approaches: the economic and the sociological, depending on the needs of the respective researchers. Moreover, the time-budget method is very much favored to provide

facts and figures in support of studies on sex-role differences and changes, and research on women.

CHAPTER III

METHODS AND PROCEDURES

Design of the Study

This study is designed, first, to objectively describe and compare the allocation of time by men and women in Finland and the United States to all productive activities both in and outside the home with special emphasis on household production and its separate activity categories. Time-use differences are further analyzed between the nonemployed, part-time employed, and full-time employed respondents since employment has been found to be one of the dominant factors influencing the ways time is allocated by sexes within the household.

Second, a structural equation model with socioeconomic variables for household production is developed. This model is used to examine whether the relationships among these factors and household production vary between people in Finland and the United States.

Development of the Model

Based on theoretical perspectives established from previous sociological research and on the frameworks presented in the review of literature (Robinson, 1977; Grønmo and

Lingsom, 1982), a schematic causal model was developed, as shown diagrammatically in Figure 3. Since the two sets of national data used in the study were collected in conjunction with other research projects, a special effort in evaluating, screening, and recoding comparable variables was made. However, as both data used the overall uniform framework for international time-use classifications (Szalai, 1972), the assumption was made that minor methodological differences would not raise great obstacles for conducting the comparisons.

The structural model developed for this study considers the allocation of time to household production to be a function of family situation, employment, education, and age. The model shows that educational attainment is a function of age reflecting the fact that younger generations require more education than older cohorts. The same relationship is assumed in employment, since it depends in part on educational level and age. Moreover, family situation, indicated by the age-group of the youngest child, is partly determined by age and educational attainment. However, no causal nexus is assumed between employment status and family situation; accordingly the disturbances of these two variables have been specified to covary, which will measure the extent of their mutual association not explained by education and age.

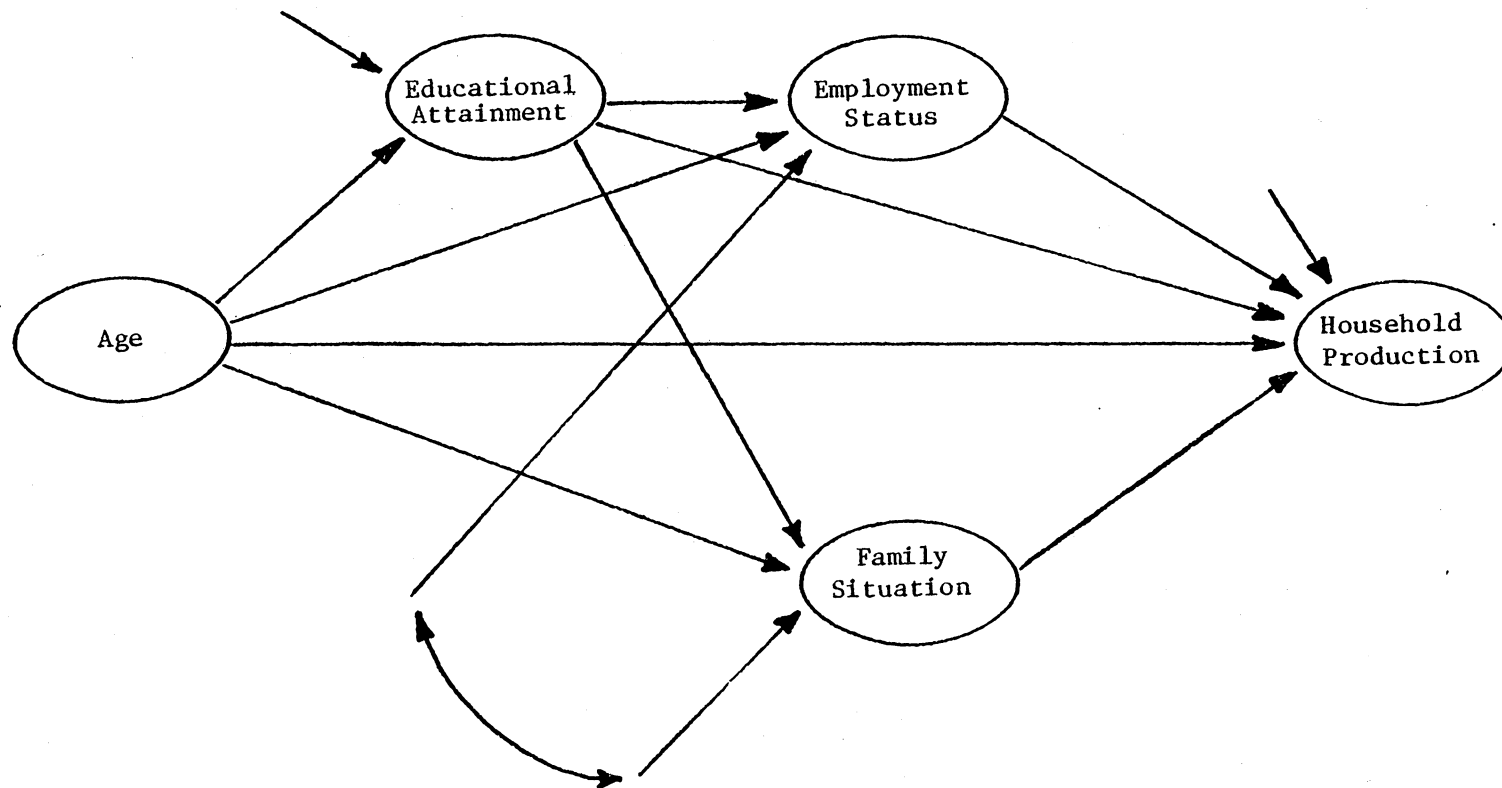


Figure 3

Structural equation model of household production
of men and women in Finnish and U.S. households

Finally, household production is considered to be dependent on all of the preceding variables in the model.

In the model the variables of interest are shown within ellipses. The residual disturbance terms are depicted by arrows, unconnected with any preceding variables. These disturbances represent all of the variation in each variable not explained by the other preceding variables. The relationship of these variables to household production are hypothesized in the following section.

Hypotheses

The following hypotheses were developed from the research findings reported in the review of literature:

- Hypothesis 1: Mean time spent in household production and its subcategories is greater for Finnish men than for men from the United States regardless of employment status.
- Hypothesis 2: Mean time spent in household production and its subcategories is greater for U.S. women than for Finnish women regardless of employment status.
- Hypothesis 3: The equality ratios of household production and its subcategories are smaller in Finland than in the United States.
- Hypothesis 4: Time used in household production by men is related education in both countries.
- Hypotheses 5: Time used in household production by men is related negatively to family situation, employment and age in both countries.
- Hypothesis 6: Time used for household production by women is related positively to age in both countries.

Hypothesis 7: Time used for household production by women is related negatively to family situation, education and employment in both countries.

Sources of Data

The data sources upon which this research was based are the National Time-Use Data of the CSO (Niemi, 1981, 1983) in Finland, and the Northeastern Regional Project, NE-113, of the USDA-SEA (Lovingood, 1981) in the United States. Both of these research projects possess common characteristics, which made the cross-national comparison feasible:

- (a) Each was a national study;
- (b) Both used a survey research method with a two-day-diary approach;
- (c) They were relatively substantial in scale; the NE-113 study used a sample size of 2100 households in the United States, and the CSO data contained information from 1689 two-parent, two-child household representatives in Finland;
- (d) Each study was conducted at approximately the same time (the CSO data in 1979 and NE-113 data in 1978-1979); and
- (e) The major classification of variables allowed a cross-national comparison, even though substantial screening, pre-search, and recoding had to be undertaken.

Another important feature was the fact that the research investigators of both national projects agreed upon collaboration in the study reported here.

Data Analyses

The research questions raised in Chapter I have been analyzed as follows:

1. Means, standard deviations, and frequencies were computed for each time-class for men and women with varying employment status in both countries.
2. The average daily labor time in minutes was calculated for men and women for the comparison of the total work-load differences.
3. Means, standard deviations, and frequencies were computed for total household production time and its subcategories for men and women with varying employment status as in both countries.
4. Three-way analysis of variance with unequal cell sizes employing means and standard deviations was used as a test of significance for:
 - a. the differences between the time-use means in household production of men and women by employment status in Finland and the United States;

- b. the relationship between the time-use means in basic housework, child and member care, maintenance, and shopping and management of men and women in both countries.

5. The equality ratios in household production and its subcategories were calculated for Finland and the United States. The results were presented in a table form and differences described.

6. Multiple regression analyses were used in the general least squares linear procedure to analyze the relationships between the variables in the model. The following regressions were performed separately for men and women in each country:

$$(1) \text{HhProd} = b_0 + b_1 \text{FamSit} + b_2 \text{EmpStat} + b_3 \text{EducAtt} + b_4 \text{Age} + e$$

$$(2) \text{FamSit} = b_0 + b_1 \text{EducAtt} + b_2 \text{Age} + e$$

$$(3) \text{EmpStat} = b_0 + b_1 \text{EducAtt} + b_2 \text{Age} + e$$

$$(4) \text{EducAtt} = b_0 + b_1 \text{Age} + e$$

7. Standardized regression coefficients, or beta weights, were calculated in order to evaluate the relative predictive strengths of the variables in the model, when applied to a particular sex-national group.

8. The metric regression coefficients were calculated in order to compare the relative strength of the variables in the model across sex and national groups.

9. A multigroup analysis in LISREL (Joreskog and Sorbom, 1981) was used to test the equivalence or difference of regression coefficients across sex and national groups.

All results were presented in summary tables, and observed at 0.05 level of significance.

Summary

In Chapter III the specific methods and procedures were outlined. These included the study design, development of the research model, selection of the data sources from Finland and the United States, and methods of data analyses.

CHAPTER IV

RESULTS AND DISCUSSION

The results and discussion of the findings are presented in several sections following the purposes and objectives of the study. The first section contains a description of the sample in both countries with special emphasis on the employment situation and the total labor time in productive activities. Total productive labor time includes contracted time in gainful employment or schooling and committed time in household production. In the second part, summary tables are included that present the analyses of variance in household production and its subcategories. The third section contains comparisons of the equality ratios in household production by employment status and by country. The relationships between the variables included in the structural model are reported in the fourth section according to the stated hypotheses. Finally, the cross-group comparisons of the structural coefficients for a model of household production are reported by country and by sex.

Description of Sample

Descriptive statistics for samples from both Finland and the United States are presented in Table 1. In Finland, the subjects were chosen by individual selection; there were

823 male respondents and 866 female respondents representing 1689 households. In the United States there were an equal number of 2100 men and women, since the respondents were sampled from the same household.

All respondents were parents or guardians of two children under age 18 who lived at home. The Finnish respondents were somewhat older than U.S. respondents. The mean age for Finnish men was 36.5 years and for men from the United States, 35.0 years. Mean age for female respondents was 35.2 years (Finland) and 32.5 years (United States). The Finnish women were, on an average, approximately 1.3 years younger than the Finnish men, and the U.S. women 2.4 years younger than the U.S. men.

Family situation was indicated by the age-group of the youngest child. In Finland this meant child's age group of 1-6 years and in the United States of 1-5 years since the school-entrance ages vary by country. Mean values for the Finnish households with male respondents was 1.43 and with female respondents 1.49. This means that approximately 43 percent of the men and 49 percent of women were representing households where the youngest child was in school-age category. In the United States the mean value was 1.40 for both sexes, indicating that approximately 40 percent of the households had their youngest child in the school-age group.

Table 1

Descriptive Statistics: Sample Means from
Two-Parent, Two-Child Households in
Finland (1979) and the United States (1978-79)

Variable	Finnish Men (N=823)	Finnish Women (N=866)	U.S. Men (N=2100)	U.S. Women (N=2100)
Age, Years	36.46 (7.43)	35.17 (7.43)	34.95 (7.89)	32.51 (7.19)
Family Situation (a)	1.43 (0.49)	1.49 (0.50)	1.40 (0.49)	1.40 (0.49)
Employment Status (b)	2.91 (0.37)	2.37 (0.81)	2.85 (0.51)	1.63 (0.80)
Educational Attainment (c)	1.56 (0.56)	1.46 (0.51)	2.61 (0.52)	2.53 (0.52)

(a) Scale range is 1-2; 1 = pre-school-age youngest child; 2 = school-age youngest child.

(b) Scale range is 1-3; 1 = nonemployed; 2 = part-time employed (1-34 hrs. per week); 3 = full-time employed (35 or more hrs. per week).

(c) Scale range is 1-3; 1 = first level (1-9 years); 2 = second level (10-12 years); 3 = third level (13 or more years).

Standard deviations in parentheses

Employment statuses of the respondents are identified in Table 1 (mean range values) and in Table 2 (cell frequencies and percentages). There were no remarkable differences between the employment cohorts of Finnish and U.S. men. Over 90 percent of both groups were employed full-time. Part-time employed category consisted of 3.0 to 2.6 percent of the respondents, and the nonemployed group, 2.9 to 6.3 percent, respectively. The nonemployed category in the NE-113 data base included some persons who were engaged in paid employment; their inclusion in the group resulted from coding inconsistencies which could not be avoided.

In the Finnish sample, nonemployed women formed 21.5 percent of the respondents, part-time employed 20.4 percent, and full-time employed 58.1 percent. About 57.7 percent of all women in the U.S. sample were in the nonemployed category, 21.8 percent were among the part-time employed, and 20.6 percent among the full-time workers.

Educational attainment was coded at three levels. For the Finns the mean range was at the second level, 9-12 years for both men (1.56) and women (1.46). For the U.S. sample the most frequent level of educational attainment was the third level, 13 or more years, mean range for men being 2.61 and for women 2.53.

