AN INVESTIGATION OF THE RELATIONSHIP AMONG OCCUPATIONAL OPPORTUNITIES FOR WOMEN, MARRIAGE, AND FERTILITY

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The purpose of this research is to investigate the relationship among the following variables: occupational opportunities for women, career participation, percentage married by specific age groups, and fertility. The areal units of analysis are the one-hundred largest standard metropolitan statistical areas in the United States in 1970. The independent variables are occupational opportunities for women and career participation of women, and the dependent variables are percentage married by specific age groups and fertility. The objectives are (1) to substantitate earlier findings that there is a negative relationship between occupational opportunities for women and fertility, (2) to include career participation as one dimension of occupational opportunities for women, (3) to compare the relationship and predictive ability of occupational opportunities for women and career participation in terms of the dependent variables of percentage married by specific age groups during regression analysis in order to determine its influence on fertility, and (4) to test propositions concerning the assumption

that female labor-force participation does not necessarily inhibit fertility.

Four economic variables act as a measure of occupational opportunities for women. The following variables are used in the measure: median-female income, percent of the total labor force that is classified as clerical and kindred, the unemployment rate, and the femaleness of the industrial structure. This last variable will be constructed by comparing the selected standard metropolitan statistical areas of a national index that measures the extent to which industries are female dominated, as in the case of service industries, or male dominated, as in the case of heavy industry.

The position taken in this research is that career participation is a better predictor of percentage married and of fertility than female-median income, the percent classified as clerical and kindred, the unemployment rate, and the femaleness of the industrial structure. It is thought that women who participate in a career are more likely to demonstrate a low marriage and fertility rate than clerical and kindred workers.

The percentage married of two age groups will be compared: women who marry young (age 22-24) and participate in clerical positions and women who marry late (age 25-29) and seek careers. When career participation is used as a predictor of percentage married, the specific age group of percentage married is age 25-29. This age category is used

since younger women probably would not have had time to gain employment in their chosen field. When female-median income, the percent of the labor force classified as clerical and kindred, the unemployment rate, and the femaleness of the industrial structure are used as predictors, the specific age group of percentage married is age 22-24. Lengthy educational requirements are not necessary for women in clerical and kindred positions; therefore, the age range of 22-24 is appropriate.

There are several variables that might influence the relationship among occupational opportunities for women, percentage married, and fertility. The following control variables are used: male earnings, population size, median age of the population, percentage Catholic, percentage Jewish, female education, racial composition, sex ratio, and migration. Percentage married is held constant during the partial analysis in order to understand the relationship between occupational opportunities for women and fertility.

The findings of the study indicate that there is a negative correlation between occupational opportunities for women and the percentage married by specific age groups and a negative correlation between work opportunities and fertility. Specifically, female-median income acts as a deterrent to marriage and fertility. Career participation does not compete impressively in explaining the variance of marriage or fertility.

When economic opportunities are favorable to both men and women, men apparently can afford marriage, and women apparently can afford not to get married. There is a weak negative correlation between male earnings and percentage married age 22-24. When compared to the negative effect that female income has on marriage and fertility, the implications for the future of the American family are profound.

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INTRODUCTION

Statement of Purpose

The purpose of this research is to investigate the relationship among the following variables: occupational opportunities for women, career participation, percentage married by specific age groups, and fertility. Although this problem has been examined at the micro-level using attitudinal data, the present research focuses on structural characteristics of areal units. The areal units are the one-hundred largest standard metropolitan statistical areas (SMSA*), in the United States in 1970. The independent variables are occupational opportunities for women and career participation of women, and the dependent variables are percentage married by specific age groups and fertility. The objectives are (1) to substantiate earlier findings that there is a negative relationship between occupational opportunities for women and fertility, (2) to include career participation as one dimension of occupational opportunities for women, (3) to compare the relationship and predictive ability of occupational opportunities for women and career participation in

*Throughout this paper this abbreviation is used for Standard Metroplitan Statistical Area.

terms of the dependent variables of percentage married by specific age groups during regression analysis in order to determine its influence on fertility, and (4) to test propositions deduced from the assumption that female labor-force participation does not necessarily inhibit fertility.

Four economic variables act as a measure of occupational opportunities for women. The following variables are used in the measure: median-female income, percent of the total labor force that is classified as clerical and kindred, the unemployment rate, and the femaleness of the industrial structure. This last variable will be constructed by comparing the selected SMSAs to a national index that measures the extent to which industries are female dominated, as in the case of service industries, or male dominated, as in the case of heavy industry. It is thought that these variables are indicators of structural characteristics of SMSAs. In similar studies, the practice has been to rely on labor-force participation as a predictor of fertility. The use of median-female income, percent of the total labor force classified as clerical and kindred, the unemployment rate, and the femaleness of the industrial structure as a measure of occupational opportunities for women has been used in an earlier study by Samuel Preston in 1975 (28). However, Preston did not include career participation. It is possible that career participation is one dimension of occupational opportunities

for women that is not included in the four variables mentioned above.

The position taken in this research is that career participation is a better predictor of percentage married by specific age groups and of fertility than female-median income, the percent classified as clerical and kindred, the unemployment rate, and the femaleness of the industrial structure. It is thought that women who participate in a career are more likely to demonstrate a low marriage and fertility rate than clerical and kindred workers. Conceptually, career participation involves a qualitatively different work activity than the clerical and kindred category. Women who participate in a career, i.e., one of the professions or a position requiring a college degree, possibly select a marriage partner who is accepting of their career plans, and women in the clerical and kindred category possibly select their work based on its compatibility with their family commitments.

The percentage married of two age groups will be compared: women who marry young (age 22-24) and participate in clerical positions and women who marry late (age 25-29) and seek careers. When the predictive value of career participation is compared to the other four economic variables, different selected age groups of the percentage married are used. When career participation is used as a predictor of percentage married, the specific age group of percentage

married is age 25-29. This age category is used since younger women probably would not have had time to complete their education and to gain employment in their chosen career. When female-median income, the percent of the labor force classified as clerical and kindred, the unemployment rate, and the femaleness of the industrial structure are used as predictors, the specific age group of percentage married is age 22-24. Lengthy educational requirements are not necessary for women employed in clerical and kindred positions; therefore, the age range of 22-24 is appropriate.

The relationship between percentage married age 22-24 and 25-29 and fertility might indicate that fertility is low in an SMSA because there are fewer women married in these age groups. The use of percentage married in the statistical model should help to clarify the relationship between occupational opportunities for women and fertility. During the regression analysis, percentage married will be allowed to compete with the economic variables in the explanation of fertility. The objective is to empirically investigate the possibility that fertility is low in an SMSA because the percentage married is low.

There are several variables that might influence the relationship among occupational opportunities for women, percentage married, and fertility. The following control variables are introduced since there is support in the literature for their ability to influence the relationship

between the independent and dependent variables: male earning level, population of SMSA, median age of the population, percentage Catholic, percentage Jewish, female educational attainment, racial composition, the sex ratio, and migration (29). Percentage married is also held constant during the partial-correlation analysis in order to better understand the relationship between occupational opportunities for women and fertility.

Significance of the Problem

Analysis of the relationship among work opportunities for women, marriage, and fertility is justified for several reasons. A statistical investigation of work and its influence on marriage and fertility is timely, relates to a practical problem, fills a research gap, and refines an important relationship.

For some time, leading demographers have realized that fertility is a key variable in understanding population trends in the United States (4, 19). Historically, demographers have monitored birth rates, death rates, and migration. Advancements in medical technology have eliminated the threat of death by widespread infectious epidemics. Since an increasing control over death has been gained, the importance of mortality as a predictor of population trends has diminished. Demographers have focused on fertility as

the variable that is crucial to understanding population trends and developments.

Long-range fertility trends are influenced by changes in the sociocultural environment. Societal modernization as indicated by economic determinants has been utilized to explain declining fertility rates. Basically, it has been assumed that with increased modernization and a higher level of industrialization there follows a consistently declining birth rate. Still, the post World War II "baby boom" and the prolonged rise in fertility far into the decade of the fifties defies explanation by existing theory.

> Before the war, most demographers simply expected fertility rates to continue to decline or to stabilize at very low levels as effective contraception spread in an increasingly urbanized population. Since prewar population projections erred mainly in failing to allow adequately either for the possibility of higher fertility rates or for their volatility, demographers have begun to turn to more broadly based social research on fertility for better predictions of this element in population growth (16, p. 197).

Of equal importance to fertility as a key variable in understanding population trends is the broader question of population size and optimum population growth. The sociology of fertility would not have the theoretical and practical importance that it does if it were not for a general concern for controlling population size. The Commission on Population Growth and the American Future

> was instructed to project the probably future trends of population in the United states, to examine the implications of these trends, and to inquire into

> ". . . the various means appropriate to the ethical values and principles of this society by which our Nation can achieve a population level properly suited for its environmental, natural resources, and other needs." (11, p. xiii).

Such a task is based on the assumption that there is a population problem. "Assertions that the United States has a population problem rest not only on ostensible common-sense observations (crowding, traffic, environmental decay, for instance) but also on interpretations of demographic, environmental, and other data"(11, p. 7).

Symptomatic of the growing concern that there is a population problem is the practice of setting an optimum population size. City officials of Boulder, Colorado, have established a population policy that discourages further growth by migration to their city. Oregon has joined the ranks of states that are encouraging a "no growth" policy (30). It is difficult to determine if cities and states are following the lead of the Commission on Population Growth or if local factors are the catalyst for desires for an optimum population size. The formation of the Commission, as well as evidence of community concern for population size, illustrates societal concern for population problems.

Emerging from the concern for overpopulation is the practical problem of population control.

> Births, deaths, and migration are changeable, but death is outside the realm of population policy in a democratic society. Individuals wish to postpone death, never to accelerate it, and society acts accordingly. Hence death, or irather its postponement, is the subject

> of health policy, and is excluded from the realm of population policy (11, p. xiii).