Table 2

Employment Status of Men and Women in Two-Parent,
Two-Child Households in Finland and the United States

Employment Status	<u>Finnish Households</u>		<u>U.S. Households</u>	
	Men n=823	Women n=866	Men n=2100	Women n=2100
Nonemployed	24 (2.9%)	186 (21.5%)	133 ^(a) (6.3%)	1211 (57.7%)
Part-time employed (1-34 hrs/w)	25 (3.0%)	177 (20.4%)	55 (2.6%)	457 (21.8%)
Full-time employed (35+ hrs/w)	774 (94.0%)	503 (58.1%)	1912 (91.0%)	432 (20.6%)

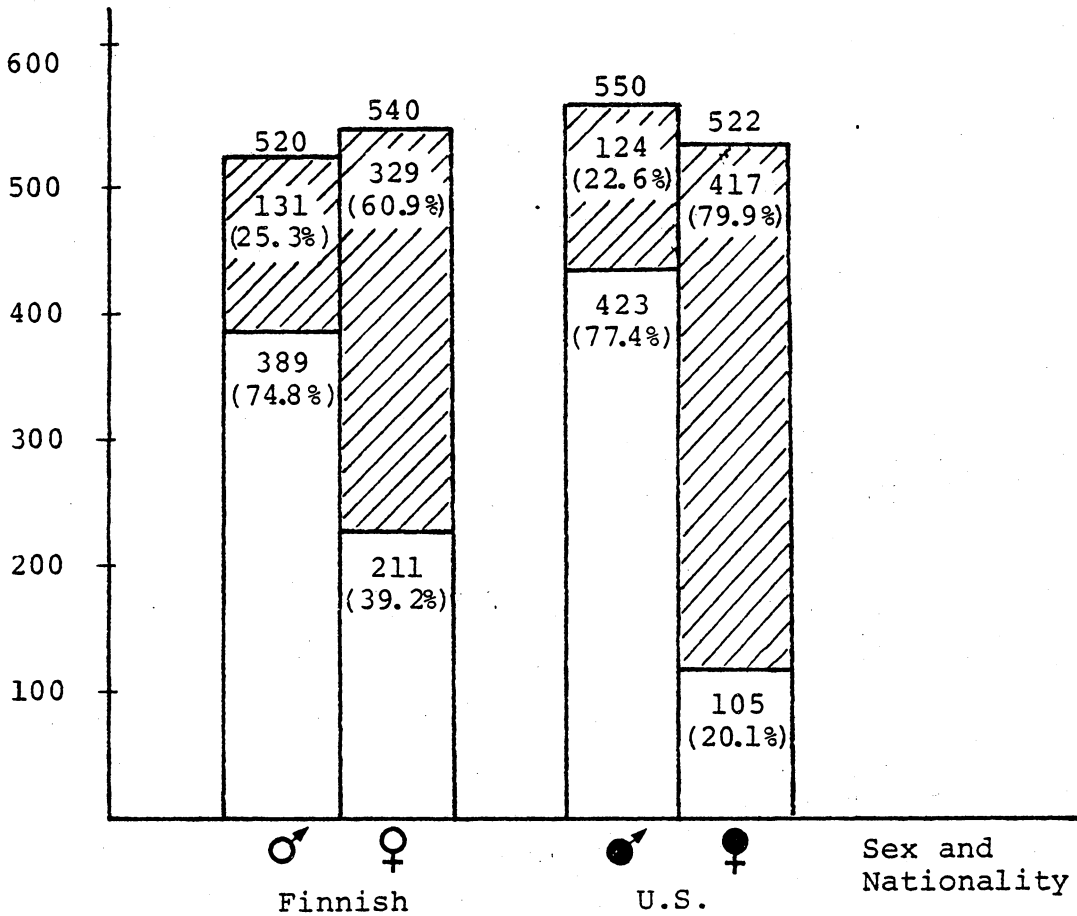
(a) Category includes respondents who recorded no paid employment and those who were recoded as zero or missing values.

Total Daily Labor Time

Total labor time was computed for both sexes by summing the mean minutes spent in contracted and committed time categories. The means, standard deviations, and percentages for time-use by men and women in both countries in all productive labor activities are shown in Figure 4.

Time-use in labor ranged from 520 minutes (8.7 hrs) for Finnish men to 550 minutes (9.2 hrs) for U.S. men and from 540 minutes (9.0 hrs) for Finnish women to 522 minutes (8.7 hrs) for U.S. women. Observations by sex revealed that in Finland, men used 20 minutes less time in labor than women; whereas, in the United States men used 28 minutes more time daily to all productive labor activities than women. Thus, according to these figures, the overall production activity was lowest with Finnish men and highest with U.S. men. The investigator speculates that the lower labor time figure of the Finnish men might be a reflection of some philosophical differences in evaluating standard of living in the two countries. The underlying principle in implementing socioeconomic policies in Finland during the past decades has been the recognition of noneconomic resources, such as free time, as an essential, qualitative measure of the standard of living, besides other quantitative measures related to material and economic resources. Therefore, people might

Time in
Minutes





 Committed Time (Household Production)
 Contracted Time (Gainful Employment and Schooling)

Figure 4

Men's and women's total daily labor time in two-parent, two-child Finnish and U.S. households

prefer having free time, which can be devoted to home life or leisure time activities instead of working to obtain material wealth. Due to preferences for free time and high taxation there is little motivation to work overtime to gain more economic resources. In this way, one can compare the way of life that has more material things and less free time with that of less material worth and more leisure. Moreover, this type of labor policy promotes the distribution of employment opportunities, which is essential in helping solve unemployment problems of the nation.

However, if the investigation is focused on the household production sector only, men in the U.S. used 22.6 percent of their labor time in household production, and U.S. women 79.9 percent of their labor time, respectively. In Finland, the sexual difference was obvious but to a lesser extent. Men devoted 25.3 percent of their labor time and women 60.9 percent of their labor time, respectively, to household tasks.

In a cross-country comparison by sex, the total daily household production time difference between men in both countries was only 7 minutes (Finnish men: 131 minutes; U.S. men: 124 minutes). Among women the differences were 1 hour 28 minutes between the two countries (Finnish women: 329 minutes; U.S. women: 417 minutes). This result could be

attributed to a higher labor force participation by Finnish women of whom, according to this study, 78.5% held part-time or full-time employment compared to 42.3% of the U.S. women.

Time Allocation to Household Production

In this section, the amounts of time allocated to household production and its subcategories are examined in relation to sex, nationality, and employment status. Means, standard deviations, and frequencies for men's and women's time allocations in both countries by employment status are presented in Appendix A. The total means of time allocation by men and women in various categories of household production are graphed in Figure 5.

Three-way analysis of variance summaries for total household production and its four subcategories, basic housework, child and member care, maintenance, and shopping and management are presented in Tables 5 through 9. They are included together with the graphical illustrations of the interaction effects of nationality, sex, and employment (Figures 6 through 10) in the following sections whenever the categories are discussed.

Overall, these research data suggest that all three variables, nationality, sex, and employment status made a difference in the time-use allocation mean scores. Despite the

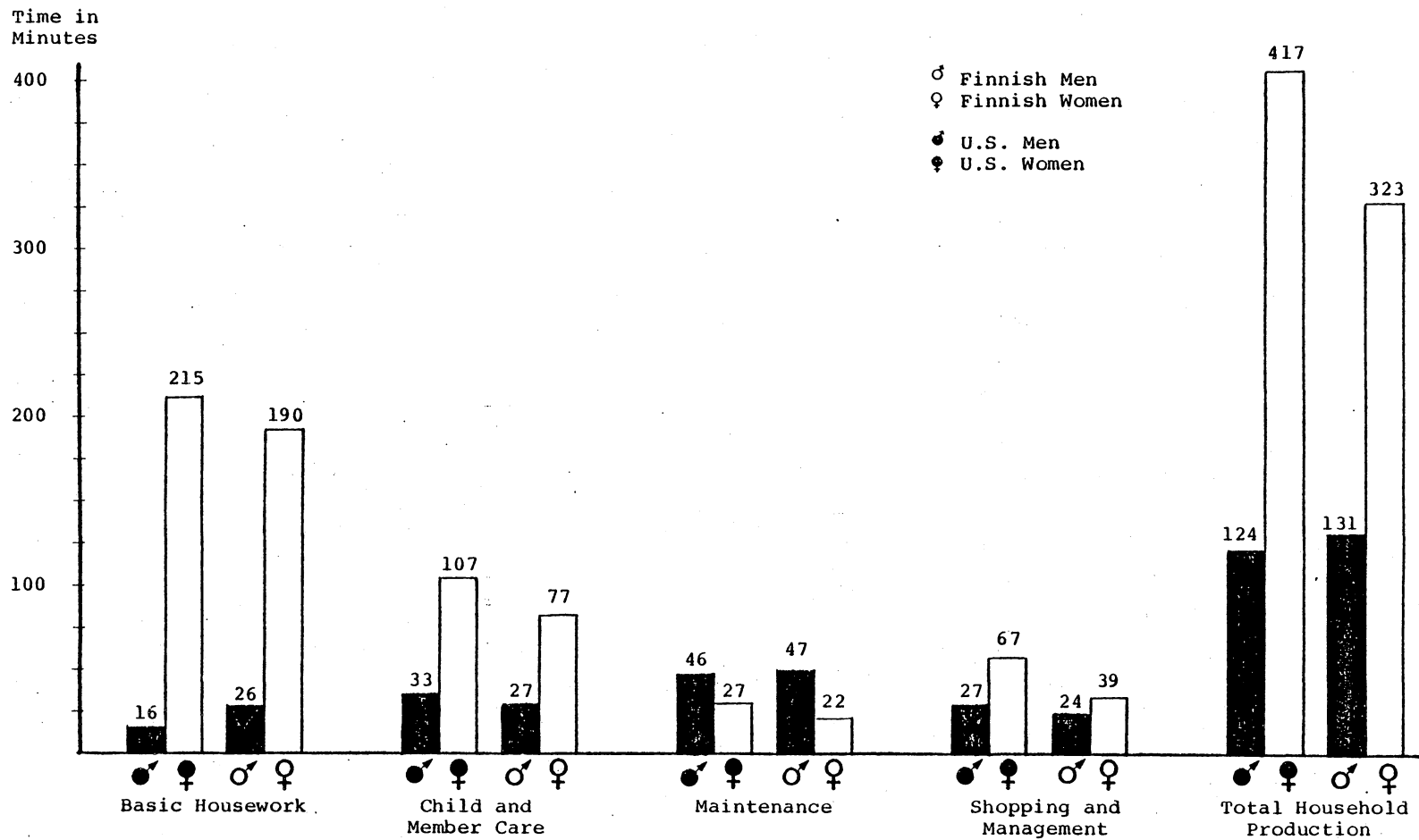


Figure 5

Men's and women's daily time allocation to household production and its subcategories in two-parent, two-child Finnish and U.S. households

relatively high level of statistical significance associated with the time use in each of the analysis of variance tables the determined means indicated that the magnitudes of these effects were rather small, especially in the four subcategories of household production.

Cross-Country Comparisons by Sex

Two research hypotheses were tested across countries by sex.

H₁: Mean time spent in household production and its subcategories is greater for Finnish men than for men from the United States regardless of employment status.

This hypothesis was not supported for total household production. Although Finnish men, overall, and at each employment level used slightly more time than U.S. men in household work, the difference between the group means of all household production was only seven minutes. According to a one-way analysis of variance of the household production time there was no statistically significant difference in the daily mean times between men in the two countries (see Table 3). However, there was a notable interaction effect between the nationalities according to employment level. A noticeable difference was found between part-time employed and other Finnish men. They allocated considerably more time to household production than nonemployed men or those who were employed full-time (Figure 6 and Table 4).

Table 3

One-Way Analysis of Variance Summary
of Men's Household Production in
Finland and the United States

Source	SS	DF	MS	F	Prob- ability
Between	29555	1	29555	2.09	0.144
Within	41219484.2	2921	14111.43		
Total	41249039.2	2922			

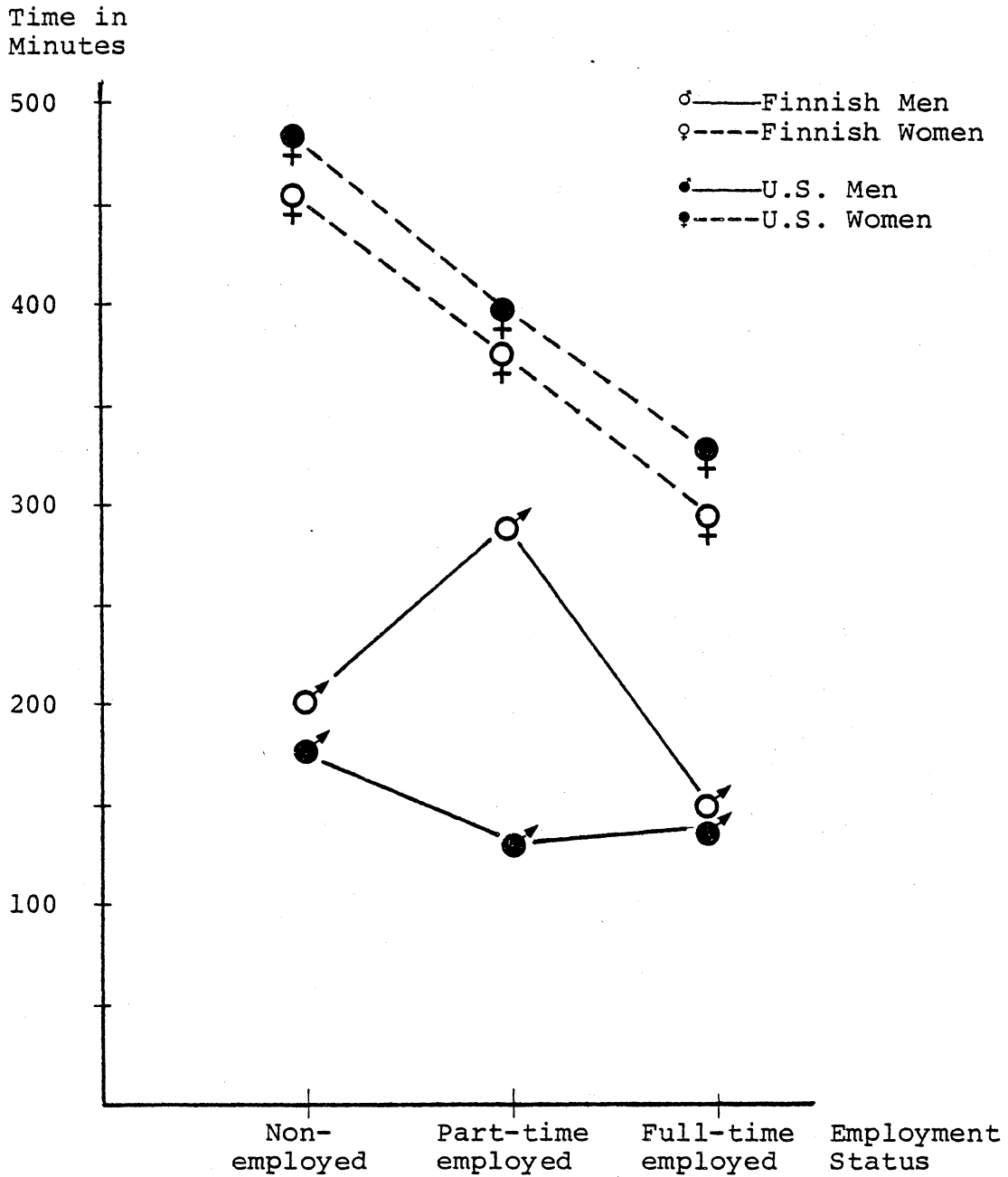


Figure 6

Interactions of nationality and sex variables
with employment status in household production

Table 4

Analysis of Variance Summary of Household Production
by Employment Status, Sex, and Nationality

Source	SS	DF	MS	F	Prob- ability
Employment (A)	24728.43	2	12364.21	62.98	0.000***
Sex (B)	131506.76	1	131506.76	669.89	0.000***
Nationality (C)	893.32	1	893.32	4.55	0.031*
A x B	7875.18	2	3937.59	20.05	0.000***
A x C	3643.58	2	1821.79	9.28	0.000***
B x C	5816.14	1	5816.14	29.63	0.000***
A x B x C	3269.86	2	1634.93	8.32	0.001***
Error	108563632.00	5877	196.31		
Total	230967980.00	5888	39220.23		

***Significant at 0.001 level

*Significant at 0.05 level

Observing the interaction effects in the subcategories (Figures 7 through 10) the behavior of part-time employed Finnish men was unexpected. They allocated much more time to all other housework categories except basic housework.

H₂: Mean time spent in household production and its subcategories is greater for women in the United States than for Finnish women regardless of employment status.

For all household production this hypothesis was supported. According to a one-way analysis of variance of household production time, there was a statistically significant difference in the daily mean times between women in the two countries (see Table 5). For U.S. women the mean time spent in household production averaged 88 minutes higher than for Finnish women. A slight difference in the opposite direction was noted in the basic housework category only, between women employed full-time. Overall, the trends were similar for women in both countries. Employment level had the greatest inverse impact on time allocation of all the subcategories tested.

Basic Housework

The largest sexual differences in time allocations were found in basic housework (Figure 7 and Table 6), including such tasks as food preparation, cleaning, clothing care, et cetera. In both countries the average time allocated to ba-

Table 5

One-Way Analysis of Variance Summary
of Women's Household Production in
Finland and the United States

Source	SS	DF	MS	F	Prob- ability
Between	4787155.94	1	4787155.94	174.23	0.000***
Within	81438267.6	2964	27475.8		
Total	86225423.6	2965			

***Significant at 0.001 level

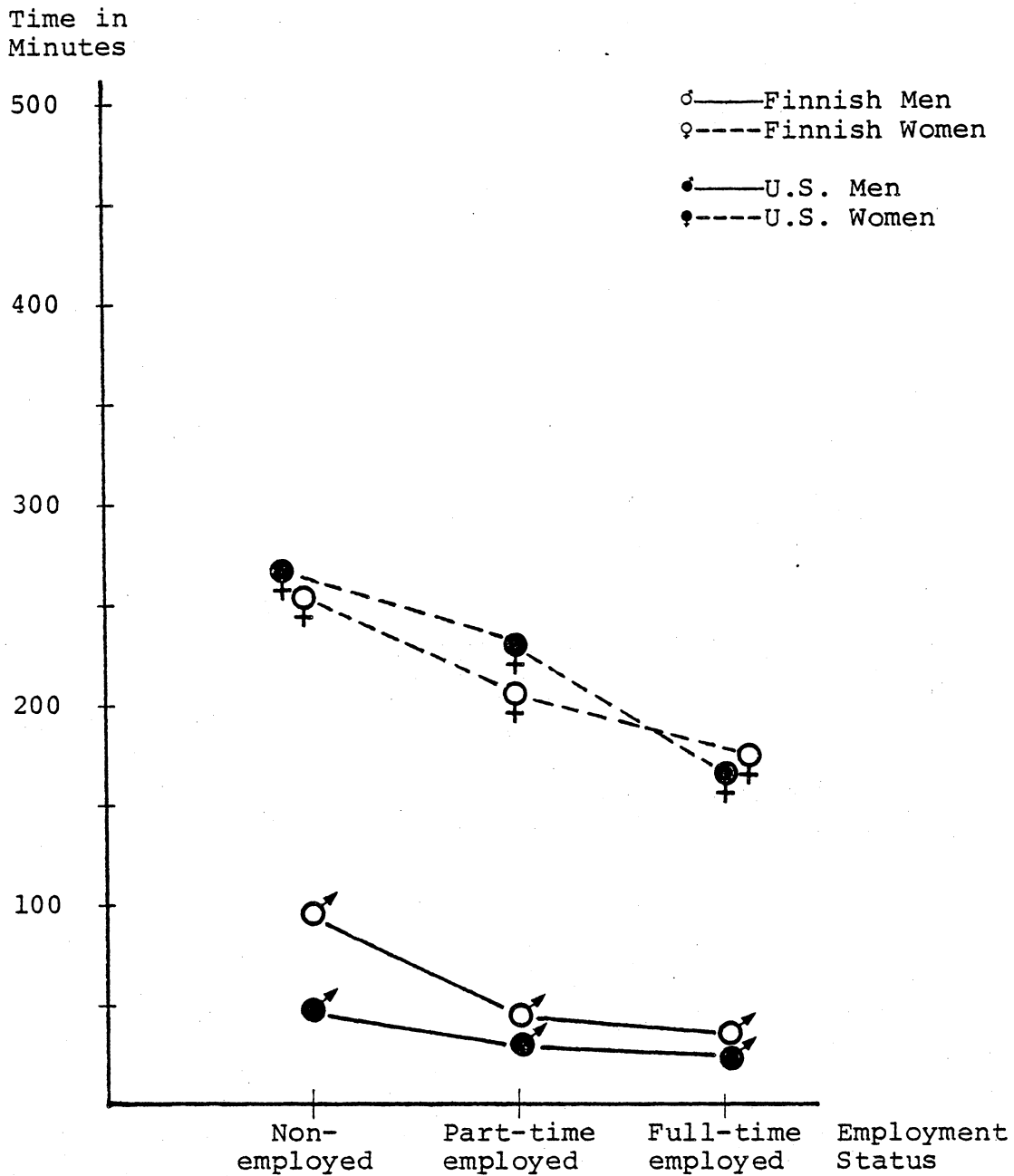


Figure 7

Interactions of nationality and sex variables
with employment status in basic housework

Table 6

Analysis of Variance Summary of Basic Housework
by Employment Status, Sex, and Nationality

Source	SS	DF	MS	F	Prob- ability
Employment (A)	6749.04	2	3374.52	55.82	0.000***
Sex (B)	89649.17	1	89649.17	1483.07	0.000***
Nationality (C)	688.79	1	688.79	11.39	0.000***
A x B	1619.23	2	809.61	13.39	0.000***
A x C	285.50	2	142.75	2.36	0.092
B x C	179.49	1	179.49	2.96	0.815
A x B x C	213.32	2	106.66	1.76	0.170
Error	33428993.90	5877	60.44		
Total	90130593.50	5888	15304.90		

***Significant at 0.001 level

sis household chores by men was low, only 26 minutes in Finland and 16 minutes in the United States. This finding is a clear indication of the sexual bias of men against traditionally female household tasks. Nonemployed men in Finland contributed more time daily (74 minutes) to basic housework than their counterparts in the United States (28 minutes). At levels of full-time employment, men in both countries were involved in basic housework for short periods of time with only a 10-minute differential between the two countries (26 minutes daily in Finland and 16 minutes in the United States).

For women the basic housework category had the highest time-use figures (190 minutes for Finnish and 216 minutes for U.S. women). Notable differences were not found between women in the various employment categories.

Child and Member Care

In child and member care (Figure 8 and Table 7) the most unexpected finding was Finnish men's high participation rate in child care activities when they were employed on a part-time basis. This finding might be explained by arguing that Finnish men are sharing more expressive child rearing tasks related to schooling, transportation, sports, etc. as reported by earlier research (Lerber, et al., 1979; Haavio-Mannila, 1980). To the investigator's knowledge no studies

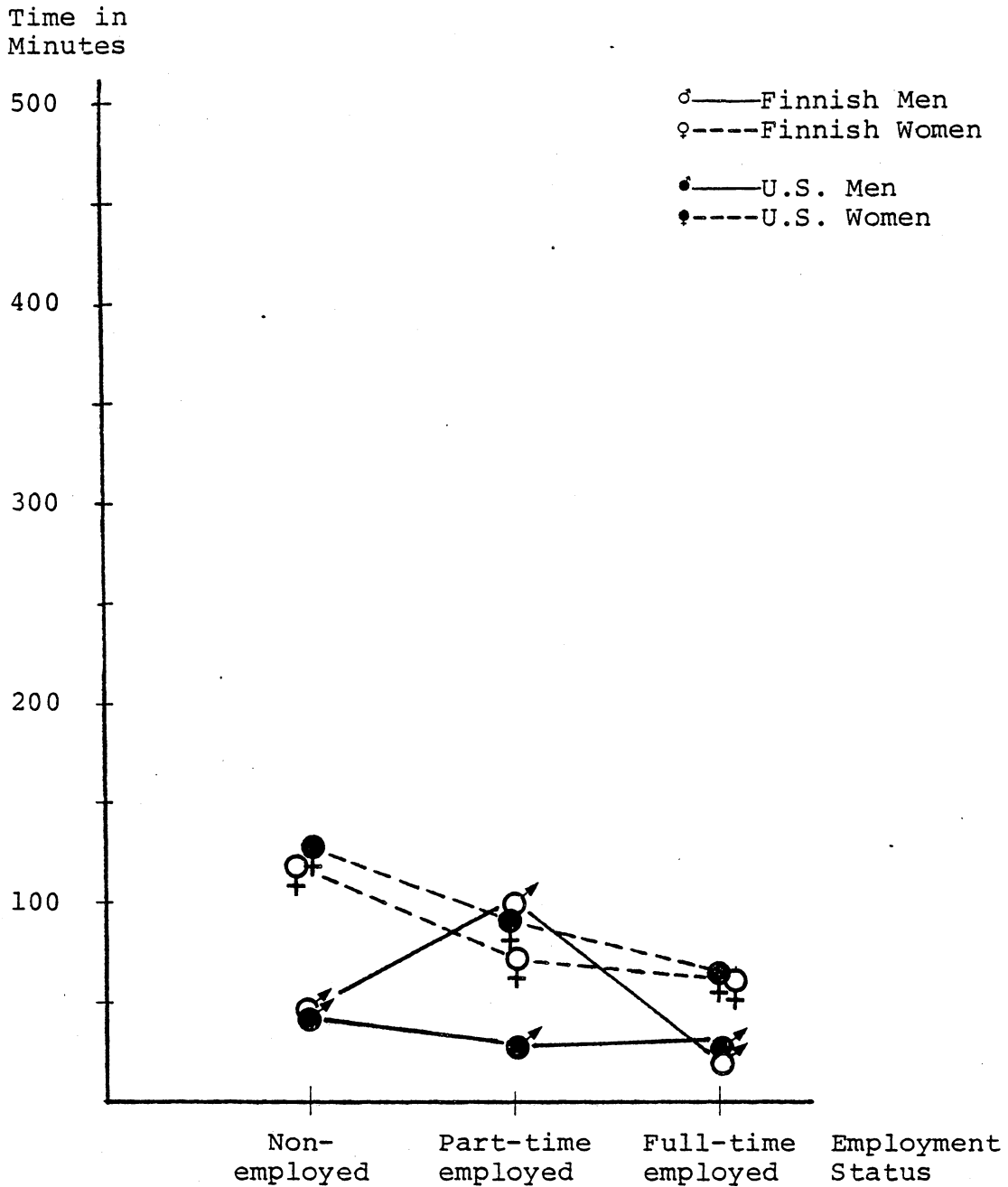


Figure 8

Interactions of nationality and sex variables
with employment status in child and member care

Table 7

Analysis of Variance Summary of Child and Member Care
by Employment Status, Sex, and Nationality

Source	SS	DF	MS	F	Prob- ability
Employment (A)	2270.85	2	1135.42	17.98	0.000***
Sex (B)	6227.23	1	6227.23	98.63	0.000***
Nationality (C)	59.91	1	59.91	0.94	0.666
A x B	2117.90	2	1058.95	16.77	0.000***
A x C	458.45	2	229.22	3.63	0.026*
B x C	720.00	1	720.00	11.40	0.001***
A x B x C	782.87	2	391.43	6.19	0.002**
Error	34915674.00	5877	63.13		
Total	43624962.70	5888	7407.87		

***Significant at 0.001 level

**Significant at 0.01 level

*Significant at 0.05 level

have been reported on the effects of employment level. This behavior could also be attributed to societal and cultural differences such as availability of day care centers, from which children have to be collected at certain times, environmental differences in commuting, and transport technology, etc. Also, women's high labor force participation might cause different allocations of certain household production tasks, such as child and member care activities.

Maintenance

Findings from this study (Figure 9 and Table 8) indicated that maintenance was predominantly a male activity category as men in both countries reported higher mean scores than women in this category: 33 minutes in Finland and 47 minutes in the United States. This might have been anticipated since traditionally male tasks include care of house, yard, car, and pets which appeal more to men than women. Again, part-time employment seemed to have a considerable impact on the behavior of Finnish men. For women, the time allocated to maintenance activities was only a few minutes. The Finnish women used approximately 22 minutes and the U.S. women 27 minutes in this activity category.

Overall, the time-amounts reported for maintenance were very modest. The seasonality of many maintenance tasks, and the "true" amounts of time spent may not be reflected in the time-diary results reported.

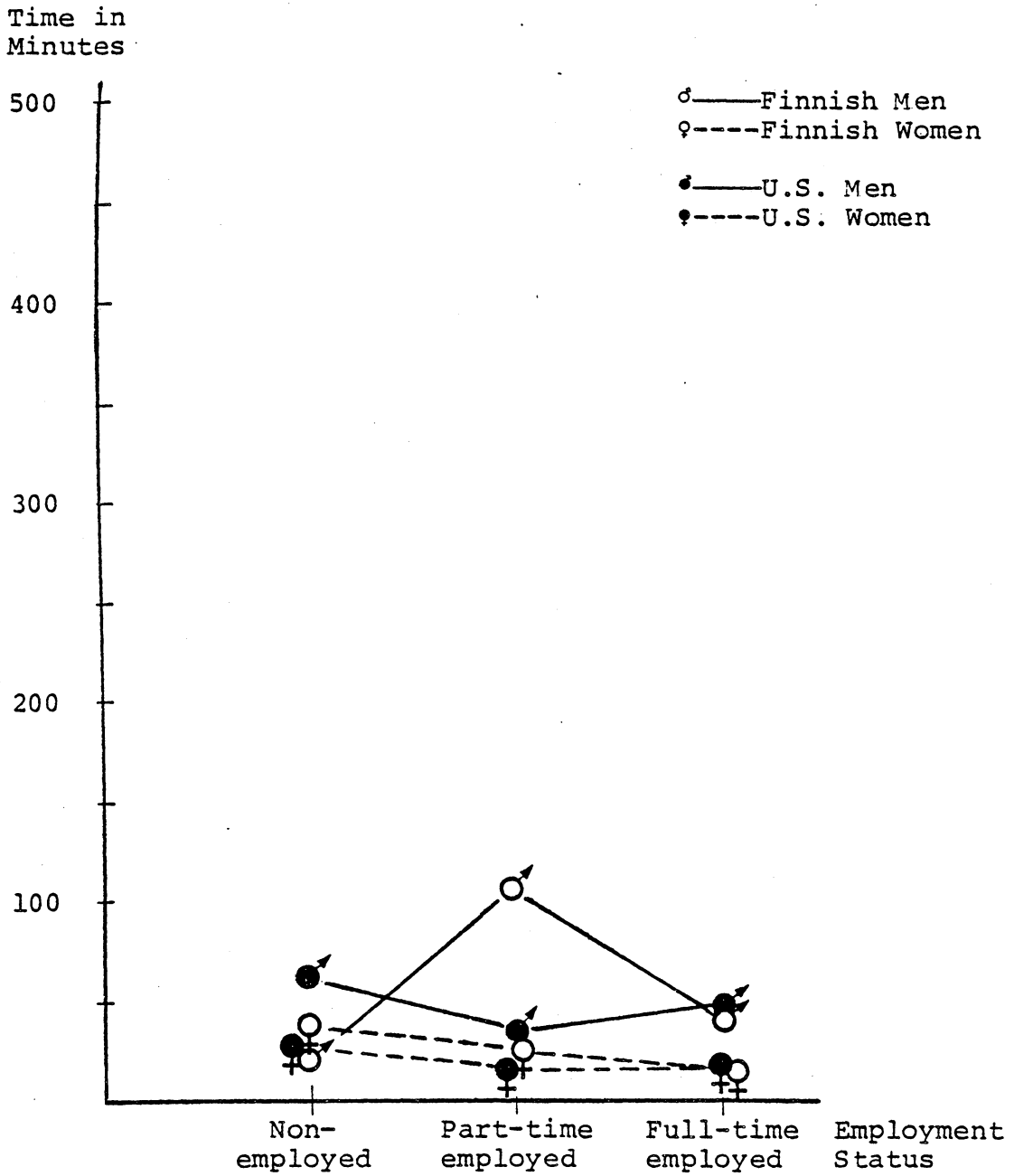


Figure 9

Interactions of nationality and sex variables
with employment status in maintenance

Table 8

Analysis of Variance Summary of Maintenance
by Employment Status, Sex, and Nationality

Source	SS	DF	MS	F	Prob- ability
Employment (A)	313.68	2	156.84	3.43	0.031*
Sex (B)	2145.99	1	2145.99	47.04	0.000***
Nationality (C)	220.50	1	220.50	4.83	0.026*
A x B	529.45	2	264.72	5.80	0.004**
A x C	1255.99	2	627.99	13.76	0.000***
B x C	184.42	1	184.42	4.04	0.042*
A x B x C	1288.37	2	644.18	14.12	0.000***
Error	25224955.80	5877	45.61		
Total	26110032.20	5888	4433.65		

***Significant at 0.001 level

**Significant at 0.01 level

*Significant at 0.05 level

Shopping and Management

In the shopping and management (Figure 10 and Table 9) women in the U.S. obtained the highest time-use means over all other groups. This difference could be attributed to several sociocultural factors of the United States consumer-oriented society. More shopping and overall planning and management time for running errands could be needed because of distances, transportation technology, marketing systems, etc. Also, women might consider those activities as "socializing or recreational experiences", (Williams, Slama and Rogers, 1984) which take more time than mere performance of the said activity. These or similar causal effects could be considered by time-use researchers when planning future studies and developing new frameworks.