As mentioned earlier, national net migration is somewhat predictable from yearly quotas. As a result, national population policy operates within the context of family planning programs. The practice is to rely on the distribution of contraceptive information through the family unit. One could argue and many have that family planning programs have not been effective in significantly lowering the birth rate.

> Kingsley Davis points out some fundamental weaknesses of the family planning approach as a means to large-scale population control. Chief among these is its basic assumption that the number of children a couple wants is the number they ought to have. In a poor country with a growth rate of 3 percent per year, the family of five or six children which will probably be desired by the majority of couples will be anything but desirable for the economic health of the country. A second criticism of the family planning emphasis is that by concentrating on married couples it neglects the whole field of pregnancy among unmarried women. . . . But perhaps the most fundamental weakness of family planning, as Kingsley Davis sees it, is that by reinforcing "familistic ideology" it inhibits those very changes in social institutions which could weaken the importance of the family and thereby naturally bring the birth rate down (20, pp. 521-555).

Growing out of the criticism of the family planning program is a search for alternative methods of population control. In industrialized societies, the main approach to limiting the population is the voluntary planned parenthood approach. In developing nations where there is general agreement that a population problem exists, there is little agreement concerning methods of achieving population balance. In developing countries, population policy has become

bipolarized. One group tends to view lower fertility rates as a byproduct of economic and industrial advancement. As progress is made in these areas, families will eventually desire fewer children. Another group prefers to rely on education and communication in achieving balance between fertility and mortality rates. However, neither of these approaches alone seems to be adequate in achieving population balance, and, as a result, different strategies are needed (4, pp. 85-108).

The desire for children might be the result of a lack of significant role alternatives for women. Through the socialization process, values are such that motherhood is the primary female role.

> Socialization is not simply a function that the family performs for the society; it is a primary mechanism of indoctrination and control. Individuals who are socialized in families will be likely to want families themselves, to enforce norms and sanctions regarding families, and to take pleasure in acting out familial roles. This means that the family complex is itself a goal--the utilities represented by children are not merely economic or affectional but socially structured in a powerful manner (5, p. 331).

Rather than rely on the indirect method of economic development or the more direct method of educational techniques to reduce fertility, societal support for nonmothering roles could be encouraged. Existing research indicates that women who intend to work following marriage have a lower mean number of children desired than those women who do not intend to work. Taken from a study conducted by Blake (4), data

illustrate differential family formation attitudes in the United States for high school and college students, white females only.

The intention to work outside the home for any prolonged time period influences desired family size as importantly as religious affiliation. If women do not intend to work following marriage, the average number of children desired is 4.1. If the intention is to work five or more years, the average drops to 3.3. Catholic respondents have a 4.3 average number of children desired, while those reporting Jewish or no religious affiliation report 3.3 and 3.4, respectively. These data should serve to illustrate that the intention to work in the labor force holds promise for reducing fertility.

Deemphasizing the primacy of the motherhood role would have other consequences. Regarding population growth, policy designed to provide alternatives to motherhood would not only reduce fertility, but it would delay marriage as well. If marriage were delayed, the effect would be to lengthen the period of time between generations. In addition, increased educational and occupational opportunities for women would provide social and economic advantages in addition to reducing family size (5, p. 344).

Social problems aggravated by early marriage have become the concern of demographers, policy makers, and the general population. "On the average, men and women in the United

States marry at an age younger than any other advanced industrialized nation" (7, p. 317). Moreover, social problems seem to emanate from this tendency to marry young. Youthful marriage increases population growth through unwanted fertility and early childbearing which shortens the length of time between successive generations. Early marriage results in the inability to gain financial stability prior to childbearing and tends to increase the risk of divorce. "To the extent that it results in larger family size, early marriage contributes to higher child mortality and morbidity and to reduced child intelligence and physical growth" (29, p. 209). The American population appears to be aware of the effects of early marriage. During the National Fertility Survey in 1965, married women under fifty-five years of age were asked, "Would you encourage a daughter to marry at a younger or at an older age than you did?" (29, p. 209). Forty-eight percent of the respondents said "older" while only eleven percent said "younger" (29, p. 209).

Coupled with the argument that early marriage leads to social problems is the assertion that occupational opportunities for women in the United States encourage early marriage and are in part responsible for the low age at first marriage (34). The assumption is that couples marry at an early age because women can work and make a financial contribution to the household. Couples are no longer dependent on one income. They don't have to wait until the husband's

income is large enough to support a family. Although increases in occupational opportunities for women may permit a couple to marry earlier, they may also indicate that women can afford not to get married (29, p. 210). The position of this research is that with increased occupational opportunities women will delay marriage.

The investigation of the relationship between occupational opportunities for women and the frequency of marriage by specific age groups would make a contribution to the literature. At this point, very few people have undertaken an investigation of this nature. Preston's "The Influence of Women's Work Opportunities on Marriage Rates" (29) is an exception. However, his study utilizes 1960 data which is a summary of events that took place in the decade of the fifties. During the 1950's, the so-called "baby boom" was still in progress. The 1950 decade has been described as the height of familism, i.e., an emphasis on family building and traditional sex roles. Possibly, women's work preferences, desire for marriage, and ideal family size have changed since the 1960 data were collected (32).

Since several studies have found a negative relationship between labor-force participation and fertility (8, 21, 25), a refinement is in order. The refinement or one of the contributions of this study is the concept of career participation. This concept does appear in the literature per Gibbs and Havens (17), but with a different operational

definition. Gibbs and Havens define career participation as the income differential between males and females in selected SMSAs. The assumption is that in those areal units where the income differential is smaller, the career participation of females is greater. The concept is measured as the percentage of the female-labor force who are working in male-dominated professions. A male-dominated profession is defined as one containing a majority of males. It is hoped that this definition will provide a more direct link between conceptualization and operationalization than the Gibbs and Havens' operational definition of career participation. Their definition is implicitly based on the assumption that there is a direct relationship between career participation and income for women.

Several recent studies have offered findings that cause one to question the relationship between labor-force participation and fertility. A few of these studies are by Bindary and Baxter in 1973 (2), Pinnelli in 1971 (27), and Safilios-Rothschild in 1972 (33).

> Although this association between married women working and family size is generally acknowledged to be one of the strongest, most persistent over time and space, and most theoretically reasonable, questions must be raised about the nature of the causal relationship (5, p. 344).

The negative relationship between labor-force participation and fertility may hold when using an urban, well-educated sample. If women receive financial as well as social-psychological rewards for having many children, then labor-

force participation will not necessarily reduce fertility. From this standpoint, it is thought that career participation would be a better predictor of percentage married and fertility than labor-force participation based on a greater work commitment for women participating in a career.

The influence of occupational opportunities for women on the percentage married and fertility makes another contribution to the studies investigating the relationship between labor-force participation and fertility.

> It may well be that marital fertility (measured by average cumulative number of children ever born to an ever-married woman) is low in an SMSA precisely because marriage tends to be late in that SMSA. This would throw the explanation of variations in marital fertility one step backward to the stage of marriage. . . . Clarification of this issue would improve knowledge of determinants of both American marriage and fertility (29, p. 219).

Another refinement is the introduction of religious variables into the statistical model. It is thought that structural characteristics of this nature will influence the dependent variables. The Preston study mentioned earlier did include percent Catholic in the statistical model. However, he utilized Catholic population by diocese, which does not correspond to the boundaries of selected SMSAs. The present study utilizes percent Catholic by SMSA. This variable is thought to influence the percentage married by specific age groups and fertility. The Jewish population has been included in the variables under analysis in that it is thought to have a negative effect on the percentage

married and fertility in an SMSA. The inclusion of these two variables should improve our understanding of the relationship between the independent and dependent variables.

Social-psychological studies of fertility behavior have been criticized for several reasons. Although many of these studies did find a negative relationship between female labor-force participation and fertility, the relationship seems to have been submerged in a myriad of findings and conclusions. Further, the fertility studies have been criticized by one of the researchers who participated in the investigation, Norman Ryder. He suggests that they tried to serve too many masters. The objectives were too broad in scope and, as such, need to be narrowed in range and perspective (31). It seems appropriate to undertake an investigation that focuses on one factor as it relates to marriage and fertility, i.e., occupational opportunities for women.

One of the primary considerations of the fertility studies has been to determine the ideal family size of married couples. This concept is an attitude and, as such, is subject to change based on environmental and structural conditions. One school of demographic thought suggests that throughout history, families have limited their size in accordance with the food supply, space restrictions, and the economic conditions of the larger society (35, p. 89). In other words, "ideal family size" is a dependent variable,

and structural conditions influence and change attitudes concerning appropriate family size.

The distinction between attitudinal vs. structural studies of fertility behavior approximates the distinction between a "what should be" and "what is" perspective. Utilizing attitudes to project future population trends ignores not only the tentative nature of attitudes toward ideal family size, but in addition it ignores the distinction between ideal family size and actual completed family size. A correlational study of structural characteristics as they are related to marriage and fertility is an improvement over attitudinal studies in that the data represent actual relationships at some definite point in time.

If social planning is to occur based on a negative relationship among work and marriage and fertility, the planning must be founded on established relationships rather than projections from attitudes which are not independent of environmental factors. Although it is impossible to establish a temporal sequence, structural characteristics or areal data are preferred over attitudinal data in that they provide indicators of environments in which people operate. Rather than state that attitudes cause family size, the position of this research is that structural characteristics of areal units influence fertility levels within a definite time period.

The findings of an investigation of this nature are relevant for policy makers. There is a growing body of knowledge that suggests that in order for sociology to be a viable discipline its findings must be useful. Sociologists and more specifically demographers suggest that sociology follow this example. Surely it could be said that if structural characteristics, i.e., occupational opportunities, are negatively related to percentage married and fertility, then policy makers could make use of this information. Barriers should be removed so as to encourage equal participation of females in the labor market. If the United States cannot directly implement a population policy, then through indirect methods, such as equal occupational opportunities for women, a pronatalist policy might be deterred. If career participation is a better predictor of marriage and fertility rates than clerical and kindred work, then the potential exists for changing marriage and fertility patterns in the United States.