Among the Finns, time-use scores in shopping and management were nearly equal. However, women employed both part-time and full-time spent more time in these activities than men. Several factors might affect this behavior. It could be attributed to the decision making patterns in Finnish families. For example, women usually are in charge of meal planning decisions which they frequently make based on availability of fresh produce on the way home from work, at an easily accessible foodstore.

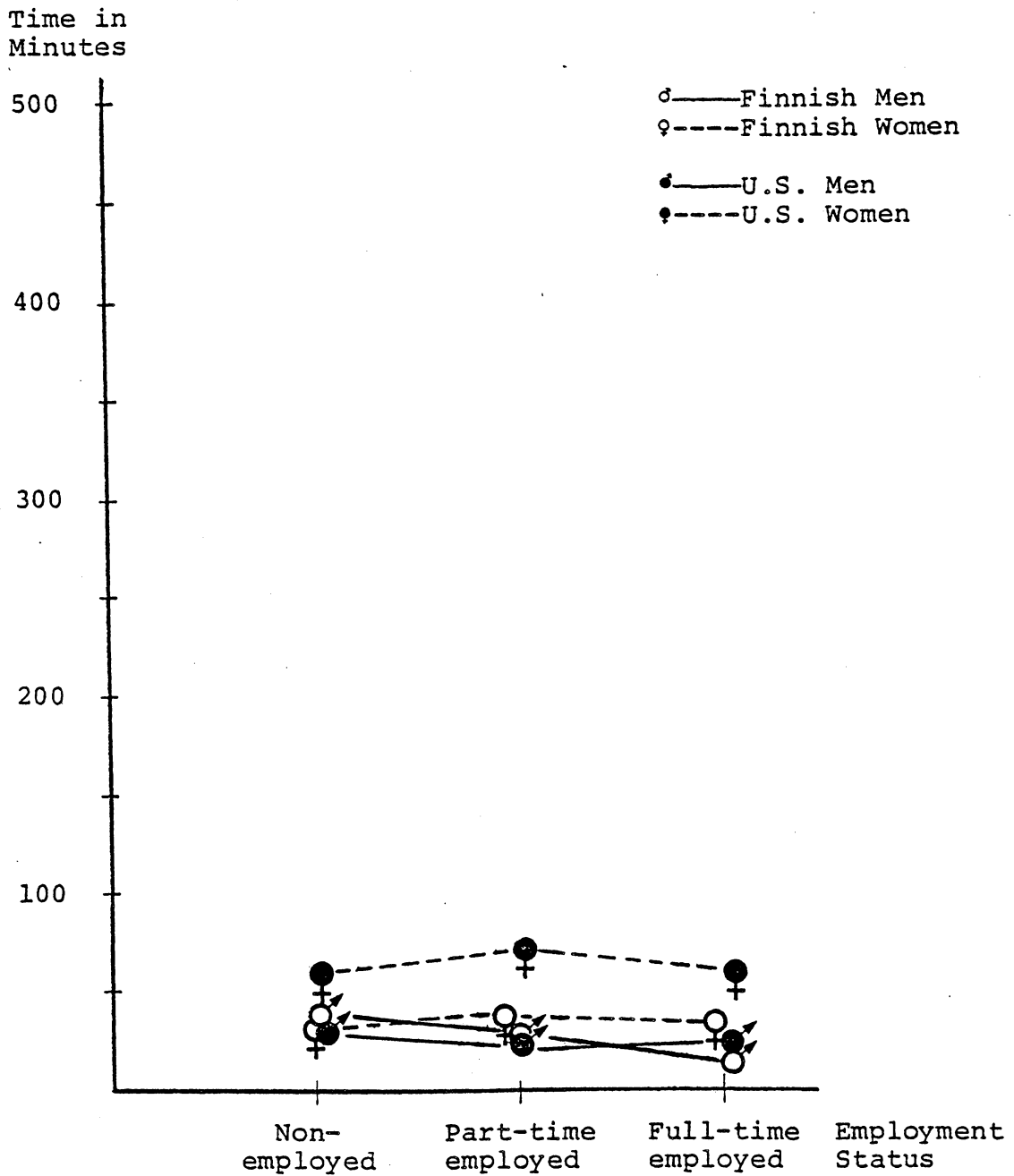


Figure 10

Interactions of nationality and sex variables
with employment status in shopping and management

Table 9

Analysis of Variance Summary of Shopping and Management
by Employment Status, Sex, and Nationality

Source	SS	DF	MS	F	Prob- ability
Employment (A)	509.03	2	254.51	8.01	0.001***
Sex (B)	938.54	1	938.54	29.54	0.000***
Nationality (C)	358.97	1	358.97	11.29	0.001***
A x B	19.35	2	9.67	0.30	0.745
A x C	25.13	2	12.56	0.39	0.683
B x C	504.10	1	504.10	15.86	0.000***
A x B x C	56.47	2	28.23	0.88	0.582
Error	17570249.90	5877	31.77		
Total	19618763.30	5888	3331.42		

***Significant at 0.001 level

In the era of changing consumerism it would be of interest to study several other culturally bound and sex-role stereotyped background variables. This could be included in other similar time-use research in the future.

In general, the investigator noted that the amount of time allocated to shopping and management activities was very meager among all groups of respondents. This might be due to the fact that management concepts might not be well developed or recognized in the household sphere. The management process (involving i.e., information gathering, planning, evaluation and decision making) is a mental activity, frequently done as a secondary task while "officially" allocating the time to some other activity.

Several findings could be summarized from this section. The main effects of employment, sex, and nationality were significant in all other categories except for the effect of nationality on child care. The interaction effects varied according to employment levels. A special finding was observed in the behavior of Finnish men employed part-time. While they represented a small proportion of the sample, they participated considerably more in total household production and in all other subcategories except basic housework. In the total magnitude the men in Finland and the United States contributed to household production about the

same amount of time, and the U.S. women tended to allocate more time to all household production than their Finnish counterparts.

Equality Ratios in Household Production

H₂: The equality ratios of household production and its subcategories are smaller in Finland than in the United States.

The equality ratios (ER) in household production were calculated by dividing the mean time spent by women in a specific activity by the mean time spent by men in the same activity. The "optimal" equality ratio would be one, meaning that both men and women allocate the same amount of time to certain task(s). For the purposes of comparison, the equality ratios, for all household production, are presented in Table 10 for both countries by activity category.

The figures were strongly suggestive of notable equality differences in household production between the countries. The equality ratios were considerably smaller in Finland than in the United States. As over 90 percent of all men in both countries were full-time employed, a further investigation of the ratios was made by dividing the mean time used by women at various employment levels by the mean time used by men employed full-time. These ratios were presented in Tables 11 and 12. Observations from these tables

Table 10

Equality Ratios in Household Production and its
Subcategories in Two-Parent, Two-Child Households in
Finland and the United States

	Finland	United States
1. Basic Housework	7.25	13.59
2. Child and Member Care	2.84	3.30
3. Maintenance	0.47	0.58
4. Shopping and Management	1.60	2.29
Total Household Production	2.50	3.36

$$\text{Equality ratio (ER)} = \frac{\text{mean time used by women on activity}}{\text{mean time used by men on activity}}$$

Table 11

Equality Ratios in Household Production and its
Subcategories in Two-Parent, Two-Child Households in
Finland: Employment Levels of Women
Over Full-Time Employed Men

	Nonemployed women <hr/> Full-time employed men	Part-time employed women <hr/> Full-time employed men	Full-time employed women <hr/> Full-time employed men
1. Basic Housework	10.14	8.69	6.47
2. Child and Member Care	3.86	2.43	2.07
3. Maintenance	0.71	0.51	0.38
4. Shopping and Management	1.77	2.03	1.52
Total Household Production	3.54	2.88	2.21

Table 12

Equality Ratios in Household Production and its
Subcategories in Two-Parent, Two-Child Households in
the United States: Employment Levels of Women
Over Full-Time Employed Men

	Nonemployed women <u>Full-time</u> employed men	Part-time employed women <u>Full-time</u> employed men	Full-time employed women <u>Full-time</u> employed men
1. Basic Housework	16.05	13.19	10.77
2. Child and Member Care	3.97	2.82	2.19
3. Maintenance	0.81	0.50	0.38
4. Shopping and Management	2.47	2.55	1.93
Total Household Production	3.86	3.15	2.50

reveal that at all employment levels women in both countries allocated much more time to household production than full-time employed men. Even if both men were women were employed full-time, in Finland women allocated over 2.2 times more time to household production than men, and in the United States women allocated over 2.5 times more time than men.

From these observations the investigator concluded that the hypothesized relationship holds. However, the cross-national differences determined from this research differed from those reported by Niemi (1982). She reported equality ratios of all employed men and women in Finland and in the United States to be 1.9 and 2.3 respectively. The differences found in this study might be due to the stratification of the sample to two-parent, two-child families and in the differences in employment categorizations.

Structural Model

The structural model (Figure 3) considered household production time to be a function of four background variables: family situation, employment, education, and age. Previous research literature had indicated that these variables play important roles in determining housework time. Among men, however, the predictive value of these variables had been lower than for women. The purpose of estimating this model was to investigate what differences exist in the

relationships of these variables and household production of men and women in the two countries.

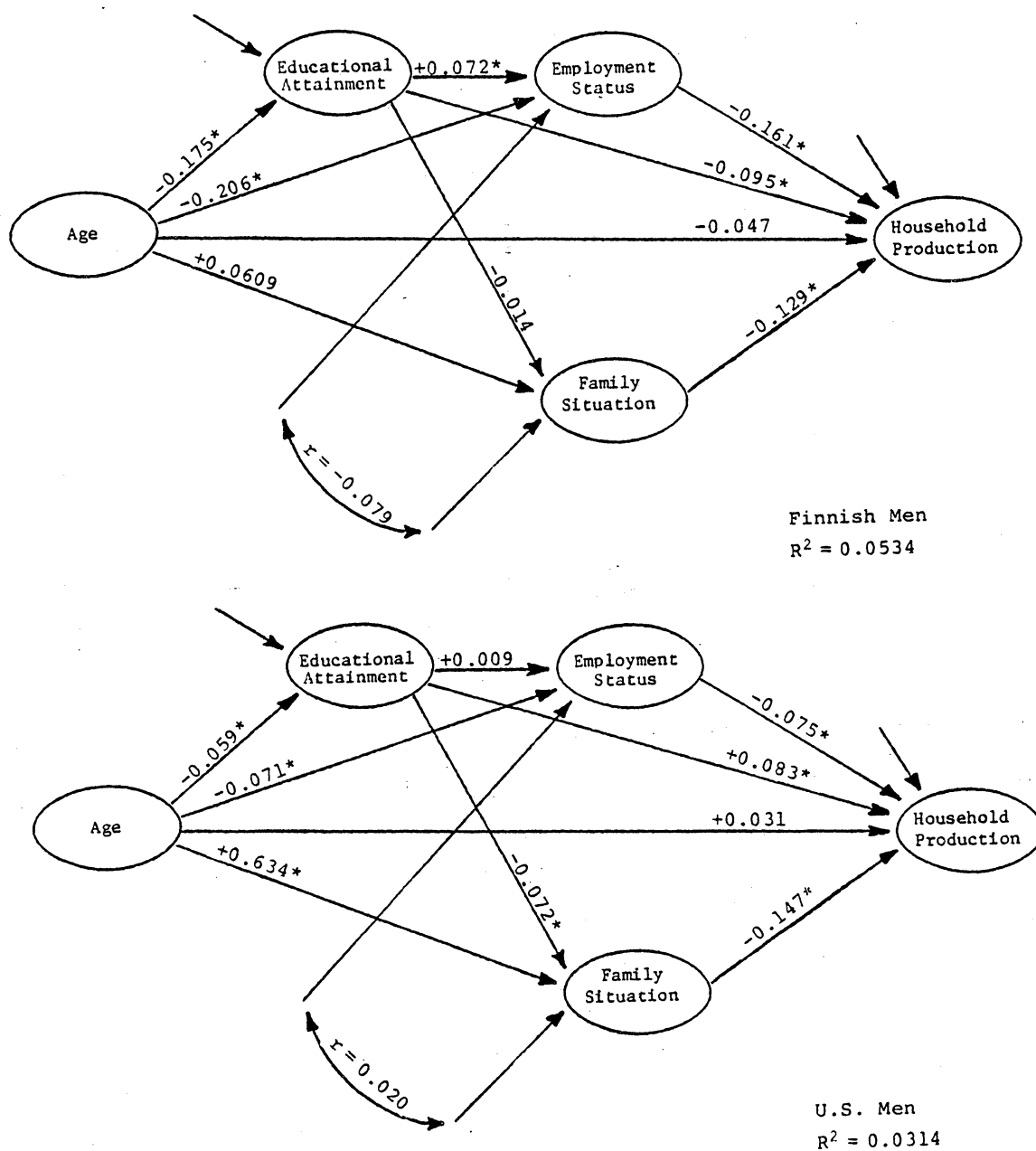
Regression Analyses

Multiple regression analyses were conducted for men and women separately in both countries. In order to show the relative strengths of the variables within groups, standardized coefficients (beta weights) of all causal links were depicted in the model employed for the four groups and presented in Figures 11 and 12. These quantitative estimates reveal the direction and magnitude of the relationship between the variables within each group. The total model of the four variables explained household production as follows: 5 percent for Finnish men, 3 percent for U.S. men, 21 percent for Finnish women, and 23 percent for U.S. women.

Four hypotheses were stated for the four variables in a directional form for both men and women in the two countries. In order to make comparisons across groups metric coefficients were used (see Tables 13 and 14).

H₄: Time used in household production by men is related positively to education in both countries.

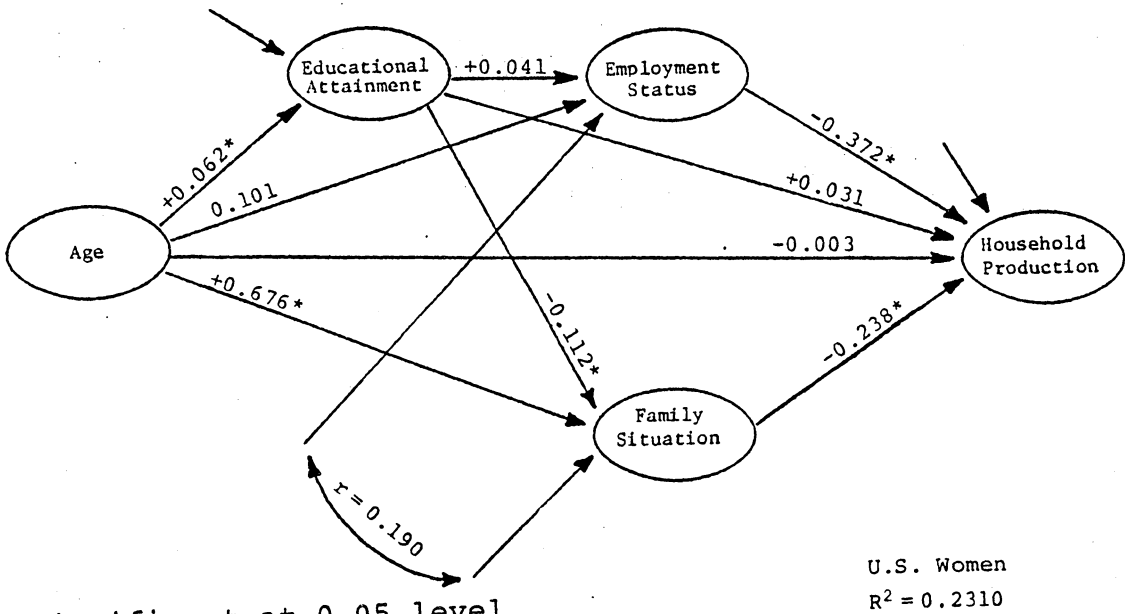
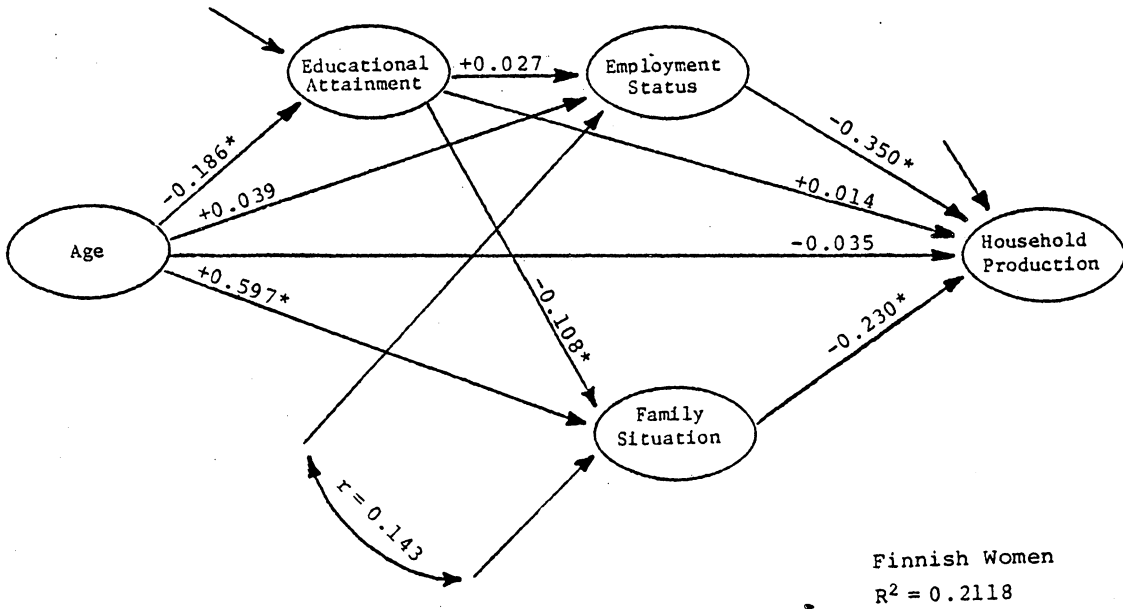
This hypothesis was supported for the positive relationship between educational attainment and household production for U.S. men ($b=+17.66$). For Finnish men this relationship was negative ($b=-22.541$).



*Significant at 0.05 level

Figure 11

Structural coefficients in standardized form for
 model household production for men in
 Finland and the United States



*Significant at 0.05 level

Figure 12

Structural coefficients in standardized form for
 model household production for women in
 Finland and the United States

Table 13

Structural Coefficients in Metric Form for Model of
Household Production - Unconstrained Estimates for
Finnish and U.S. Men

Pre-determined Variables	Dependent Variables							
	Finnish Men				U.S. Men			
	Educa- tional Attain- ment	Employ- ment Status	Family Situa- tion	House- hold Produc- tion	Educa- tional Attain- ment	Employ- ment Status	Family Situa- tion	House- hold Produc- tion
Age	-0.013 (0.003)	-0.010 (0.002)	0.041 (0.002)	-0.846 (0.790)	-0.004 (0.002)	-0.005 (0.001)	0.040 (0.001)	0.444 (0.404)
Educational Attainment		0.048 (0.023)	-0.012 (0.249)	-22.541 (8.242)		0.008 (0.021)	-0.067 (0.016)	17.766 (4.667)
Family Situation				-57.171 (12.443)				-16.819 (4.821)
Coefficient of Determina- tion (R^2)	0.031	0.053	0.374	0.053	0.004	0.005	0.412	0.031

Standard errors in parentheses

Table 14

Structural Coefficients in Metric Form for Model of
Household Production - Unconstrained Estimates for
Finnish and U.S. Women

Pre-determined Variables	Dependent Variables							
	Finnish Women				U.S. Women			
	Educa- tional Attain- ment	Employ- ment Status	Family Situa- tion	House- hold Produc- tion	Educa- tional Attain- ment	Employ- ment Status	Family Situa- tion	House- hold Produc- tion
Age	-0.013 (0.002)	0.003 (0.004)	0.040 (0.002)	-0.822 (0.920)	0.005 (0.002)	0.011 (0.003)	0.046 (0.001)	-0.064 (0.589)
Educational Attainment		0.043 (0.055)	-0.105 (0.026)	4.957 (10.623)		0.064 (0.034)	-0.106 (0.015)	9.578 (6.054)
Employment Status				-76.034 (6.670)				-74.463 (3.930)
Family Situation				-81.329 (13.912)				-78.331 (8.727)
Coefficient of Determina- tion (R^2)	0.035	0.001	0.392	0.212	0.004	0.013	0.460	0.231

Standard errors in parentheses

Compared to earlier findings the positive effects of higher educational level on household production time of U.S. men were in line with the research findings of Farkas (1976), Robinson (1977), Gronau (1977), and Jackson (1983), all of whom reported that higher levels of schooling had a tendency to increase the participation of men in housework. For Finnish men the negative impact was somewhat surprising; the results found could be due to the overall lower educational mean of the sample or to some other measurement differences. To the investigator's knowledge, there has not been research in this area on Finnish men.

H₅: Time used in household production by men is related negatively to family situation, employment, and age in both countries.

This hypothesis was not supported for men in the United States for the age variable only, since results indicated a positive relationship ($b=+0.444$) between age and household production. The hypothesis holds true for the other relationships. The effect of family situation was negative in both countries; for Finnish men $b=-34.458$ and for U.S. men $b=-33.859$. The effects were also negative for employment (Finnish men: $b=-57.17$; U.S. men: $b=-16.819$) and for age of Finnish men $b=-0.846$.

In regard to family situation as indicated by the age-group of the youngest child, there was a negative relation-

ship envisioned. This meant that when the children are older, in the school-age-group, less time was allocated to household production. In Finland, Lerber, et al. (1979) reported that housework time of Finnish fathers increased when the family had a pre-school child. Thus, the finding related to family situation determined in the present study agreed with Lerber's earlier report.

The negative relationship of men's employment status and their housework was not surprising. Similar findings had been reported by earlier investigators, including Walker and Woods (1976), Nichols and Metzen (1982), and Abdel-Ghany (1983).

H₆: Time used for household production by women is related positively to age in both countries.

This hypothesis was not supported. For women in both countries the age variable had a negative relationship with household production; for Finnish women $b = -0.822$ and for U.S. women $b = -0.064$. These negative relationships were not anticipated. Abdel-Ghany (1983) reported that for women, age was positively and significantly related to housework time. For Finnish women references on the effect of age were not available.

H₇: Time used for household production by women is related negatively to family situation, education, and employment in both countries.

This hypothesis does not hold for education but was supported for family situation and employment of women in both countries. The metric coefficients of education's effect on household production were $b=+4.957$ for Finnish women and $b=+9.578$ for U.S. women.

A negative effect of the impact of education on household production time, which frequently has been interpreted as an increase in efficiency and productivity, was not observed in this study. In the research reported here, there could have been internal distributional changes in the allocation of household production time to its subcategories, such as child care or consumerism-oriented tasks. Regardless of cause, the reported time in total household production increased in both countries among women with higher levels of education. Further study is recommended to investigate this time-use trend and the effect of education within national studies and cross-national comparisons.

The family situation variable had a negative relationship in both countries (for Finnish women: $b=-81.329$ and U.S. women: $b=-78.331$), as in households with older children the time allocation to household production decreased. These negative relationships were anticipated. Robinson (1977) concluded that the age of children was a significant variable in women's time use; Gronau (1976) also reported such a tendency among Israeli women.

Female labor force participation has had the biggest negative impact on household production. This finding has been consistently reported by several time-use researchers (Walker and Woods, 1976; Robinson, 1977; Nichols and Metzen, 1982; Fox and Nichols, 1983; Abdel-Ghany, 1983). The results of this comparative study strongly supported the earlier findings.

The most notable findings of the relationships between the four variables and household production of the study reported here were: (1) the negative effects of family situation and employment for both sexes in both countries, which were significant; (2) the positive, but insignificant relationship between education and household production for women in both countries; (3) the negative significant effect of education for men in Finland; and (4) the positive insignificant finding about the effect of age on household production of U.S. men. These results suggest that further investigations, especially on age and education, should be considered when planning future studies cross-nationally and across sexes.

A detailed analysis of the relationships with the variables included in the model and the total fit of the present model in a cross-sex, cross-country setting, is reported the following section. In addition, the overall importance of

socioeconomic models for household production time of men and women is discussed and evaluated.

Cross-Group Comparisons of Structural Coefficients

Cross-group comparisons of structural coefficients by sex and by country were conducted by using the analysis of linear structural relationships by the method of maximum likelihood (LISREL). For this purpose the correlation matrices, standard deviations, and means were determined separately for men and women in both countries for all variables in the structural model presented in Figure 3.

The LISREL-analysis was used first with the structural model without any cross-group restrictions on any structural coefficients. The coefficients in the metric form were used. These coefficients are shown in Tables 13 and 14. Then, cross-group equality constraints were imposed on the model one at a time, beginning with the effect of age on education and proceeding sequentially through the model. At each step the likelihood ratio of chi-square statistics (L^2) was compared to that of the previous one, when the model was at a less constrained stage. If the equality constraint change did not result in a significant change in chi-square (ΔL^2), the investigator concluded that the structural coefficients across groups were the same for both groups. The

likelihood-ratio chi-square statistics are shown in Tables 15 through 18 for the four combinations of groups.

After the significantly different coefficients were identified through this stepwise procedure, the equality constraints for those paths (marked with asterisks in Tables 15 through 18) were deleted. The constrained models were retested to obtain the maximum likelihood-ratio chi-square statistics and coefficients. The coefficients for the constrained model are presented in Tables 19 through 22 by cross-sex and cross-country group combinations. The major assumption for this model was that the structural relations are equal over groups.

In the cross-sex comparisons by country, two groups of men or women were combined to test whether or not the coefficients were equal across groups. The findings revealed that for Finnish men and women the significantly different coefficients were: age on employment, education on family situation, education on household production, and family situation on household production. For men and women in the United States the following path coefficients were significantly different at the 0.05 level: age on education, age on employment, age on family situation, employment on household production, and family situation on household production. All the other parameters were tested to be equal over

Table 15

Cross-Group Comparisons of Structural Coefficients
for Model of Household Production:
Finnish Men (N=823) and Finnish Women (N=866)

Constraint	L^2	DF	ΔL^2	$p(\Delta L^2)$
1. No Equality Constraints	0	0		
Equality constraint imposed of:				
2. Age on Educational Attainment	0	1	0.00	1.000
3. Age on Employment Status	10.99	2	10.99	0.001*
4. Age on Family Situation	11.28	3	0.29	0.580
5. Age on Household Production	11.28	4	0.00	1.000
6. Educational Attainment on Employment Status	11.79	5	0.51	0.475
7. Educational Attainment on Family Situation	18.10	6	6.31	0.012*
8. Educational Attainment on Household Production	22.28	7	4.18	0.041*
9. Employment Status on Household Production	23.75	8	1.47	0.225
10. Family Situation on Household Production	37.22	9	13.47	0.000*

*Significantly different at 0.05 level

Table 16

Cross-Group Comparisons of Structural Coefficients
for Model of Household Production:
Finnish Men (N=823) and U.S. Men (N=2100)

Constraint	L^2	DF	ΔL^2	$p(\Delta L^2)$
1. No Equality Constraints	0	0		
Equality constraint imposed of:				
2. Age on Educational Attainment	9.69	1	9.69	0.002*
3. Age on Employment Status	17.90	2	8.21	0.004*
4. Age on Family Situation	18.60	3	0.70	0.403
5. Age on Household Production	20.13	4	1.53	0.216
6. Educational Attainment on Employment Status	22.75	5	2.62	0.106
7. Educational Attainment on Family Situation	28.78	6	3.03	0.082
8. Educational Attainment on Household Production	43.15	7	17.37	0.000*
9. Employment Status on Household Production	52.38	8	9.23	0.002*
10. Family Situation on Household Production	52.69	9	0.31	0.578

*Significantly different at 0.05 level

Table 17

Cross-Group Comparisons of Structural Coefficients
for Model of Household Production:
Finnish Women (N=866) and U.S. Women (N=2100)

Constraint	L^2	DF	ΔL^2	$p(\Delta L^2)$
1. No Equality Constraints	0	0		
Equality constraint imposed of:				
2. Age on Educational Attainment	38.28	1	38.28	0.000*
3. Age on Employment Status	41.41	2	3.13	0.077
4. Age on Family Situation	46.71	3	5.30	0.021*
5. Age on Household Production	47.19	4	0.48	0.488
6. Educational Attainment on Employment Status	47.20	5	0.01	0.920
7. Educational Attainment on Family Situation	47.40	6	0.20	0.655
8. Educational Attainment on Household Production	47.55	7	0.15	0.699
9. Employment Status on Household Production	47.59	8	0.04	0.842
10. Family Situation on Household Production	48.11	9	0.52	0.471

*Significantly different at 0.05 level

Table 18

Cross-Group Comparisons of Structural Coefficients
for Model of Household Production:
U.S. Men (N=2100) and U.S. Women (N=2100)

Constraint	L^2	DF	ΔL^2	$p(\Delta L^2)$
1. No Equality Constraints	0	0		
Equality constraints imposed of:				
2. Age on Educational Attainment	15.50	1	15.50	0.000*
3. Age on Employment Status	45.63	2	30.12	0.000*
4. Age on Family Situation	59.44	3	13.81	0.000*
5. Age on Household Production	59.65	4	0.21	0.647
6. Educational Attainment on Employment Status	62.05	5	2.40	0.121
7. Educational Attainment on Family Situation	65.85	6	3.80	0.051
8. Educational Attainment on Household Production	67.09	7	1.24	0.266
9. Employment Status on Household Production	147.58	8	80.49	0.049*
10. Family Situation on Household Production	194.67	9	47.09	0.000*