Before population policy is possible, a clearer understanding of influential variables and their interrelationships is necessary. One theoretical perspective underlying the study of predictors of fertility is social demography. A brief history of this perspective and its applicability for analyzing fertility reveals the necessity of using aggregate, rather than only social-psychological, data in population studies.

The Development of Social Demography as a Theoretical Perspective

The emergence of social demography as a theoretical perspective is a recent development. However, the process by which social demography developed has intellectual roots in the eighteenth century. Early demographic work displayed divergent trends which are still evident. The trends are mathematical demography and social demography. Mathematical demographers concern themselves with population size and movement through the mathematical manipulation of three variables: births, deaths, and migration. At a time when the projections calculated by mathematical demographers yielded inaccurate results, social demographers began including social-psychological variables in calculating population projections. The inclusion of sociocultural and economic variables in the study of fertility grew in importance, and the perspective is now known as social demography.

There have been numerous studies in recent years which have examined variables that influence fertility. A macre analysis often involves either a Malthusian or Marxist perspective. The Demographic Transition Theory also provides a macro-level analysis. Several large scale attempts have focused on social-psychological variables influencing fertility behavior. Concomitant to this investigation has been a growing interest in "social demography." Realizing that fertility behavior is influenced by the social environment,

several researchers--Davis (13, pp. 309-333) and Ford and DeJong (15)--have provided objectives and guidelines for this emerging perspective.

In reviewing the literature, one finds that the early demographic work provides a general direction for current research. Demographic studies are often criticized by being "short on theory" and "long on method." Perhaps this criticism is based on the nature of early demographic work. John Graunt has often been described as the father of demography, and his approach was mathematically oriented as he used various records to calculate estimates and projections of the British population. Thomas Malthus, on the other hand, provided more of a social-problem approach to studying population, and Karl Marx took the position that overpopulation is an inherent characteristic of capitalistic societies. Studies utilizing Graunt's approach lead to mathematical demography; studies utilizing Malthus' approach lead to social demography; and the Marxian perspective assumes that overpopulation is related to unemployment rates (1, pp. 7-12).

The starting point for the Malthusian-Marxist debate began in 1798 when Essays on Population was published. Actually, the "classical issues clearly arise out of a larger controversy over national social policy" (1, p. 5). Malthus was reacting to two trends that dominated the social thought of his day, mercantilism and social utopianism. He realized

that the combination of mercantilism as an economic policy and utopianism or the believe that "man inevitably would maintain optimum population size" (26, p. 73) as a social policy would contribute to a higher birth rate. Not as optimistic about man's rationality and natural desire to maintain an optimum population size, Malthus proposed that man's dependence on food and inability to control his passions would lead to eventual starvation. Man's ability to reproduce exceeds his ability to feed himself.

Throughout his liftime, Malthus was opposed to the English Peer Laws as he thought that the effects of the laws would be to allow indiscriminate breeding of the indolent classes. Further, the laws encouraged marriage to those who might otherwise hesitate. Therefore, according to Morris,

> by providing precious food for the poorest, least industrious citizens, the laws deprived those who were more industrious of their just share and thus were likely to push more people into dependence on the state (24, pp. 114-134).

Rather than hypothesize that natural laws determined population growth, Marx focused on the dynamics of the economy in order to interpret population size. It was his position that "social laws were relative to each economic system, and each economic system was a consequence of its characteristic means of production, i.e., technology" (1, p. 9). He felt that overpopulation was a necessary concomitant of a capitalistic system. "Marx argued that the appearance of a relative surplus population in industrial

society served the class interests of the bourgeoisie" (1, p. 1), and, in this way, Marx defines overpopulation as those whose labor is exploited and who are frequently unemployed.

The Malthusian-Marxist argument was still evident when historical events of the twentieth century sharpened the debate. The early part of the twentieth century saw the transition of Marxism from ideology into practice. "The Communist revolutions enshrined Marx as a social prophet and endowed his polemical critique of Malthus with dogmatic status, thus reviving ideological controversies that had long been dormant" (1, p. 11). At the same time, the Western world was experiencing economic and political change that ultimately led to declining death rates while birth rates remained somewhat unchanged. The end result was worldwide population increase. The controversy, stirred anew, stimulated further theoretical developments in the study of population (1, p. 12).

One of the first reactions was the formulation of the demographic-transition theory. Convinced that neither Malthus nor Marx could adequately explain population growth or trends, a group of demographers began collecting available data on world population trends. Originally intended to explain the relationship between population trends and technology and to predict future developments, the theory has become more of a heuristic device than a predictive tool.

Although a case of ex post facto theorizing, the theory links population changes to processes of industrialization. In a preindustrial society, there is population balance based on high birth rates being offset by high death rates. As industrialization begins to occur during what is described as stage two of the transition, medical technology lowers the death rate, but not the birth rate. The result is overpopulation, but, as the process of industrialization becomes complete, population balance is regained as the birth rate declines. However, it soon became apparent that, on closer scrutiny of the historical data, there were exceptions to the hypothesized demographic transition.

The theory overlooks migration in explaining population size and ignores fluctuating birth rates in the United States during the twentieth century. Another assumption of the theory is that birth rates remain steady, and population increase is the result of falling death rates in stage two. A study of the Netherlands illustrates that, although there was a population increase during the 1800's, i.e., stage two, it wasn't due to falling death rates but to increased birth rates. Up to that time, uncontrolled population growth was based on the institution of the stem family. The Netherlands had been an agricultural country. One of the practices of the stem family was that in each generation only one child married and had children. The unmarried children remained on the farm. The structure and function of the family and

their relationship to the land acted as checks on the population. But as the process of urbanization began, additional family members were freed to marry and have children. As the joint household began to disintegrate, it was inevitable that the birth rate would rise (26, pp. 26-45). It could be argued that in those countries in which the ideal family size is large, industrialization or an improved standard of living will create further population increase. As family income increases, they can afford larger families. Infant mortality rates would drop further, thus increasing family size. In summary, social-psychological and cultural variables contribute to population changes.

Certain developments during the 1940's and 1950's cast a serious doubt on the utility of existing demographic theories and techniques. Population projections had always been based on the assumption of all other conditions remaining constant. In fact, mathematical computations only dealt with births, deaths, and migration. Following World War II and the so-called "baby boom," demographers realized that established procedures for calculating population projections were no longer effective. Since fertility was a better predictor of population size than either mortality or migration, a new methodology for understanding fertility behavior was needed. The rising birth rate defied explanation by existing theories. One of the assumptions of the Demographic Transition Theory is that as industrialization occurs, birth

rates consistently fall. With the prolonged baby boom no longer explainable by postwar phenomena, it became clear that the consideration of additional variables was necessary.

The National Fertility Studies are illustrative of the addition of social-psychological variables in the study of population trends. The Princeton Studies and the Growth in American Fertility series undertook social-psychological investigations of fertility behavior. These studies have been criticized for several reasons. Couples were asked questions about ideal family size as compared to their actual number of children. It is possible that respondents "adjusted" ideal family size to correspond with actual family size. Another criticism is that population projections were based on intentions for family size. A high, medium, and low series was computed, but the criticism remained that projections based on attitude left too much room for error.

Concomitant to the emergence of the National Fertility Studies was the growing awareness that population studies could benefit by the combined efforts of sociologists and demographers. It was realized that there are overlapping interests of sociologists and demographers. Kingsley Davis in his article "The Sociology of Demographic Behavior" (13, pp. 309-33), outlines the advantages of continuing specialization among subfields of sociology. At the same time, he calls attention to the affinity between family and fertility studies. His article has given impetus to a growing body of

knowledge appropriately called "population studies." Instead of limiting empirical investigation to an analysis of three variables--fertility, mortality, and migration--population studies explore the relationship between demographic and sociocultural or social-psychological variables. Wilbert Moore is another sociologist who has outlined the complementary interests of sociology and demography. He summarizes his position by suggesting that the interrelations between "demographic and sociological theory . . . will benefit by making the questions explicit and systematic, so that the answers will gain in precision, predictability, and power of generalization" (18, p. 849).

Recognizing that population studies represent sociological and demographic variables, Thomas Ford and Gordon DeJong defined a separate field of endeavor that they call "social demography." They considered the term "population studies" too vague to provide direction for those interested in delimiting a distinct field for study. "The major concern of social demography is the analysis of how general social and cultural factors are related to population structure and process" (15, p. 4). This approach can be utilized in many ways. One might investigate the relationship among the socialization of females, fertility, and labor-force participation. There have been numerous studies conducted that meet the criteria of social demography as outlined by Ford

and DeJong and that specifically investigate the relationship between female labor-force participation and fertility.

Although social demography developed as a valid theoretical perspective from studies utilizing social-psychological data, the current trend is toward the use of aggregate data in studying fertility. Criticisms made of fertility studies using social-psychological data are similar to criticisms made of any social-psychological data. The National Fertility Studies which relied on the use of social-psychological data asked couples questions concerning ideal family size in order to calculate population projections. It is possible that there is a discrepancy between real and ideal family size. Attitudes are changeable and over a period of time might be influenced by peer group associations or societal change in general. As a result, fertility trends based on attitudes might be so inaccurate as to provoke alternative methods of studying fertility. The studies appearing in Ford and DeJong's Social Demography offer examples utilizing aggregate data rather than attitudinal data in an effort to improve knowledge of fertility trends.

Several weaknesses of social-psychological data have been illustrated. The social demographic approach has produced a growing number of studies that rely on aggregate data. Based on the problems mentioned, the social demographic perspective will probably continue to yeild examples utilizing

aggregate data while attempting to better understand fertility and related factors.

Review of the Relationship Between Female Labor-Force Participation and Fertility

Several studies have focused on factors related to female labor-force participation. In these studies, the primary objective has been to conduct an intensive study of women in the market place. Factors that are conceptually and statistically important are marital status, age of female, and number of children. Juanita Kreps (21) and Valerie Kincaid Oppenheimer (25) have both provided statements of these relationships.

Within the context of an economic framework, two variables appear significant. "Two extremely important factors affecting a woman's propensity to work are her marital status and her fertility" (25, p. 946). If a population is characterized by a high percentage of single women, there will be a high percentage of women in the labor force. If a population is characterized by a high percentage of children under six years of age, there will be a lower percentage of women in the labor force, since women tend not to work when their children are in this age category.

The work of Juanita Kreps supports Oppenheimer's study. Kreps' (21) study also utilizes an economic framework. Marital status and fertility are highly correlated with female labor-force participation. As in Oppenheimer's study, there

is evidence that a segregation of the labor force does exist. Therefore, one might hypothesize that occupational structures consisting of a high percentage of clerical and secretarial positions are composed of a high percentage of female workers. Further, geographical areas characterized by a high percentage of single women and low fertility are also characterized by a high percentage of women in the labor force.

What originally started out as an investigation by Bowen and Finegan of the "sensitivity of labor-force participation rates to the tightness of labor markets" (8, p. v) yielded findings and conclusions related to female labor-force participation. Their study is highly quantitative, and they focus on factors related to participation of different population groups. They draw a distinction between "individual characteristics (such as color, years of school completed, and family income) and labor market conditions (as reflected in such measures as the overall unemployment rate, earning levels, and specially constructed indices of demand and supply conditions peculiar to the group in question)" (8, p. 5). It was discovered that for married women, labor-force participation was negatively related to fertility. It was also discovered that favorable labor market conditions were positively related to female labor-force participation.

Preston operationalized the concept of occupational opportunities for women with four variables. The first is the femaleness of the industrial structure. If heavy

industry predominates in the SMSA, the industrial structure will be predominately male, but, if service oriented industry predominates in the SMSA, the industrial structure will favor female employment. "This measure is defined as the proportion of the SMSA's labor force that women would constitute if each industry in the area had the same proportion of women employees as obtained from that industry in the nation as a whole" (29, p. 213). Additional measures used by Preston in defining occupational opportunities for women in each SMSA are

> . . . median earnings of females with earnings in 1960 . . ., the proportion of an area's labor force who are classified as clerical and kindred workers . . . an area's unemployment rate, to the extent that it represents a chronic rather than an acute problem could be expected to influence proportions married (29, p. 213).

Among the various studies of labor-force participation Preston's work is most closely related to the present study. Preston attempts to understand the relationship between age at first marriage and occupational opportunities for women. For the areal units studied, which included the one hundred largest SMSAs, Preston's findings suggested that there was a negative relationship between the two variables. In SMSAs characterized by high opportunities, there was a low female marriage rate for women age 22-24. In a related study, "Female Employment Policy and Fertility" (28, pp. 379-388), he demonstrated a negative relationship between female earnings and fertility and the femaleness of the industrial

structure and fertility. He does suggest that marital fertility may be low in an SMSA because marriage occurs late in that SMSA. He indicates that future research of the problem should include age at first marriage and fertility in the same regression model.

A recent study by Gibbs and Havens investigates the relationship between career participation and fertility. They operationalize the concept of career participation for women as the "sexual income differentiation: the difference between the income earned by employed females during a period and the income earned by employed males during the same period" (17, p. 26). One of the objectives of their study is to refine labor-force participation as used in many studies. The assumption is that in those SMSAs where there is a smaller income difference between male and female earnings, there is greater career participation of women. Their findings illustrate that there is a negative relationship between career participation and fertility. Since this negative relationship between labor-force participation and fertility does surface in similar work of this nature, a critical evaluation of existing studies is necessary.

Evaluation of Studies Investigating the Relationship Between Female Labor-Force Participation and Fertility

There are numerous studies in the literature--Cain in 1966 (10), Freedman in 1969 (16), Weller in 1968 (37)--that

report a negative relationship between fertility and female labor-force participation. But we need to understand the nature of the causal relationship if we are to formulate effective social policy. The assumption is that increased female labor-force participation will lower the birth rate, but it is also possible that a lowered birth rate will lead to increased female labor-force participation. At this point, the nature of the causal sequence is in question, and, if lower fertility leads to increased female labor-force participation, then encouraging women to enter the labor market may not affect fertility. If a population policy is based on female labor-force participation, then knowledge of the relationship between these two variables is imperative.

It is possible that these two variables influence and act on each other. In a recent study by Waite and Stolzenburg (36), an attempt has been made to clarify the relationship.

> Demographers, sociologists, economists and feminists have recently devoted a great deal of attention to the relationship between labor force participation and fertility of American women. The motivation for recent research and speculation on the relationship has ranged from purely academic theory construction to rather hard-nosed thinking about the feasibility of implementing national population policy by manipulating job opportunities for women. While there is widespread concensus that understanding the relationship between labor force particpation and fertility is important, there seems to be little agreement about the nature of the link between these two aspects of a woman's behavior (36, p. 235).

The authors suggest "that women's preference for work and childbearing might have reciprocal effects on each other, with preferences for employment both causing and being caused by preferences for family size" (36, pp. 235-236). Using attitudinal data, the authors focused on what they termed "female labor force participation plans" and "fertility expections," controlling for husband's attitude, labor-force participation of mother, age, and educational level. Their conclusions suggest that the question raised earlier by Bumpass and Westoff, "Do women limit their fertility in order to have time to pursue their non-family-oriented interests, or do women work if their fertility permits them to do so?" (36, p. 236), can be given a cautious reply. Women appear to limit their fertility in order to participate in the labor force. "While the effect of fertility expectations on labor force participation plans would appear to be small, the effect of labor force participation plans on fertility expectations seems to be rather substantial" (36), p. 250).

One could argue also that female labor-force participation does not inhibit childbearing.

> Women's employment per se only depresses fertility under very special circumstances--for women in the urban sector, modern, labor force. They constitute only a small proportion of working women throughout the world. Most of the world's women are engaged in agricultural work, family crafts, or local marketing. . . . Female employment fails to depress fertility in rural areas because the opportunity cost of children in those circumstances is low. Children do not prevent

> the wife from working and thereby gaining increased income when they accompany her to the fields. In these circumstances work and child care are "compatible." In rural areas, the fertility of working women may actually be higher than that of nonworking women. Increased income permits working mothers to enlarge their families; the larger number of children draws women into the labor force because of the need to increase family income. Thus policies to promote women's employment are interesting theoretically as a depressant of fertility but not widely applicable. Job creation is not nearly so manipulable a variable as policy makers wishing to reduce fertility had hoped (3, p. 707).

Judith Blake (5, pp. 326-347) argues that many societies are characterized by an institutional organization of coercive pronatalism. Even in a society where a majority of women are active in the labor force, the primacy of the motherhood role will overshadow the pursuit of a career. As long as a society considers motherhood logically prior to and more important than all other roles for women, labor-force participation will not necessarily lead to lower fertility. Blake suggests that most societies still push young people into marriage and further into parenthood. She states that for centuries one of the functions of the family has been reproduction and that other institutional arrangements, such as religion, education, and the world of work, serve to reinforce this function. Women who do not marry are often judged to be failures, "the implication generally being that she was not chosen, she was not desired. Apart from the injury to her self-esteem nonmarriage imposes difficulties and frustrations" (9, pp. 121-122), as the social

life of adults emphasizes activities for married couples in most areas.

The field of science has become the handmaiden of pronatalist institutions. Freudian psychoanalysis has been pervasively influential in promoting parenthood and especially childbearing for women.

> One of the strongest sources of legitimation for parenthood as the only "normal" adult sexual role comes from psychoanalytic psychology. Psychoanalysis views parenthood as the natural culmination of "normal" development to adulthood and insists that sex-role differentiation should be congruent with the basic psycho-biological substratum. The natural predispositions should not be thwarted or bypassed by inappropriate social demands, activities, or expectations. Indeed, it is regarded as mandatory that the sex roles properly express what is believed to be the normal psycho-biological given. The only "normal" woman is heterosexual and a mother, the only "normal" man is heterosexual and a father (5, p. 100).

As a result, the single female is alienated from her sex; the childless couple is selfish and immature; the career woman is unfeminine; and the homosexual is mentally ill. A pronatalist perspective "is doubtless supported by the Judeo-Christian tradition of emphasizing the procreative, as against the purely hedonistic, aspects of sexual intercourse" (5, p. 95). Based on the emphasis on parenting and the motherhood role, Blake argues convincingly that labor-force participation does not necessarily lead to lower fertility.

There is some support for the position that labor-force participation does not lower fertility in societies where the economic as well as social-psychological costs of children

are positive. If large families are economically profitable and if the values of a society reinforce increased childbearing, then labor-force participation does not lower the birth rate. A subdiscipline within the field of economics has investigated the "household" as a unit of analysis assuming that each household seeks to maximize its profit and minimize its costs. They have focused on the costs of the mother's labor in and outside of the home. Their findings indicate that

> . . .the relationship between female employment and fertility across cultures is not nearly so systematic as the new home economics suggests. Female employment is neither a necessary nor a sufficient condition for fertility reduction. During the late 1950's in the United States, fertility rose even with relatively high female labor-force participation rates. Fertility is lower in Egypt, Taiwan, and countries in Latin America than in most parts of Africa, although female employment is much greater throughout Africa than in the former areas. Northern and Southern Portugal have similiar labor-force participation rates for women but different fertility rates. Studies in Puerto Rico, Chile, Costa Rica, and Taiwan indicated that female employment did appear to result in lower fertility; but in the Philippines and Thailand, female working status actually appeared to increase fertility (3, p. 705).

The concept of "role extensiveness," i.e., career commitment, has been introduced in many studies attempting to make a statistical refinement of labor-force participation of women. "Studies of role extensiveness have shown that in urban Greece women with high work commitment have fewer children and use birth-control methods more effectively than women with low work commitment" (3, p. 709). Similar studies of Latin American women illustrate that career motivation

exerts a greater influence on fertility than working or non-working status. As a result, "national efforts to 'liberate women' through changes in sex-role attitudes, such as appear to be taking place in China, could have an independent effect on lowering fertility" (3, p. 709).