*Significantly different at 0.05 level

Table 19

Maximum Likelihood Coefficients for Constrained Model of
Household Production: Finnish Men (N=823) and Finnish Women (N=866)

Pre-determined Variables	Dependent Variables							
	Finnish Men				Finnish Women			
	Educa- tional Attain- ment	Employ- ment Status	Family Situa- tion	House- hold Produc- tion	Educa- tional Attain- ment	Employ- ment Status	Family Situa- tion	House- hold Produc- tion
Age	-0.013	-0.010	0.040	-0.930	-0.013	0.004	0.040	-0.930
Educational Attainment		0.048	-0.013	-21.672		0.048	-0.104	4.504
Employment Status				-71.811				-71.811
Family Situation				-34.438				-81.429
R ²	0.030	0.053	0.372	0.066	0.035	0.002	0.394	0.202

Chi-square value: 1.87 (DF=5); p = 0.867

Table 20

Maximum Likelihood Coefficients for Constrained Model of
Household Production: Finnish Men (N=823) and U.S. Men (N=2100)

Pre-determined Variables	Dependent Variables							
	Finnish Men				U.S. Men			
	Educa- tional Attain- ment	Employ- ment Status	Family Situa- tion	House- hold Produc- tion	Educa- tional Attain- ment	Employ- ment Status	Family Situa- tion	House- hold Produc- tion
Age	-0.013	-0.011	0.039	0.046	-0.004	-0.004	0.039	0.046
Educational Attainment		0.026	-0.053	-20.497		0.026	-0.053	17.563
Employment Status				-53.386				-18.709
Family Situation				-32.259				-32.259
R ²	0.031	0.050	0.368	0.041	0.003	0.005	0.408	0.034

Chi-square value: 8.18 (DF=5); p = 0.147

Table 21

Maximum Likelihood Coefficients for Constrained Model of
Household Production: Finnish Women (N=866) and U.S. Women (N=2100)

Pre-determined Variables	Dependent Variables							
	Finnish Women				U.S. Women			
	Educa- tional Attain- ment	Employ- ment Status	Family Situa- tion	House- hold Produc- tion	Educa- tional Attain- ment	Employ- ment Status	Family Situa- tion	House- hold Produc- tion
Age	-0.013	0.009	0.041	-0.262	0.004	0.009	0.046	-0.262
Educational Attainment		0.064	-0.107	9.152		0.064	-0.107	9.152
Employment Status				-74.595				-74.595
Family Situation				-79.226				-79.226
R ²	0.035	0.007	0.397	0.205	0.004	0.009	0.451	0.232

Chi-square value: 4.35 (DF=7); p = 0.738

Table 22

Maximum Likelihood Coefficients for Constrained Model of
Household Production: U.S. Men (N=2100) and U.S. Women (N=2100)

Pre-determined Variables	Dependent Variables							
	U.S. Men				U.S. Women			
	Educa- tional Attain- ment	Employ- ment Status	Family Situa- tion	House- hold Produc- tion	Educa- tional Attain- ment	Employ- ment Status	Family Situa- tion	House- hold Produc- tion
Age	-0.004	-0.004	0.039	0.122	0.004	0.012	0.046	0.122
Educational Attainment		0.026	-0.090	14.666		0.026	-0.090	14.666
Employment Status				-18.560				-74.379
Family Situation				-30.447				-80.303
R ²	0.003	0.005	0.409	0.029	0.004	0.011	0.451	0.232

Chi-square value: 7.22 (DF=4); p = 0.125

groups. These cross-sex comparisons by country indicated that socioeconomic variables had different effects on behavior across sexes even in the same culture. As many of the coefficients were significantly different between the groups, it was obvious that the model used in this study was not appropriate to study household production across sexes. Apparently, the way men and women contributed to household production depended on variables other than those studied in this framework. The findings suggest that a single theory may not be appropriate for men and women and, therefore, different models should be considered.

In a cross-country comparison by sex, the significantly different coefficients for men in Finland and the United States were: age on education, age on employment, education on household production, and employment on household production. For women, two of the nine equality constraints produced a significant change in L . These were age on educational attainment and age on family situation. In other words, all other effects of the background variables are the same for Finnish and U.S. women within sampling error limits. These comparisons suggested that most of the coefficients of the model were similar across countries for men and for women. Most of the different coefficients were

those related to the effects of age for both sexes, which leads to a speculation that some fundamental differences exist in the cultural and social systems of the two countries, causing these disparities. The results of this study indicated that for men in both countries, the predictive value of the model was meager. The coefficient of determination of household production for Finnish men was 5.3 percent and for U.S. men only 3.1 percent. For women, the explanatory power of the model was quite reasonable with a coefficient of determination of 21.1 percent for Finnish women and 23.1 percent for U.S. women. This implies that for women, socioeconomic indicators such as education, employment, and family situation are appropriate for further study because of their predictive worth across cultures.

The maximum likelihood solution for this model can be seen from the values of the chi-square statistics included in Tables 19 through 22, which measure the overall fit of the model across groups. The results of this study revealed that all four chi-square statistics support the fit of the model for all four groups. However, as to the importance of the model and its explanatory or predictive values in household production time across sexes and across countries, a closer examination is needed.

These results were consistent with earlier findings by Walker and Woods (1976), Pleck (1979), and Abdel-Ghany (1983), and others who argued that only a small portion of housework participation of men can be explained with socioeconomic variables. Substantive proof was obtained to support the need for research of other fundamentally different factors such as the study of sex-role attitudes, family background, and personal and cultural values in relation to household production by men and women.

Summary

In this chapter the major differences and similarities of the time-allocations of men and women in Finland and the United States were reported. Meager differences were found among men. Part-time employed Finnish men seemed to allocate considerably more time to household production, especially child and member care, maintenance, and shopping and management, compared to nonemployed men or men employed full-time in Finland. In general, the equality ratios in Finland were smaller than in the United States in most household production categories which showed that the time-use was more equal in Finland. The variables of the equation model explained men's modest contribution to household production in both countries. For women the predictive strength of the model was quite reasonable across countries.

Finally, the metric coefficients of the model were tested across four different combinations of groups, and the fit of the model found significant in each combination.

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

This study is an analysis of similarities and differences in household production time between men and women in Finland and the United States. From a review of previous time-use literature, a structural equation model for possible use in measuring relationships of age, education, employment, and family situation to cross-sex, cross-national household production time is presented. A critique of this model, tested on the Finnish-U.S. time-use data of this study, is included.

The data used for this study were obtained from two sources. Two-parent, two-child households were used as the unit of observation. The U.S. data were from the USDA SEA North Eastern Regional Project (NE-113) "An International Urban-Rural Comparison of Families' Time-Use." Data were collected from eleven states during calendar years 1978-79 and included 2100 men and women, all of whom were parents or guardians of two children under eighteen years of age living at home. The Finnish data were obtained from the Central Statistical Office of Finland (CSO), at which a national survey entitled "The Use of Time in Finland" had been con-

ducted in 1979. From this sample the data on two-parent, two-child households were extracted and used in the analyses for this study. The basic differences of the two samples was that in the United States men and women lived in the same households, whereas in the Finnish sample men and women came from different households. The total number of Finnish households that met the set criteria for the study reported here was 1.689 (823 men and 866 women).

The demographic information revealed that the average age for women was 32.5 years in the U.S. sample and 35.2 years in the Finnish sample. For U.S. men the mean age was 35.0 years and for the Finnish men 36.5 years. Considerable differences were found in the employment status of the national samples, the most outstanding being the low full-time employment category of U.S. women (20.6 percent) compared to that of the Finnish women (58.1 percent). Among men the employment differences between countries were not noticeable. In both countries over 90 percent of the men were employed full-time.

The educational attainment, which was measured by the years of schooling, was found to be at the third level (13 or more years) for both U.S. men and women and at the second level (9-12 years) for both Finnish men and women.

Total labor time was calculated and observed by country. The results indicated that there were no remarkable differences between sexes or of countries in total labor time. However, if only household production is observed, men in both countries contributed a similar meager amount of time to household production, the mean minutes per day being 124 for U.S. men and 131 for Finnish men. Women's time differences in household production were more noticeable between the countries. Per day the United States women allocated 417 minutes to household tasks; in Finland, 329 minutes.

Differences in household production time by sex across countries were closely observed at various employment levels. A three-way analysis of variance test resulted in significant main and interaction effects in total household production mean differences. Considerable interactions were found among men at various employment levels. The most unexpected finding was that part-time employment has a strong positive effect on household production among Finnish men, although their representation was only three percent of the male respondents.

Among women, employment had a strong negative effect. Also the result that men participated only modestly in the traditionally female household chores such as food prepara-

tion, cleaning, and laundry reinforced the prevailing sex-role bias in the household sphere of both countries.

Quantitatively, this bias was manifested when equality ratios (ER) were compared in household categories across countries. In the basic household category the ERs were very high: 13.6 for the U.S. and 7.3 for Finland. In total household production, the ERs were 3.4 for the U.S. and 2.5 for Finland. This means that there was 0.9 units of quantitative difference between the equality situation across countries, reflecting that women in both countries were the major contributors to household production.

For the purpose of determining the predictive strengths of selected socioeconomic variables across sexes and across cultures, a causal model was developed and tested. Regression analyses revealed that four variables of family situation (indicated by the age group of the youngest child), employment, education, and age moderately explained the household production of women in both countries. For U.S. women, this type of analysis accounted for 23 percent of the variance in household production; for Finnish women, 21 percent. However, when testing the household production time of men, this model provided little explanatory power; only 3 percent for U.S. men and 5 percent for Finnish men.

The same structural model was further tested across four combinations of groups: across countries by sex, and across sexes by country. A relatively new statistical analysis of linear structural relationships by the method of maximum likelihood (LISREL) was used to test the strength of the equivalence or difference of the regression coefficients in the model over groups. Metric coefficients were observed and equality constraints in LISREL employed. The likelihood-ratio chi-square statistics indicated that the fit of the model explained the similarity of household production for both groups included in the analyses. However, such analysis does not provide justification for the inclusion of this set of variables in the model. As reported with the regression analysis results, the variable combination of the model was quite reasonable for women. For men, a thorough conceptualization of the factors involved in the theoretical framework which support or negate participation in household production should be undertaken. An in-depth examination of the effects of such indicators on male behavior should be made prior to their inclusion in the theoretical model. Only then can a functional model be developed which will factor out the conditions affecting behavior of both men and women related to household work.

Conclusions

This investigation showed conclusive evidence that sex-role differences in household production prevailed in both of the countries studied. Quantitatively, men in both countries contributed approximately the same amount of time to household production. In Finland, the mean time contributed by men to household production was slightly more (7 minutes) than the mean time of U.S. men. This difference was not statistically significant. Frequently, assumptions are made that male participation in household work is greater in industrialized and socially advanced countries. This research does not support such assumptions. On the contrary, it supports Walker and Wood's (1976) findings, among others, that the total housework time of men is relatively small.

Women in both countries carried the heaviest burden in household tasks. U.S. women systematically allocated more time to household production than Finnish women. This could be explained by the differences in the overall time allocation to contracted and committed time classes, as U.S. women had a much lower labor force participation rate (42.3%) compared to the Finnish women (78.5%), in this study.

According to the Central Statistical Office report (1978) a relatively high percentage of women in Finland

(56.7%) were participating in the labor force. This has been encouraged and expected, especially for professionally trained women. Labor force participation has also been fully supported by the planning and implementation of social policies providing for children's day-care, commercial services, and commercial home helpers. These kinds of national policies support and protect the family system and make it easier for both spouses to enter the labor force and to reach their personal and professional goals.

Internationally, Finnish women are seen as emancipated and active in the labor force, in national politics, and in the implementating of social programs. The sex-roles of men and women are perceived as egalitarian. However, one should not be too optimistic about the equality of sex-roles within the household sphere. In 1972 Haavio-Mannila reported a survey concerning various aspects of sex-role attitudes in Finland. She concluded that although attitudes in general have changed toward a more egalitarian direction, still half of the male respondents think that household tasks should be left to women. She further stated that:

Personally held attitudes have thus remained more traditional than the more superficial ones. Popular movements like the current sex-role debate seem to have an effect on general public opinion, but deeper attitudes and actual behavior may be more difficult to change (p. 93).

This leads to a speculation that an attitudinal factor could be the major reason for the strong sexual division of household labor found in this study of both countries.

The equality ratios observed were consistently smaller in Finnish households compared to U.S. households, showing that Finnish men made a somewhat greater contribution toward equality in household production than did men in the United States. However, the overall ratios were quite conservative compared to those reported by Niemi (1983). For example, in the traditionally female household production category of basic housework, the equality ratios of full-time employed men and women were as high as 10.77 in the United States and 6.47 in Finland, reflecting a very high housework-overload among full-time employed women, who spent 6.5 to 10.8 times more time in basic household tasks respectively than full-time employed men.

Overall, the level of employment had a significant impact on time-use patterns of both men and women. By observing the interaction effects of employment, sex, and nationality, it was found that part-time employment increased the household production of Finnish men in all categories except basic housework. This could be an indication of a change towards a more equalitarian sharing of household work in child care, maintenance, and shopping and management, but

not in strongly traditional female tasks such as "basic" housework. However, the part-time category represented only 3 percent of the male respondents of Finnish sample, and therefore, additional studies should be conducted before further generalizations can be made. Part-time employment did not seem to affect the U.S. men's behavior in household production in the same way.

For women, the employment variable had a strong negative effect on household production. This finding reinforced earlier research results. For education's effect, the outcome was positive but insignificant. This positive direction, however, is not in agreement with research which indicated that education in the form of human capital gains would improve efficiency, productivity, and skills, thus reducing the time spent in household production (Michael, 1972). Measuring the effects of education might provide a comprehension of certain cultural effects not presently understood. Therefore, the education variable in future household production studies might provide new insights when used in cross-national studies.

The introduction of equality ratios in a study of household production function was another, innovative way of looking at the division of household labor. It can be concluded from the research results of this study that gender

plays a very important role in household time allocation and behavior in general. Gender issues should be systematically considered and incorporated in future studies of households such as intra-family decision making, time allocation, and sharing of responsibilities. This type of research could make a substantive contribution to understanding sex-role behavior across cultures and countries, both in the industrialized and nonindustrialized parts of the world.

Causal modeling seemed to be an appropriate and useful method to use in analysing the factors affecting household production time across countries and across sexes. Analyses suggested that socioeconomic factors only modestly explain participation of men in housework; however, they provided a substantive explanation of the factors which affect the time women spent in housework and the activities they emphasize.

If causal models are to be employed in further studies, a careful choice of new variables in the development of an appropriate theoretical model will be required. Creation of such models which would better explain the role behavior of men and women in the household sphere is encouraged. Separate models for men and women need to be considered, as their household behavior seems to depend on different factors. These models should incorporate variables related to household skills, peer and societal pressures, personal at-

titudes of both spouses toward egalitarian life-styles, value orientation, etc. A study of the relationships of these factors to household production would help provide the basis for an applicable cross-cultural theory of sex-equality attitudes toward the household sphere. Development of such models of household behavior, which could be adopted to fit various countries should be investigated, although care should be taken when applying models across developed and developing countries.