The following paradigm illustrates the relationship between the economic and social-psychological costs of work and female labor-force participation. In a society where

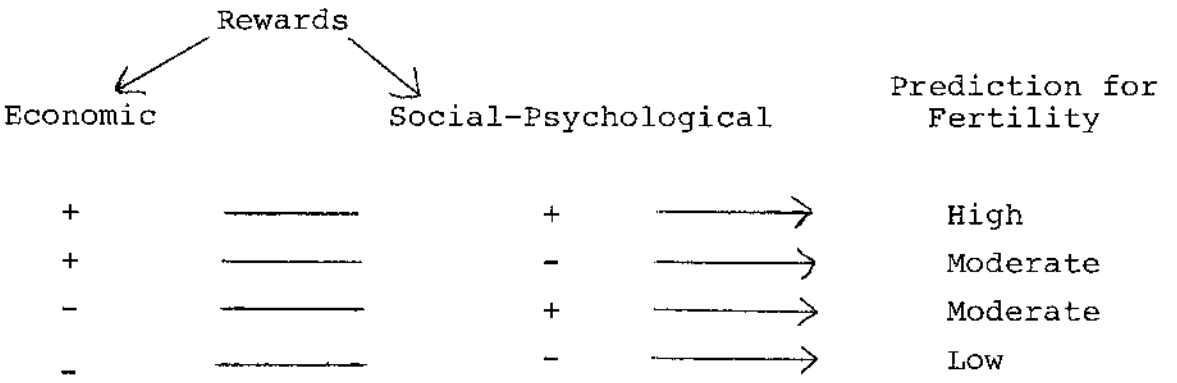

Fig.--1 Costs of fertility.

both the economic and social-psychological, i.e., societal reinforcement, costs of children are positive, one could predict that fertility would be high. In societies where either the economic or social-psychological costs of children are positive, the fertility might be high to moderate; and in societies where the economic and social-psychological costs of children are negative, fertility is predicted to be low. Although the paradigm may be limited to heuristic value, it can be used in evaluating the relationship between labor-

force participation and fertility in different societies and by illustrating why in some societies labor-force participation does not lower fertility. One could deduce from the paradigm that in a society where economic and social-psychological costs of children are negative that alternatives to parenthood are accepted and encouraged. Although it is possible that no such society exists, it is possible that for certain individuals and subgroups within certain societies, the economic and social-psychological costs of children are negative. These individuals or subgroups might compose those women who actively pursue a career as opposed to those women who have a low commitment to their labor-force participation. The purpose of this study is to compare the fertility of these two groups of women.

One of the goals of science is to refine its theories so as to improve explanation and prediction of phenomena. Where earlier studies have assumed that labor-force participation will lower fertility, a refinement is in order. There is not only too much variation in the negative relationship between fertility and labor-force participation, as Table I on the following page indicates, but cross-cultural studies illustrate contradictory findings (18, 22).

If labor-force participation does lower fertility, then one would expect little variation in the findings. However, even when concepts are operationalized in like manner, as they are in the studies reported in Table I, wide variations

TABLE I

CORRELATIONS BETWEEN FEMALE LABOR FORCE PARTICIPATION RATES AND FERTILITY RATES IN 19 UNIVERSES OF TERRITORIAL DIVISIONS IN THE UNITED STATES*

No.	Universes of Territorial Divisions	Rank Order of Coefficient of Correlation Between Percentage of Females (14 and over) in the Labor Force and Number of Children Ever Born to Females per 1,000 Females of Ages 15-44
I.	51 states, 1960[a]	-.59
II.	9 states, Northeast, 1960	-.25
III.	12 states, North Central, 1960	-.52
IV.	17 states, South, 1960	-.51
V.	13 states, West, 1960[b]	-.70
VI.	54 SMSAs of 249,999, North, 1960	-.56
VII.	29 SMSAs of 249,999, South, 1960	-.43
VIII.	18 SMSAs of 249,999, West, 1960	-.34
IX.	101 SMSAs of 249,999, 1960	-.54
X.	24 SMSAs of 999,999, 1960	-.27
XI.	29 SMSAs of 500,000 to 999,999, 1960	-.60
XII.	48 SMSAs of 500, 000 to 999,999, 1960	-.50
XIII.	89 SMSAs of 100,000 to 249,999, 1960	-.50
XIV.	22 SMSAs of less than 100,000, 1960[c]	-.48
XV.	49 states, 1950[d]	-.69
XVI.	9 states, Northeast, 1950	-.48
XVII.	12 states, North Central, 1950	-.29
XVIII.	17 states, South, 1950	-.46
XIX.	11 states, West, 1950[e]	-.56

*Gibbs and Havens, 1975 (17).

[a]Includes the District of Columbia.

[b]Data for universes I through V were taken from U.S. Bureau of the Census (1964: tables 105 and 106).

[c]Data for universes VI through XIV were taken from U.S. Bureau of the Census (1964: tables 141 and 142).

[d]Includes the District of Columbia.

[e]Data for universes XV through XIX were taken from U.S. Bureau of the Census (1953: table 73; 1955: table 32).

in the negative relationships do exist. Except for Preston's study, an occupational opportunity structure has not been measured and correlated with fertility. To this writer's knowledge no study has been specifically designed so as to compare the relationship and predictive ability between occupational opportunities for women and fertility, and career participation and fertility. Most other studies have also overlooked the importance of percentage married by selected age groups in their investigation of the relationship between labor-force participation and fertility. The introduction of control variables such as religion, population size, and the sex ratio should help to clarify our understanding of the relationship between labor-force participation and fertility. An attempt will be made to provide conceptual clarity and refinement to the existing literature so that the wide variation in the negative relationship between fertility and labor-force participation can be interpreted based on the findings of the present study.

In summary, the objectives of the present study are (1) to determine the correlation among the selected structural characteristics of occupational opportunities for women, percentage married by specific age groups, and fertility; and (2) to determine the predictive value of occupational opportunities for women and career participation for both dependent variables.

CHAPTER BIBLIOGRAPHY

1. Beshers, James, Population Processes in Social Systems, New York, The Free Press, 1967.

2. Bindary, Aziz and Colin B. Baxter, "Urban-Rural Differences in the Relationship Between Women's Employment and Fertility: A Preliminary Study," Journal of Biosocial Science, 5 (1973), 159-167.

3. Birdsall, Nancy, "Women and Population Studies," Signs: Journal of Women in Culture and Society, 1 (Spring, 1976), 699-712.

4. Blake, Judith, "Coercive Pro-natalism and American Population Policy," Commission on Population Growth and the American Future, Vol. VI, Aspects of Population Growth Policy, edited by Charles F. Westoff and Robert Parke, Jr., Washington, D.C., United States Government Printing Office, 1972, pp. 85-108.

5. _____, "Demographic Science and the Redirection of Population Policy," Social Demography, edited by Thomas R. Ford and Gordon F. DeJong, Englewood Cliffs, New Jersey, Prentice-Hall, Inc., 1970, pp. 326-347.

6. _____, "Ideal Family Size Among White Americans: A Quarter of a Century's Evidence," Demography, 3 (1966), 154.

7. Bogue, Donald J., Principles of Demography, New York, John Wiley & Sons, 1969.

8. Bowen, William G. and T. Aldrich Finegan, The Economics of Labor Force Participation, Princeton, Princeton University Press, 1971.

9. Burgess, Ernest W. and Paul Wallen, "Idealization, Love and Self-Esteem," Family Roles and Interaction, edited by Jerald Heiss, Chicago, Rand McNally, 1969, pp. 121-122.

10. Cain, Glen G. and Adriana Weininger, "Economic Determinants of Fertility: Results from Cross-Sectional Aggregate Data," Demography, 10 (1973), 205-223.

11. Commission on Population Growth and the American Future, Vol. VI, Aspects of Population Growth Policy, edited by Charles F. Westoff and Robert Parke, Jr., Washington, D.C., United States Government Printing Office, 1972, p. xiii.

12. Davis, Kingsley, "Social Demography," The Behavioral Sciences Today, edited by Bernard Berelson, New York, Basic Books, Inc., 1963.

13. _____, "The Sociology of Demographic Behavior," Sociology Today: Problems and Perspectives, edited by Robert Merton, Leonard Broom, and Leonard S. Cottrell, New York, Basic Books, 1959, pp. 309-333.

14. _____ and Judith Blake, "Social Structure and Fertility: An Analytic Framework," Economic Development and Cultural Change, 4 (April, 1956), 211-235.

15. Ford, Thomas R. and Gordon F. DeJong, Social Demography, New Jersey, Prentice Hall, 1970.

16. Freedman, Ronald and Lolagene Coombs, "Economic Considerations in Family Growth Decisions," Population Studies, 20 (1966) 197-222.

17. Gibbs, Jack P. and Elizabeth Maret Havens, "The Relationship Between Female Labor Force Participation and Fertility: A Theory of Variability," Sociological Methods and Research, 3 (Feb., 1975), 258-290.

18. Goldberg, David, "Modernism: The Extensiveness of Women's Roles and Attitudes," World Fertility Survey Occasional Paper No. 14, Voorburg, The Netherlands, International Statistical Institute, 1974.

19. Hauser, Philip M., "Demography in Relation to Sociology," Population Studies Selected Essays and Research, edited by Kenneth C. W. Kammeyer, Chicago, Rand McNally College Publishing Co., 1975, pp. 6-9.

20. Julian, Joseph, "The Population Crisis," Social Problems, edited by Joseph Julian, Englewood Cliffs, New Jersey, Prentice-Hall, Inc., 1973, pp. 521-555.

21. Kreps, Juanita, Sex in the Marketplace, Policy Studies in Employment and Welfare, edited by Sar A. Levitan and Garth L. Mangum, Baltimore, The John Hopkins University Press, 1971.

22. Miro, Carmen A. and Walter Mertens, "Influences Affecting Fertility in Urban and Rural Latin America," Milbank Memorial Fund Quarterly, 46 (1968), 89-114.

23. Moore, Wilbur, "The Relation Between Demography and Sociology," The Study of Population: An Inventory and Appraisal, edited by Philip M. Hauser and Otis Dudley Duncan, Chicago, University of Chicago Press, 1959.

24. Morris, Judy K., "Professor Malthus and His Essay," Population Studies: Selected Essays and Research, edited by Kenneth C. W. Kammeyer, Chicago, Rand McNally College Publishing Company, 1973, pp. 114-134.

25. Oppenheimer, Valerie Kincaid, "Demographic Influence on Female Employment and the Status of Women," American Journal of Sociology, 78 (1973), 946.

26. Peterson, William, "Malthusian Theory: A Commentary and Critique," The Politics of Population, edited by William Peterson, New York, Doubleday and Co., Inc., 1964, pp. 26-45.

27. Pinnelli, Antonella, "Female Labour and Fertility in Relationship to Contrasting Social and Economic Conditions, " Human Relations, 24 (1971), 603-610.

28. Preston, Samuel, "Female Employment Policy and Fertility," Commission on Population Growth and the American Future, Vol. VI, Aspects of Population Growth Policy, edited by Charles F. Westoff and Robert Parke, Jr., Washington, D.C., United States Government Printing Office, 1975, pp. 379-388.

29. _____, "Women's Work Opportunities and Marriage Rates," Demography, 12 (May, 1975), 209-222.

30. Rockefeller, Nelson, The Use of Land: A Citizens' Policy Guide to Urban Growth--A Task Force Report Sponsored by the Rockefeller Brothers Fund, New York, Thomas Y. Crowell Company, 1973.

31. Ryder, Norman, "A Critique of the National Fertility Study," Demography, 10 (November, 1973), 495-504.

32. _____ and Charles F. Westoff, Reproduction in the United States, Princeton, Princeton University Press, 1971.

33. Safilios-Rothschild, Constantina, "The Relationship Between Work Commitment and Fertility," International Journal of Sociology of the Family, 2 (1972), 93-97.

34. Sklar, June, "Marriage Regulation and the California Birth Rate," California's Twenty Million: Research Contributions to Population Policy, edited by Kingsley Davis and Frederick G. Styles, Berkeley, Institute of International Studies, University of California, 1971, pp. 165-206.

35. Thompson, Warren S. and David T. Lewis, "Theories Since Malthus," Population Problems, 5th ed., New York, McGraw Hill Book Company, 1970.

36. Waite, Linda J. and Ross M. Stolzenberg, "Intended Childbearing and Labor Force Participation of Young Women: Insights from Non-recursive Models," American Sociological Review, 41 (April, 1976), 235-252.

37. Weller, Robert H., "The Employment of Wives: Role Incompatibility and Fertility," Milbank Memorial Fund Quarterly, 46 (1968), 507-526.

CHAPTER II

METHODOLOGY

Source of Data

The data to be used in this research are obtained from the Census Bureau, Detailed Characteristics of the Population, 1970 (9); United States Census of Population and Housing: 1970, Census Tracts of Standard Metropolitan Statistical Areas (10); Churches and Church Membership in the United States, 1974 (3); and the American Jewish Yearbook, 1971 (1). The areal unit of analysis is the SMSA.

The definition of an SMSA includes at least two characteristics: (1) a city of specified population which constitutes the central city and the county in which it is located, and (2) contiguous counties with economic and social relationships which are metropolitan in character. An SMSA may cross state lines, if necessary, in order to include qualified contiguous counties. Specifically, it is defined as one or more contiguous nonagricultural counties containing at least one city of 50,000 or more (or a pair of contiguous twin cities of at least this joint size) and having a generally metropolitan character based on the counties' social and economic integration with the central city, according to Shryock and Siegel (8). This rationale underlying the

boundaries and creation of an SMSA is the reason for its selection as the unit of analysis. Since the geographical components of the SMSA, i.e., counties and their urbanized areas, are interrelated, the total SMSA may be treated as representing a labor market. It could also be considered as a marriage market, since men and women of marriageable age interact in the SMSA for social and economic reasons. A further justification for the use of the SMSA is that using the central city is limited since central cities are interdependent with their hinterlands, and central city boundaries are often not natural boundaries of the social and economic area. The SMSA better represents a natural area.

The population is defined as the one-hundred largest SMSAs in the United States, and appears in Table II. The one-hundred largest SMSAs are being used since some of the data required for the study do not exist for SMSAs smaller than a population of 250,000. For example, "the cumulative number of children ever born to ever-married women per 1,000 women" is not compiled by the Census Bureau for SMSAs with a population of less than 250,000.

Concepts and Operational Definitions

Several concepts are operationalized during empirical investigation. The following four concepts are utilized: (1) occupational opportunities for women, (2) career participation, (3) fertility, and (4) percentage married by specified age groups.

TABLE II

STANDARD METROPOLITAN STATISTICAL AREAS OF THE UNITED STATES RANKED BY 1970 POPULATION*

Rank	SMSA	Population
1	New York, New York	11,571,399
2	Los Angeles/Long Beach, California	7,032.075
3	Chicago, Illinois	6,978,947
4	Philadelphia, Pennsylvania-New Jersey	4,817,914
5	Detroit, Michigan	4,199,931
6	San Francisco/Oakland, California	3,109,519
7	Washington, D.C.-Maryland-Virginia	2,861,123
8	Boston, Massachusetts	2,753,700
9	Pittsburgh, Pennsylvania	2,401,245
10	St. Louis, Missouri-Illinois	2,363,017
11	Baltimore, Maryland	2,070,670
12	Cleveland, Ohio	2,064,194
13	Houston, Texas	1,985,031
14	Newark, New Jersey	1,856,556
15	Minneapolis/St. Paul, Minnesota	1,813,647
16	Dallas, Texas	1,555,950
17	Seattle/Everett, Washington	1,421,869
18	Anaheim/Santa Ana/Garden Grove, California	1,420,386
19	Milwaukee, Wisconsin	1,403,688
20	Atlanta, Georgia	1,390,164
21	Cincinnati, Ohio-Kentucky-Indiana	1,384,851
22	Paterson/Clifton/Passaic, New Jersey	1,358,794
23	San Diego, California	1,357,854
24	Buffalo, New York	1,349,211
25	Miami, Florida	1,267,792
26	Kansas City, Missouri-Kansas	1,253,916
27	Denver, Colorado	1,227,529
28	San Bernardino/Riverside/Ontario, California	1,143,146

TABLE II--Continued

Rank	SMSA	Population
29	Indianapolis, Indiana	1,109,882
30	San Jose, California	1,064,714
31	New Orleans, Louisiana	1,045,809
32	Tampa/St. Petersburg, Florida	1,012,594
33	Portland, Oregon-Washington	1,009,129
34	Phoenix, Arizona	967,552
35	Columbus, Ohio	916,781
36	Providence/Pawtucket/Warwick, Rhode Island-Massachusetts	910,781
37	Rochester, New York	882,667
38	San Antonio, Texas	864,014
39	Dayton, Ohio	850,266
40	Louisville, Kentucky-Indiana	826,553
41	Sacramento, California	800,592
42	Memphis, Tennessee-Arkansas	770,120
43	Fort Worth, Texas	762,086
44	Birmingham, Alabama	739,274
45	Albany/Schenectady/Troy, New York	721,910
46	Toledo, Ohio-Michigan	692,571
47	Norfolk/Portsmouth, Virginia	680,600
48	Akron, Ohio	679,239
49	Hartford, Connecticut	663,891
50	Oklahoma City, Oklahoma	640,889
51	Syracuse, New York	636,507
52	Gary/Hammond/East Chicago, Indiana	633,367
53	Honolulu, Hawaii	629,176
54	Fort Lauderdale/Hollywood, Florida	620,100
55	Jersey City, New Jersey	609,266
56	Greensboro/Winston-Salem/High Point, North Carolina	603,895
57	Salt Lake City, Utah	557,635

TABLE II--Continued

Rank	SMSA	Population
58	Allentown/Bethlehem/Easton, Pennsylvania	543,551
59	Nashville/Davidson, Tennessee	541,108
60	Omaha, Nebraska-Iowa	540,142
61	Grand Rapids, Michigan	539.225
62	Youngstown/Warren, Ohio	536.003
63	Springfield/Chicopee/Holyoke, Massachusetts-Connecticut	529.922
64	Jacksonville, Florida	528,865
65	Richmond, Virginia	518,319
66	Wilmington, Delaware-New Jersey-Maryland	499,493
67	Flint, Michigan	496,658
68	Tulsa, Oklahoma	476,945
69	Orlando, Florida	428,003
70	Fresno, California	413,053
71	Tacoma, Washington	411,027
72	Harrisburg, Pennsylvania	410,626
73	Charlotte, North Carolina	409,370
74	Knoxville, Tennessee	400,337
75	Wichita, Kansas	389,352
76	Bridgeport, Connecticut	389,153
77	Lansing, Michigan	378,423
78	Mobile, Alabama	376,690
79	Oxnard/Ventura, California	376,430
80	Canton, Ohio	372,210
81	Davenport, Iowa; Rock Island/Moline, Illinois	362,638
82	El Paso, Texas	359,291
83	New Haven, Connecticut	355,538
84	Tucson, Arizona	351,667
85	West Palm Beach, Florida	348,753
86	Worcester, Massachusetts	344,320

TABLE II--Continued

Rank	SMSA	Population
87	Wilkes Barre/Hazelton, Pennsylvania	342,301
88	Peoria, Illinois	341,979
89	Utica/Rome, New York	340,670
90	York, Pennsylvania	329,540
91	Bakersfield, California	329,162
92	Little Rock/North Little Rock, Arkansas	323,296
93	Columbia, South Carolina	322,880
94	Lancaster, Pennsylvania	319,693
95	Beaumont, Texas	315,943
96	Albuquerque, New Mexico	315,774
97	Chattanooga, Tennessee-Georgia	304,927
98	Trenton, New Jersey	303,968
99	Charleston, South Carolina	303,849
100	Binghamton, New York-Pennsylvania	302,672

*United States Bureau of the Census, Census Tracts of Standard Metroplitan Statistical Areas, 1970 (10).