Recommendations

The research reported here has revealed some fundamental social realities in the two countries with regard to sexual division of labor in the household sphere. The results imply that the male-female stereotyped allocation of time to household production activities needs to be further researched both quantitatively and qualitatively. This study has enriched the knowledge of the state of affairs of the way of life cross-culturally, implying that perceptions of the sex-role differences in the household sphere, and the measures of standards of living and qualities of life may differ across cultures.

Recommendations for further research and actions are summarized as follows:

(1) Interdisciplinary approaches to the study of time-budgets across sexes and across countries are needed in order to gain deeper insights into the perceived equality concepts. Therefore, the development of international research teams and collaboration between educators, home economists, policy makers, and social scientists should be encouraged.

(2) Uniformity and consistency in time-budget research is needed to allow cross-national comparisons. There is a need to provide common terminology and interpretation to formulate survey questionnaires, measurement techniques, and research tools with universal applicability; to develop consensus in the classification of activities, demographic and socioeconomic factors, and other variables; and to adopt consistent variable coding methodology. A starting point would be to build upon the definitions and terms used in this study.

(3) Research designs with a special focus are needed, such as further exploration of gender differences in studies of households; the effects of decision making and the responsibility for carrying out specific household tasks. Separate designs and models are needed to study the behavior of men and women.

(4) Theoretical frameworks need to be developed with the inclusion of additional socioeconomic and specific vari-

ables related to household skills and resources (such as income, technology, wage-levels, etc.); to attitudes, values and standards; and to environmental, role, and personal factors (seasons, climate, family composition, etc.). These frameworks should help generate new theories about men's and women's household behavior cross-culturally.

(5) The latest research technology should be utilized for the exploration of time-use allocations, sex-roles, and other household research. The method of causal modeling, among others, should be more extensively utilized, and the creation of cross-culturally comparable indices encouraged.

(6) The introduction and implementation of economic, educational, labor, and social policies supportive of equality between men and women are imperative in order to eradicate the present imbalance in household time-use between the sexes, at all levels in a society. Dissemination of research outcomes would provide an accurate information base to guide leaders in decision making, policy formation, and implementation.

(7) Concerted efforts on the part of the educational institutions and the media should be made to increase the public awareness of sexual biases and inequalities, which persistently prevail in the society, especially in the household sphere, and to act as a force to reduce these inequalities.

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APPENDICES

APPENDIX A

Table 1

Means, Standard Deviations^(a) and Cell Frequencies of the Extent of Time Commitment (Minutes Per Day) by Sex and Employment Status to Basic Classes of Time-Use in Two-Parent, Two-Child Households in the United States

Basic Time-Use Class	Sex and Employment Status							
	Men				Women			
	Nonemployed ^(b) n=133	Part-time Employed n=55	Full-time Employed n=1912	All Men N=2100	Nonemployed n=1211	Part-time Employed n=457	Full-time Employed n=432	All Women N=2100
1. Necessary Time (sleep, eating, etc.)	611.910 (194.10)	589.318 (78.751)	599.390 (102.618)	599.888 (110.126)	626.930 (84.326)	615.826 (74.746)	612.407 (84.753)	621.526 (82.637)
2. Committed Time (household production)	162.538 (170.552)	113.50 (97.175)	121.803 (107.835)	124.170 (112.962)	469.762 (147.192)	383.955 (140.672)	304.329 (150.841)	417.032 (616.990)
3. Contracted Time (employment, schooling)	325.996 (318.240)	402.318 (215.993)	433.580 (202.793)	425.948 (213.802)	19.073 (65.419)	163.036 (143.997)	284.959 (188.998)	105.099 (161.135)
4. Free Time (leisure, hobbies)	344.041 (255.063)	334.864 (176.483)	284.398 (161.113)	289.497 (167.680)	326.090 (138.330)	277.352 (122.873)	239.334 (123.593)	297.637 (136.761)

^(a)Standard deviations in parentheses.

^(b)Includes respondents who recorded no paid employment or were recoded zero or missing values.

Table 2
Means, Standard Deviations^(a) and Cell Frequencies of the Extent of Time
Commitment (Minutes Per Day) by Sex and Employment Status to Basic Classes
of Time-Use in Two-Parent, Two-Child Households in Finland

Basic Time-Use Class	Sex and Employment Status							
	Men				Women			
	Nonemployed n=24	Part-time Employed n=25	Full-time Employed n=774	All Men N=823	Nonemployed n=186	Part-time Employed n=177	Full-time Employed n=503	All Women N=866
1. Necessary Time (sleep, eating, etc.)	700.000 (118.762)	616.800 (120.717)	604.664 (104.257)	607.813 (106.309)	622.957 (93.753)	626.554 (86.622)	602.982 (95.473)	612.090 (93.877)
2. Committed Time (household production)	186.667 (146.782)	270.00 (176.965)	125.039 (127.689)	131.240 (131.240)	422.258 (179.282)	359.718 (153.628)	275.746 (160.660)	328.672 (176.795)
3. Contracted Time (employment, schooling)	71.250 (145.641)	225.200 (261.361)	403.695 (253.917)	388.578 (259.202)	20.645 (96.751)	149.040 (174.238)	303.598 (237.851)	211.235 (233.611)
4. Free Time (leisure, hobbies)	482.083 (182.376)	328.000 (171.367)	306.602 (182.829)	312.369 (184.666)	354.140 (167.269)	303.898 (154.313)	258.688 (155.963)	288.430 (162.596)

^(a) Standard deviations in parentheses.

Table 3

Means, Standard Deviations^(a) and Cell Frequencies of Time Allocation (Minutes Per Day) by Sex and Employment Status to Total Household Production and its Merged Subcategories in Two-Parent, Two-Child Households in the United States

Household Production Category	Sex and Employment Status							
	Men				Women			
	Nonemployed ^(b) n=133	Part-time Employed n=55	Full-time Employed n=1912	All Men N=2100	Nonemployed n=1211	Part-time Employed n=457	Full-time Employed n=432	All Women N=2100
1. Basic Housework	27.481 (64.444)	16.818 (24.131)	15.026 (26.644)	15.862 (30.524)	241.198 (100.299)	198.146 (89.794)	161.788 (94.077)	215.481 (102.021)
2. Child and Member Care	40.056 (61.572)	32.955 (40.808)	32.086 (44.956)	32.613 (46.099)	127.318 (102.969)	90.525 (82.818)	70.411 (80.302)	107.605 (97.461)
3. Maintenance	53.816 (98.812)	29.000 (45.706)	46.441 (72.005)	46.451 (70.482)	31.623 (54.446)	23.321 (39.727)	17.598 (34.582)	26.931 (48.278)
4. Shopping and Management	41.184 (66.881)	24.727 (48.740)	28.256 (45.584)	27.244 (47.380)	69.624 (65.732)	71.964 (58.477)	54.53 (56.054)	67.029 (69.611)
Total Household Production	162.537 (170.552)	113.500 (97.175)	121.808 (107.835)	124.170 (112.962)	469.762 (147.192)	383.955 (140.672)	304.324 (150.841)	417.032 (160.990)

^(a)Standard deviations in parentheses.

^(b)Includes respondents who recorded no paid employment or were recoded zero or missing values.

Table 4

Means, Standard Deviations^(a) and Cell Frequencies of Time Allocation (Minutes Per Day) by Sex and Employment Status to Total Household Production and its Merged Subcategories in Two-Parent, Two-Child Households in Finland

Household Production Category	Sex and Employment Status							
	Men				Women			
	Nonemployed n=24	Part-time Employed n=25	Full-time Employed n=774	All Men N=823	Nonemployed n=186	Part-time Employed n=177	Full-time Employed n=503	All Women N=866
1. Basic Housework	73.750 (47.393)	29.600 (35.057)	24.638 (40.046)	26.221 (40.933)	249.839 (123.264)	214.181 (105.343)	159.364 (105.262)	190.000 (115.642)
2. Child and Member Care	41.250 (76.857)	93.200 (126.712)	30.530 (60.516)	27.205 (64.775)	117.903 (25.618)	74.181 (90.274)	63.101 (89.420)	77.136 (83.142)
3. Maintenance	30.000 (55.010)	102.000 (133.321)	46.499 (92.756)	47.704 (93.777)	33.065 (75.256)	23.842 (41.368)	17.833 (34.374)	22.333 (47.772)
4. Shopping and Management	41.667 (68.504)	45.200 (51.971)	23.372 (41.316)	24.569 (42.875)	41.452 (47.154)	47.514 (61.196)	35.447 (62.804)	39.203 (59.582)
Total Household Production	186.667 (146.782)	270.000 (176.965)	125.039 (127.689)	131.240 (132.519)	442.259 (179.282)	359.718 (153.628)	275.745 (160.660)	328.672 (176.795)

^(a) Standard deviations in parentheses.

Table 5

Correlations, Means, and Standard Deviations
for Variables in Model of Household Production:
Finnish Men (N=823)

Variable	X ₁	X ₂	X ₃	X ₄	X ₅
Household Production (X ₁)	1.000				
Family Situation (X ₂)	-0.134	1.000			
Employment Status (X ₃)	-0.151	-0.079	1.000		
Educational Attainment (X ₄)	-0.088	-0.121	0.108	1.000	
Age (X ₅)	-0.074	0.611	-0.219	-0.175	1.000
Means	131.239	1.423	2.911	1.555	36.461
Standard Deviations	132.519	0.596	0.373	0.557	7.432

Table 6

Correlations, Means, and Standard Deviations
for Variables in Model of Household Production:
Finnish Women (N=866)

Variable	X ₁	X ₂	X ₃	X ₄	X ₅
Household Production (X ₁)	1.000				
Family Situation (X ₂)	-0.304	1.000			
Employment Status (X ₃)	-0.384	0.143	1.000		
Educational Attainment (X ₄)	0.064	-0.219	0.021	1.000	
Age (X ₅)	-0.189	0.617	0.027	-0.186	1.000
Means	328.672	1.491	2.366	1.458	35.169
Standard Deviations	176.795	0.500	0.813	0.515	7.426

Table 7

Correlations, Means, and Standard Deviations
for Variables in Model of Household Production:
U.S. Men (N=2100)

Variable	X ₁	X ₂	X ₃	X ₄	X ₅
Household Production (X ₁)	1.000				
Family Situation (X ₂)	-0.133	1.000			
Employment Status (X ₃)	-0.080	-0.020	1.000		
Educational Attainment (X ₄)	0.096	-0.110	0.013	1.000	
Age (X ₅)	-0.069	0.634	-0.063	-0.050	1.000
Means	124.170	1.400	2.847	2.609	34.94
Standard Deviations	112.962	0.490	0.506	0.524	7.887

Table 8

Correlations, Means, and Standard Deviations
for Variables in Model of Household Production:
U.S. Women (N=2100)

Variable	X_1	X_2	X_3	X_4	X_5
Household Production (X_1)	1.000				
Family Situation (X_2)	-0.315	1.000			
Employment Status (X_3)	-0.415	0.190	1.000		
Educational Attainment (X_4)	0.031	-0.073	0.048	1.000	
Age (X_5)	-0.199	0.663	0.105	0.062	1.000
Means	417.032	1.400	1.629	2.531	32.513
Standard Deviations	160.990	0.490	0.803	0.519	7.190

APPENDIX B

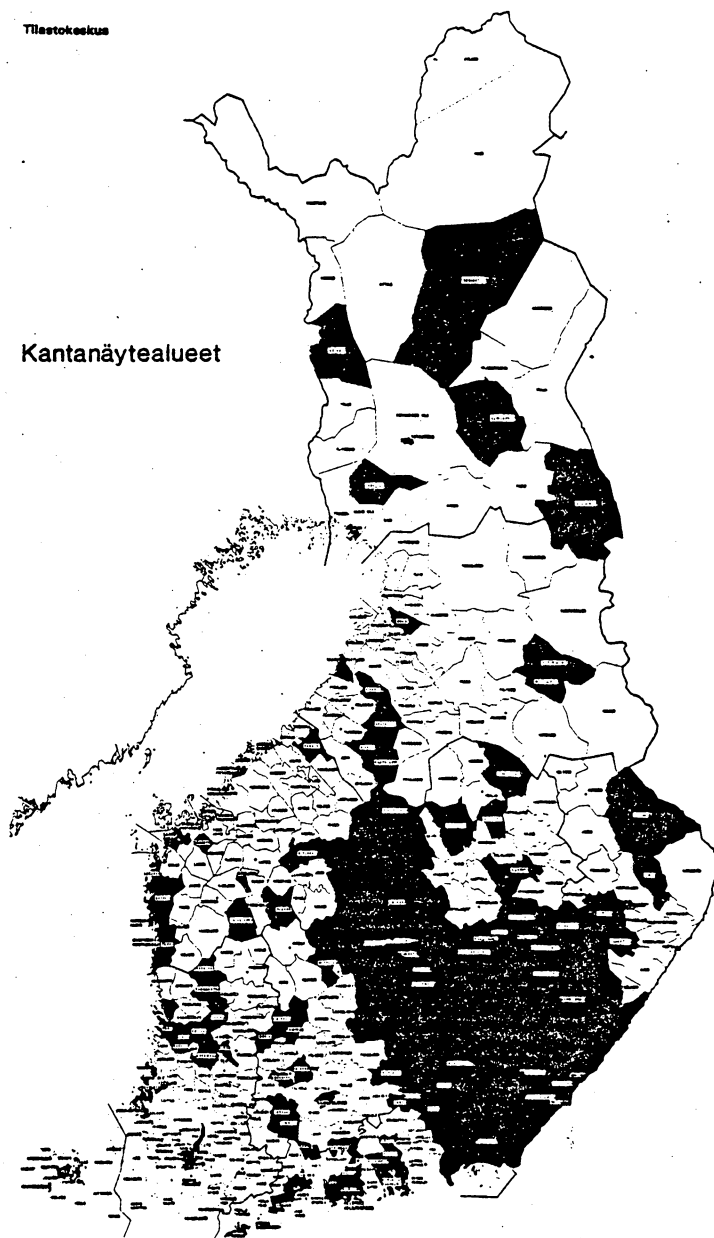


Figure 1

Map of the basic sampling areas in Finland

Source: Central Statistical Office of Finland

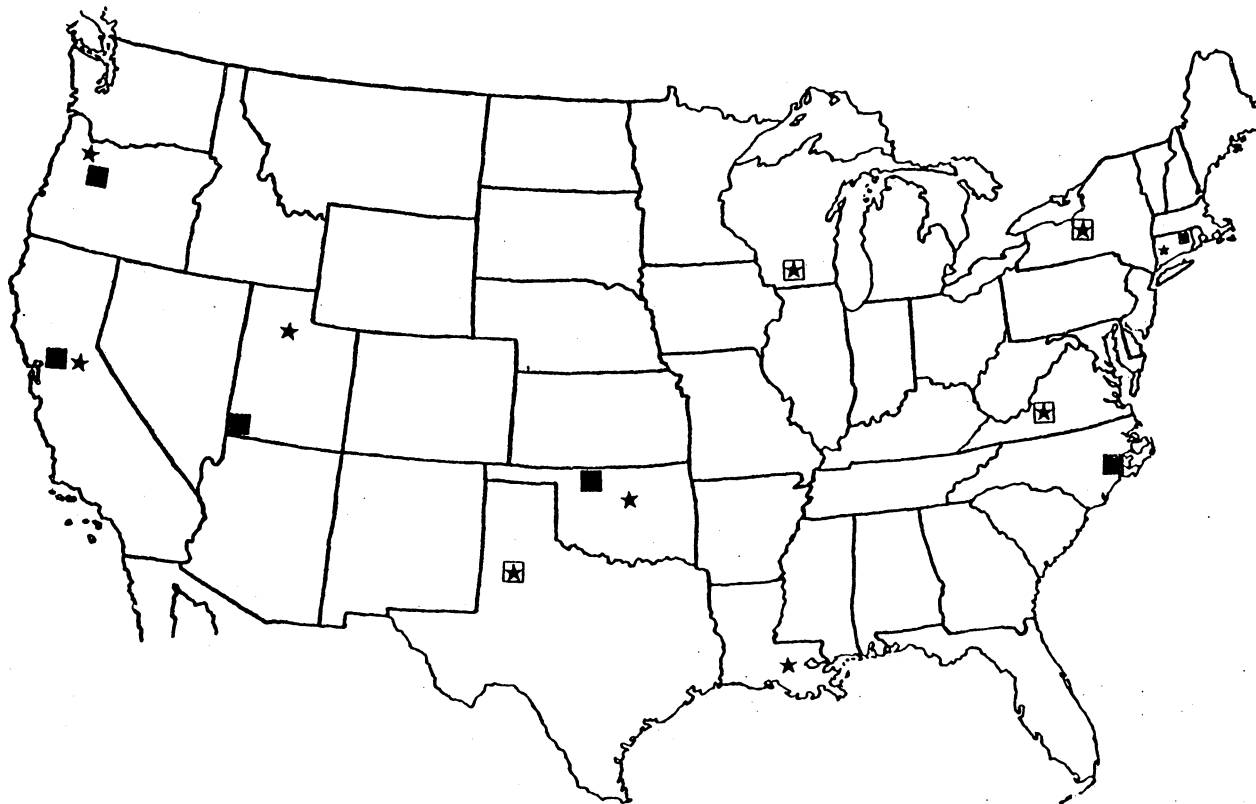


Figure 2

Map of United States showing approximate
locations of the sampling areas

I. DEFINITION OF ACTIVITIES OF HOUSEHOLD MEMBERS
IN THE NE-113 TIME-USE DATA, USA

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, Fruit 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
Vacuuming
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, Fruit, 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 Work
Include: Daily and Periodic Care of Outside Areas
Include: Maintenance and Care of Family Motor Vehicles
(car, truck, van, motorcycle, snowmobile, boat appliances, and lawn equipment)
Include: Feeding and Care of Household 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, Preparing Items to Wash
 Commercial Laundry, Preparing Items For
 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, slipcovers, 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, no Construction.

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

Examples:

Alterations to Clothes, Drapes
 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 Car.
- C. If another family member goes along for the ride to the dentist (see example b), then his/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 Member to Doctor, Barber
 Feeding Other Family Members
 First Aid or Bedside Care
 Supervising Child-Brushing Care
 Supervising Child Getting Dressed

9. Nonphysical Care

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

Attending Functions Involving Child
 Driving Children to School, Social Event
 Helping Children with Homework
 Playing With Children, Giving Them Attention
 Reading Aloud to Family Members
 Talking with Family Members
 Teaching Children
 Chauffeuring and or Accompany Children to Social and Educational Activities

MANAGEMENT

10. Management

Making decisions and planning
 Supervising and coordinating activities
 Checking plans as they are carried out

Thinking back to see how plans worked such as:

Making bank deposits and checking bank statements

Paying bills and recording receipts and expenses

Figuring income taxes

Investigating and applying for government assistance, such as:

Social Security, food stamps, welfare, unemployment, medical benefits, veteran's payment, etc.

is to be coded under management, with the specific activity clearly indicated on the time arrow. These activities are coded as management because they are related to financial transactions.

Activities such as applying for college or for employment should also be coded as management.

Examples:

Assessing Resources Available

Bank Deposits, Checking Bank Statements

Checking Plans As They Are Carried Out

College, Applying To

Figuring Income Taxes

Food Stamps, Applying or Buying

Job, Applying For

Job Seeking

Licenses, Renewing

Looking for Ideas, Seeking Information

Other Personal or Financial Bookkeeping

Paying Bills and Recording receipts, Expenses

Planning Activities, Family Activities, Menus,

Shopping Lists, Purchases and Investments

Public Assistance, Applications or Information

Supervising and Coordinating Activities

Thinking About, Discussing, Investigating Ideas

Thinking Back to See How Plans Worked

Unemployment, Applying For

Unemployment Compensation

WORK (OTHER THAN HOUSEHOLD)

11. School

This category includes school on any classes related to present or future employment. Include time spent in preparation for each of the above. For example, work or reading done at home or at the library relating to job or classes. Examples:

Classes Related To Present Or Future Employment

Homework For School

Preparing For Classes

Reading For Schol

Typing A Paper For Your Class

Writing School Work

Organization participation, social and recreational activities of children should be considered as "School" IF these activities are within the school day.

12. Paid

Paid employment and work-related activities, such as work brought home, professional, business, and union meetings, conventions, etc. Paid work for family farm or business, babysitting, or paper route. Examples:

Baking Items To Sell
 Family Farm or Business, Paid Work
 Growing Crops To Sell
 Jury Duty
 Military Service Training
 Paid Employment
 Professional, Business, 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 organizations. Examples:

Baking Donations For Club Sale
 Canvassing For Political Candidate
 Committee Work For Organization, Unpaid
 Sewing Donations For Club Sale
 Unpaid Work For Relatives, Friends, Groups
 Work or Service Done on a Volunteer Basis--no pay

NONWORK

14. Organization Participation

Attending and participating in: religious activities and services; civic and political organizations; and other clubs and organizations. Examples:

Civic, Fraternal, Political Club Meeting
 Extracurricular School Activities
 Religious Activities or Services, Attending

15. Social and Recreational Activities

Examples:

Entertaining at Home or Being Entertained
 Exercising
 Going to Movie, Museum, Concert, Sports Event
 Jogging
 Listening to Radio, Stereo
 Participating in a Sport, Hobby, Craft
 Playing Cards, Games, Musical Instruments

(If adult is playing with child, includes such activities under nonphysical care)
 Reading For Pleasure (Not reading for school or work)
 Taking a Class or Lesson For Personal Interest
 Talking With Others in Person or By Telephone
 Training Animals
 Visiting With Friends or Relatives
 Walking, Cycling, Boating, Pleasure Driving
 Watching Television
 Writing Letters or Cards to Friends, 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 snack, alone, with family or fiends at home or away from home.

OTHER

18. Other

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

II. MERGED ACTIVITY CLASSIFICATION OF THE
NE-113 TIME-USE DATA, USA

		12 midnight	1am	2am	3am	4am
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					

III. ACTIVITY CLASSIFICATION OF THE FINNISH
CSO TIME-USE DATA

1. Work
 - 01 Work in main occupation
 - 02 Work in secondary occupation
 - 03-06 Agriculture and forestry on own property
 - 03 Plant cultivation
 - 04 Care of livestock
 - 05 Forestry
 - 06 Other work on own property or unspecified
 - 07 Other time in connection to work
 - 08 Journey to work
2. House work
 - 09 Cooking
 - 10 Baking, preservation
 - 11 Dish-washing
 - 12 Housecleaning
 - 13 Laundry work and ironing
 - 14 Dressmaking
 - 15 Care of clothes and footwear
 - 16 Heating and water maintenance
 - 17 Home repairs and construction
 - 18 Care of lot and animals
 - 19 Repair of vehicles
 - 20 Help to adult family member
 - 21 Help to other households
 - 22 Other house work or unspecified
 - 23 Travels associated with housework
3. Care of children
 - 24 Child care and help of children
 - 25 Reading and playing with children
 - 26 Taking children outdoors
 - 27 Other child care
 - 28 Travels associated with child care
4. Purchase of goods and services
 - 29 Shopping
 - 30 Services, offices
 - 31 Medical care of children
 - 32 Health care of self or adult family members
 - 33 Unspecified
 - 34 Travels associated with 29-33
5. Personal needs
 - 35 Night sleep (essential
 - 36 Day time sleep
 - 37 Meals and snacks
 - 38 personal hygiene and dressing
 - 39 Sauna

- 40 In bed when ill
- 41 Other personal needs
- 42 Travels associated with personal needs
- 6. Education
 - 43 Studying at school
 - 44 Studying at home
 - 45 Traveling to and from school
 - 46 Leisure-time study at home
 - 47 Leisure-time study outside the home
 - 48 Travels associated with leisure-time study
 - 49 Unspecified studies

LEISURE

- 7. Participation activities
 - 50 Participation in organizations excluding religious
 - 51 Religious activities
 - 52 Travels associated with participation activities
- 8. Sports and outdoor recreation
 - 53 Walking
 - 54 Active sport, unorganized
 - 55 Active sport, organized
 - 56 Hunting, fishing, picking mushrooms
 - 57 Unspecified sport
 - 58 Travels associated with sport
- 9. Entertainment
 - 59 Sports events
 - 60 Cinema
 - 61 Theatre, concert, museum, art exhibition
 - 62 Library
 - 63 Other entertainment
 - 64 Travels associated with entertainment
- 10. Reading
 - 65 Reading newspapers
 - 66 Reading magazines, journals
 - 67 Reading books
 - 68 Unspecified reading
- 11. Radio and television
 - 69 Listening to radio
 - 70 Watching television
- 12. Socializing
 - 71-72 Socializing with family
 - 71 Socializing with children
 - 72 Socializing with other family members
 - 73 Visiting friends
 - 74 Socializing with friends at home
 - 75 Socializing with friends outdoors
 - 76 Telephone conversations
 - 77 Restaurant visits, dances
 - 78 Cafe visits
 - 79 Other socializing

- 80 Travels associated with socializing
- 13. Hobby
 - 81 Handcraft
 - 82 Artistic hobbies
 - 83 Technical hobbies, collections
 - 84 Social games
 - 85 Games alone
 - 86 Games with money
 - 87 Records, cassettes
 - 88 Letter writing and reading
 - 89 Other hobbies
 - 90 Travels associated with hobbies
- 14. Other forms of leisure
 - 91 Resting
 - 92 Travels associated with several activities (longer trips)
 - 93 Going for drives
 - 94 Unspecified leisure
- 99. Unspecified

IV. MERGED ACTIVITY CLASSIFICATION OF THE FINNISH
CSO TIME-USE DATA

1. Work
 - 01 Work (01-06)
 - 02 Other time in connection to work (07)
 - 03 Journey to work (08)
2. House work
 - 04 Household work (09-16)
 - 05 Maintenance (17-19)
 - 06 Other housework (20-22)
 - 07 Care of children (24-27)
 - 08 Purchase of goods and services (29-33)
 - 09 Travels associated with housework (23, 28, 34)
3. Personal needs
 - 10 Sleep (35, 36)
 - 11 Meals (37)
 - 12 Personal hygiene etc. (38-42)
4. Education
 - 13 Studying (43, 44, 49)
 - 14 Traveling to and from school (45)
 - 15 Leisure-time study (46-48)
5. Leisure
 - 16 Participation in organizations (50-51)
 - 17 Sport and outdoor recreation (53-57)
 - 18 Entertainment and culture (59-63)
 - 19 Reading (65-68)
 - 20 Radio (69)
 - 21 Television (70)
 - 22 Socializing with family (71, 72)
 - 23 Socializing with friends (73-79)
 - 24 Hobbies
 - 25 Other leisure (91, 94)
 - 26 Travels associated with leisure (52, 58, 64, 80, 90, 92, 93)
6. Unspecified
 - 27 Unspecified (99)

V. SAMPLE OF THE TIME-DIARY OF THE 1979 TIME-BUDGET STUDY, FINLAND

QUESTIONS FOR THE SECOND ENTRY DAY

1. Were you travelling on entry day?

- 1) ☐ Travelling the whole 24 hours
2) ☐ Travelling part of the 24 hours
3) ☐ Not travelling

2. Was another family member away from home due to travel or some other reason the entire 24 hours?

- 1) ☐ Yes, who _____
2) ☐ No

3. In your opinion, was it interesting or inconvenient to keep the time diary?

- 1) ☐ Very interesting
2) ☐ Of some interest
3) ☐ Somewhat inconvenient
4) ☐ Very inconvenient

4. FOR THE EMPLOYED AND STUDENTS AND PUPILS

Were you at work or school on entry day?

- 1) ☐ At work or school
2) ☐ On holiday or off from work/school, e.g. due to weekend or day-off/vacation
3) ☐ Absent from work/school due own illness
4) ☐ Absent from work/school for another reason (child care, maternity leave or other reason)
5) ☐ Other reply: _____

FINALLY, PLEASE MAKE SURE THAT YOUR DIARY IS FILLED IN

1. for the entire 24 hours

- one primary activity to be entered for each time of the day
- simultaneous activities are to be recorded
- time spent together with family members or other persons is to be entered

2. according to instructions

THANK YOU FOR YOUR CO-OPERATION. PLEASE RETURN THE DIARY IMMEDIATELY TO THE INTERVIEWER IN THE ENVELOPE PROVIDED (no postage stamp needed).

Note! Please return also the soiled or incomplete time diary.

THANK YOU!

CENTRAL STATISTICAL OFFICE

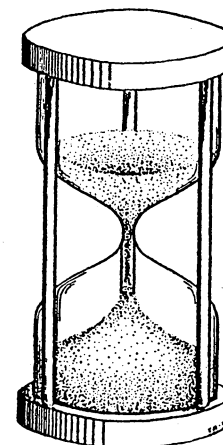
Interview Division

Tel. 90 - 17341/520

Municipal code _____

No _____

Interviewer _____



1979 TIME-BUDGET STUDY

TIME-DIARY

Filled in _____ /
and _____ / 1979

HOUR	WHAT WERE YOU MAINLY DOING? Describe as precisely as possible what you did at different times of the day. Only one activity is to entered in each row. Time spent on trips and the means of travel are to be entered separately. 1 st day of entry _____ / _____ date	FOR OFFICIAL USE				WHAT ELSE WERE YOU DOING AT THE SAME TIME?	TIME SPENT TOGETHER										
		Primary activity	Location	Secondary activity	Time spent together		a. with family members							b. with others			
							1.	2.	3.	4.	5.	6.	7.	Relatives	Coworker/school mates	Acquaintances	
0.00-0.30																	
0.30-1.00																	
1.00-1.30																	
1.30-2.00																	
2.00-2.30																	
2.30-3.00																	
3.00-3.30																	
3.30-4.00																	
4.00-4.30																	
4.30-5.00																	
5.00-5.10																	
5.10-5.20																	
5.20-5.30																	
5.30-5.40																	
5.40-5.50																	
5.50-6.00																	
6.00-6.10																	
6.10-6.20																	
6.20-6.30																	

VI. CODING OF VARIABLESHousehold Production Time

The sum of time spent in household production activities (or "domestic activities", as called in the CSO-data, code numbers 09-43) in minutes per day.

Age

The age of the respondent during the time of interview.

Educational Attainment

Coded in three categories:

- 1 = first level (1-9 years of schooling)
- 2 = second level (10-12 years of schooling)
- 3 = third level (13 or more years of schooling)

Employment Status

Indicates the hours the person is employed per week outside the home for pay (or attends to school):

- 1 = nonemployed
- 2 = part-time employed (1-34 hrs)
- 3 = fulltime employed (35 or more hrs)

Family Situation

Defined according to the age-group of youngest child:

- 1 = pre-school age group (0-5 years in the United States; 0-6 years in Finland)
- 2 = schoolage group (7 or more years)

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