The operational definition of occupational opportunities is measured by four variables.

> The first is the "femaleness" of the industrial structure. This measure is defined as the proportion of an SMSA's labor force that women would constitute if each industry in the area had the same proportion of women employees as obtained in that industry in the nation as a whole. If, for example, heavy industry predominates in an area, this proportion will be low; for an area with many service industries, it will be high. . . . The second measure of economic opportunity is the median earnings of females with earnings in 1970. . . . The third measure is the proportion of an area's labor force who are classified as clerical and kindred workers. . . . Finally, an area's unemployment rate, to the extent that it represents a chronic rather than an acute problem could be expected to influence proportions married (7, p. 213),

as well as the fertility of the geographical unit. Each of these four variables, i.e., femaleness of the industrial structure, median earnings of females for 1970, the percentage of the area's labor force classified as clerical and kindred, and the area's unemployment rate is correlated with percentage married 22-24, percentage married 25-29, and fertility.

The variable of career participation is measured as the percentage of an area's female labor force which is classified as professional and managerial in male-dominated occupations. A male-dominated occupation is defined as any occupation listed in the professional and manager and administrator categories that is occupied by a majority of males or whose practitioners are at least 51 percent male. Included in this definition are all of the occupations listed in Table III. An occupation is determined to be male dominated by utilizing a Summary of the Detailed Characteristics of the United States Population, 1970 (9). All occupations are classified as male dominated except the following: librarian, registered nurse, dietitian, therapist, health technologist and technician, religious worker, teacher (except college and university), dancer, manager and superintendent of building, and apparel and accessory store.

The variable of fertility is to be measured by the cumulative number of children ever born by female per 1,000 women. The Census Bureau provides data on the number of

children by different age groups of females. The age groups to be used are 20-24, 25-29, 30-34, 35-49, 40-44, 45-49, and 50-64.

Percentage married is to be measured in two ways in order to provide a logical conceptualization appropriate for each of the independent variables, i.e., occupational opportunities for women and career participation. When percentage married is the dependent variable for occupational opportunities for women, it is to be the percentage of women age 22-24 in each SMSA who are married. The age category of 22-24 is used in the calculation since it is thought to be a "summary measure of marriage behavior in the late teens and early twenties. The transitional age span of 22-24 separates early from late marriages and contains substantial variability in [percentage] married" (7, p. 215). This age group has also had time to enter the labor market in a clerical or kindred position. An additional justification for the operationalization is that the age grouping preceding the 22-24 category includes sixteen-year olds, which would contain a high percentage of unmarried females.

When correlating percentage married with career participation, a different operational definition of the concept will be used. Using the age category of 22-24 would probably not include those women who were participating in male-dominated occupations. The educational requirements for the positions referred to in Table III would delay active

TABLE III

MALE-DOMINATED OCCUPATIONS

Professional, Technical, and Kindred Workers

- Accountants
- Architects
- Computer specialists
  - Computer programmers
  - Computer systems analysts
  - Computer specialists, n.e.c.
- Engineers
  - Aeronautical and astronautical
  - Chemical
  - Civil
  - Electrical and electronic
  - Industrial
  - Mechanical
  - Metallurgical and materials
  - Mining
  - Petroleum
  - Sales
  - Engineers, n.e.c.
- Farm management advisors
- Foresters and conservationists
- Home management advisors
- Lawyers and judges
- Archivists and curators
- Mathematical specialists
  - Actuaries
  - Mathematicians
  - Statisticians
- Life and physical scientists
  - Agricultural
  - Atmospheric and space
  - Biological
  - Chemists
  - Geologists
  - Marine
  - Physicists and astronomers
  - Life and physical, n.e.c.
- Operations and systems researchers and workers
- Personnel and labor relations workers
- Physicians, dentists, and related practitioners
  - Chiropractors
  - Dentists
  - Optometrists
  - Pharmacists
  - Physicians, medical and osteopathic
  - Poeidatrists
  - Veterinarians
  - Health practitioners,n.e.c.
- Religious workers
  - Clergymen
- Social scientists
  - Economists
  - Political scientists
  - Psychologists
  - Sociologists
  - Urban and regional planners
  - Social scientists, n.e.c.
- Social and recreation workers
- Teachers, college and university
  - Biology
  - Chemistry
  - Engineering
  - Physics
  - Other life and physical sciences
  - Mathematics
  - Economics
  - English
  - History
  - Miscellaneous social science
  - Other specified teachers
  - Not specified teachers

TABLE III--Continued

Professional, Technical, and Kindred Workers	
Engineering and science technicians	Vocational and educational counselors
Agricultural and biological, except health	Writers, artists, and entertainers
Chemical	Actors
Draftsman	Athletes and kindred workers
Electrical and electrical engineer	Authors
Industrial engineering	Designers
Mechanical engineering	Editors and reporters
Mathematical	Musicians and composers
Surveyors	Painters and sculptors
Engineering and science,n.e.c.	Photographers
Technicians, except health and engineering and science	Public relations men and publicity writers
Airplane pilots	Radio and television announcers
Air traffic controllers	Writers, artists, and entertainers, n.e.c.
Embalmers	Research workers, not specified
Flight engineers	Professional, technical, and kindred workers
Radio operators	
Tool programmers, numerical control	
Technicians, n.e.c.	

Managers and Administrators, Except Farm	
Assessors, controllers, and treasurers, local public administration	Construction inspectors, public administration
Bank officers and financial managers	Inspectors, except construction, public administration
Buyers and shippers, farm products	Federal public administration and postal service
Buyers, wholesale and retail trade	State public administration
Credit men	Local public administration
Funderal directors	Officers, pilots, and pursers, ship
Health administrators	

TABLE III--Continued

Managers and Administrators, Except Farm
Official and administrators public administration
Federal public administration and postal service
State Public administration
Local public administration
Officials of lodges, societies and unions
Postmasters and mail superintendents
Purchasing agents and buyers, n.e.c.
Railroad conductors
Restaurant, cafeteria, and bar managers
Sales managers and department heads, retail
Sales managers, except retail trade
School administrators, college
School administrators elementary and secondary
Managers and administrators, n.e.c. (salaried)
Construction
Manufacturing
Transportation
Communications, utilities, and sanitary services
Wholesale trade
Retail trade
Hardware, farm equipment and building material retailing
General merchandise stores
Food stores
Motor vehicles and asses-
Retail trade--continued
sories retailing
Gasoline--service stations
Furniture, home furnishings, and equipment stores
Other retail trade
Finance, insurance, and real estate
Business and repair services
Personal services
All other industries
Managers and administrators, n.e.c. (self-employed)
Construction
Manufacturing
Transportation
Communications, utilities, and sanitary services
Wholesale trade
Retail trade
Hardware, farm equipment, and building material retail
General merchandise stores
Food stores
Motor vehicles and accessories, retailing
Gasoline--service stations
Furniture, home furnishings, and equipment stores
Other retail trade
Finance, insurance, and real estate
Business and repair services
Personal services
All other industries
Managers and administrators, except farm-allocated

Source: Summary of the Detailed Characteristics of the United States Population, 1970, Table (9).

participation in these occupations until age 25 or more. Therefore, the age category of 25-29 would be more appropriate when considering the percentage of women married who are in male-dominated occupations.

Control Variables

There are other considerations to be made during this research. Additional variables are thought to influence the relationships under investigation and are necessary as controls. These include for SMSAs median age of the population, male earning level, population, percent Catholic, percent Jewish, female educational attainment, racial composition, sex ratio, and migration. Each of these variables will be utilized during the procedure of statistical analysis since each is supported in the literature as being statistically related to marriage and fertility. A discussion of each control variable follows, including a justification for its use, an operational definition, and source of data.

1. Median Age of the Population: This variable is included since it has an effect on fertility and might influence the relationship between work and fertility. The data are obtained from Census Tracts, 1970 Census of Population and Housing, Table P-1 (10).

2. Male Earning Level: Either a low or high male earning level is negatively related to the percentage married in an SMSA (7, p. 215). The variable is operationally

defined as the median earnings of males with earnings in 1970. The data are obtained from the 1970 Census Bureau of the Detailed Characteristics of the Population, Table 192 (9).

3. Population of Each SMSA: This variable is thought to be significant as a large population would offer more marriage choices creating the potential for lowering the age at first marriage. On the other hand, a variety of alternative life styles and activities might contribute to delaying marriage in the urban area. The variable is operationally defined as the number of inhabitants in each SMSA. The data are obtained from the 1970 Census Bureau of the Detailed Characteristics of the Population, Table 138 (9).

4. Percent Catholic: It has been concluded from other studies that Catholics have a higher age at first marriage in all economic classes (7, p. 215). An area characterized by a high percentage of Catholics would conceivably have a lower percentage married by specific age groups. The operational definition is the percent of Catholics within the SMSA. The data are obtained from Churches and Church Membership in the United States, 1976, edited by Douglas W. Johnson (3). Church membership is listed by counties for each state. In order to obtain Catholic membership by SMSA, a list of all counties in each SMSA has been compiled, and then a summary of the membership for each county is utilized. This procedure is utilized for all SMSAs.

5. Percent Jewish: Studies of Jewish families indicate that the Jewish population has a higher educational level and a higher income than other groups, and they tend to marry later and have a fewer number of children than the general population, according to Ryder and Westoff (9). The operational definition is the percentage Jewish within the SMSA. The data are obtained from the American Jewish Year Book, 1971, and are listed by city. A summary of all cities listed within each SMSA is utilized.

6. Female Educational Attainment: "Educational attainment appears to affect marriage when individual level data are examined. Those who have the least or the most education in America are likely to postpone marriage for the longest period of time," Preston writes (7, p. 215). The operational definition is the percentage of females aged 25-29 with one or more years of college. This age category is used since the younger category provided by the Census Bureau is 14-24 years. The 14-24 category is inappropriate since it would contain females who had not completed their educations. The data are obtained from the Census Bureau, Detailed Characteristics of the Population, 1970, Table 148 (9).

7. Racial Composition: The evidence is inconclusive, but several studies report the finding that black and white families differ in structure, size, and the number of female-headed households (7, p. 215). Racial composition is

introduced as a control since these differences might influence the percentage of women married and fertility. The operational definition is the percentage of blacks in an SMSA, and the data are obtained from Census Tracts, 1970 Census of Population and Housing, Table P-1 (10).

8. Sex Ratio: The sex ratio is included in the statistical model since the number of available partners influences the number who are married. If the sex ratio (males/females) is low in an SMSA, one would expect to find a low percentage of married women. This concept has two operational definitions. First, it is defined as the ratio of the number of men aged 25-29 to the number of women aged 22-24 in each SMSA. The construction of this definition reflects the practice of women marrying men who are several years older than themselves. This variable will act as a control to proportion married age 22-24. The second operational definition is the ratio of the number of men aged 30-34 to the number of women aged 25-29 in each SMSA. Again, the structure of the variable is related to the practice of women marrying men older than themselves. This variable will act as a control to proportion married age 25-29. The data available from the Detailed Characteristics of the Population, 1970, Table 138 (9) is used.

9. Female Migration: Interpretations of the findings need to be discussed in such a way as to suggest that the environment has an influence on females native to the area

migrants. A migration variable "should serve to guard against a spurious negative relationship between marriage and employment opportunities resulting from the selective migration of single women to cities where women's work opportunities are greatest" (7, p. 216). The variable is operationally defined in the following manner: the number of females in each SMSA in 1960 aged 10-14 and 15-19 will be compared with the number of females in each SMSA in 1970 age 20-24 and 25-29. Ratios of these two quantities (females age 10-14/females age 20-24 and females age 15-19/females age 25-29) are used as migration ratios and introduced into the statistical model as control variables for percentage married age 22-24 and percentage married age 25-29.

10. Selective Female Migration: It is also important to distinguish between those SMSAs that are growing by selective migration, i.e., male or female. A male migration factor has been calculated in the same manner as the female migration factor, i.e., compare the number of males in each SMSA age 10-14 and 15-19 in 1960 to the number age 20-24 and 25-29 in 1970. Then a ratio of these factors--female migration to male migration--is used to understand the extent to which an area is characterized by selective migration, whether male or female. Any ratio over 1.00 indicates selective female migration, any ratio under 1.00 indicates selective male migration, and any ratio of 1.00 indicates an equal number of each migrating to the area.

In calculating the migration variable, an allowance is made for SMSA boundary changes occurring from 1960 to 1970. The 1960 boundaries are compared to those of 1970, and population adjustments are made so as to include the same age cohort from 1960 to 1970. The comparison is made by using census-tract data appearing in the U.S. Census of Population and Housing: 1960 and 1970, Tables P-2 and P1, respectively (10). A comparison of census-tract maps is made when possible, and a comparison of the number of counties appearing in the SMSA from 1960 to 1970 is made to verify the census-tract maps.

Propositions

In keeping with earlier stated objectives, a comparison will be made of the relationship existing between occupational opportunities for women and fertility and career participation and fertility. Studies referred to earlier support the finding of a negative relationship between female labor-force participation and fertility. Therefore, it would seem appropriate to investigate the special circumstances in which female labor-force participation leads to lower fertility. It is possible that fertility will be lower when occupational opportunities for women exist. It is also possible that fertility will be even lower when women are actively involved in a career. One could suggest that under these special circumstances of occupational

opportunities and career participation, fertility will be low.

It is possible to gain yet more specificity when investigating the relationship in question. Marital fertility might be low in an SMSA because there is a low percentage of women married in specific age groups. The introduction of percentage married into the statistical model will provide an additional refinement to the generally assumed negative relationship between female labor-force participation and fertility.

The following paradigm illustrates the expected relationship among the variables.

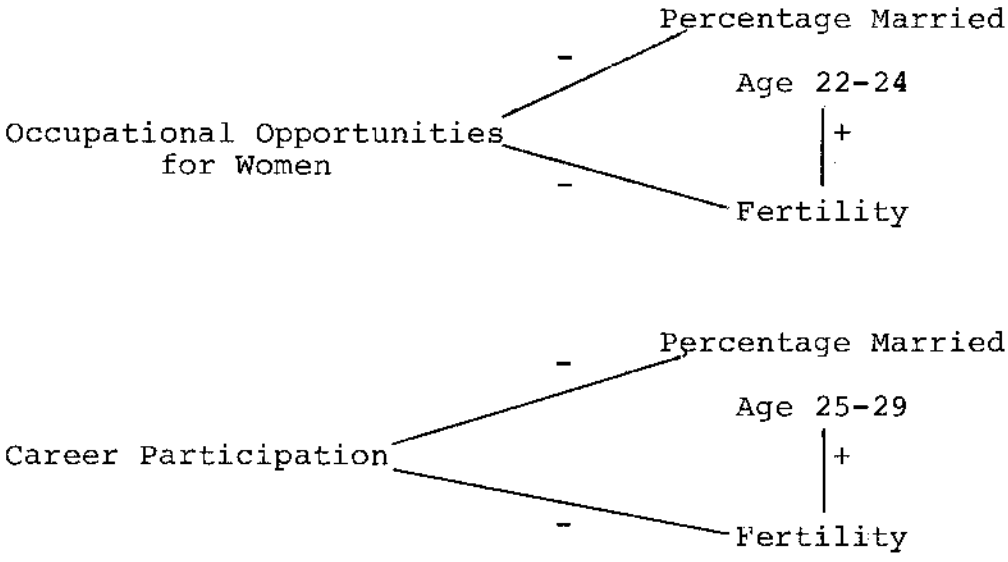

Fig. 2--The relationship among occupational opportunities for women, percentage married age 22-24, and fertility, and the relationship among career participation, percentage married age 25-29, and fertility.

It is expected that there will be a negative relationship between occupational opportunities for women and percentage married age 22,24 and fertility, but a positive relationship between percentage married 22-24 and fertility. A negative relationship between career participation and percentage married age 25-29 and fertility is expected, and a positive relationship between percentage married age 25-29 and fertility is expected. Fertility is operationally defined in the same manner in both the occupational opportunities and career participation models. However, career participation is expected to be a better predictor of fertility than occupational opportunities for women. In other words, it is expected to explain more of the total variance during regression analysis than the four variables used to measure occupational opportunities.

Based on previous findings in the literature, the stated expectations of the researcher, and the objectives of this study, the following propositions are offered for testing:

H_1 The percentage of ever-married females age 22-24 is positively related to fertility.

H_2 The percentage of ever-married females age 25-29 is positively related to fertility.

H_3 Femaleness of the industrial structure is negatively related to fertility.

H_4 Femaleness of the industrial structure is negatively related to the proportion of ever-married females age 22-24.

H_5 Median earnings of females is negatively related to fertility.

H_6 Median earnings of females is negatively related to the percentage of ever-married females age 22-24.

H_7 The percentage of clerical and kindred workers is negatively related to fertility.

H_8 The percentage of clerical and kindred workers is negatively related to the proportion of ever-married females age 22-24.

H_9 Unemployment is positively related to fertility.

H_{10} Unemployment is negatively related to the percentage of ever-married females age 22-24.

H_{11} Career participation is negatively related to fertility.

H_{12} Career participation is negatively related to the percentage of ever-married females age 25-29.

H_{13} Percent clerical and femaleness of the industrial structure will explain more of the total variance of percentage married age 22-24 than career participation.

H_{14} Career participation will explain more of the total variance of percentage married age 25-29 than the

percent clerical and femaleness of the industrial structure.

Statistical Measures

The statistical measures to be utilized are correlation and regression analysis of the population. These measures are considered appropriate since the data are of an interval level, and they satisfy the nature of the questions posed by the stated propositions. Pearson's Product Moment Correlation (5), partial correlation, and stepwise regression analysis will be computed via the Osiris canned-program package. Justification for this procedure is that numerous studies in the literature--Bogue, 1976 (2); Gibbs and Havens 1975 (4); Kreps, 1971 (5); and Oppenheimer, 1970 (6)--utilize correlation and regression analysis on demographic data of an interval level.

An interpretation of correlation and regression analysis of areal units requires an understanding of the ecological fallacy. Correlations among aggregate data do not infer a cause-and-effect relationship at the individual level. In other words, group characteristics cannot be applied to individuals in areal units. Even if the findings of this study should reveal a negative relationship among occupational opportunities for women and marriage and fertility, and career participation and marriage and fertility, it is not possible to assume that all career women in each

SMSA will be unmarried or childless. Therefore, even if the major hypotheses of this study are supported by the statistical analysis, caution must be exercised in the interpretation of the findings.

CHAPTER BIBLIOGRAPHY

1. American Jewish Yearbook, New York, American Jewish Commission, 1971.

2. Bogue, Donald J., "Ecological Correlation Reexamined: A Refutation of the Ecological Fallacy," Essays in Human Ecology, edtied by Donald J. Bogue and Elizabeth J. Bogue, Chicago, Community and Family Study Center, University of Chicago, 1976, pp. 1-42.

3. Churches and Church Membership in the United States, edited by Douglas W. Johnson, Washington, D.C., Glenmary Research Center, 1974.

4. Gibbs, Jack P. and Elizabeth Maret Havens, "The Relation Between Female Labor Force Participation and Fertility: A Theory of Variability," Sociological Methods and Research, 3 (Feb., 1975), 258-290.

5. Kreps, Juanita, Sex in the Marketplace, Policy Studies in Employment and Welfare, edited by Sar A. Levitan and Garth L. Mangum, Baltimore, The John Hopkins University Press, 1971.

6. Oppenheimer, Valerie Kincaid, "Demographic Influence on Female Employment and the Status of Women," American Journal of Sociology, 78 (1973), 946.

7. Preston, Samuel, "Women's Work Opportunities and Marriage Rates," Demography, 12 (May, 1975), 209-222.

8. Shryock, Henry S., Jacob S. Siegel, and Associates,"SMSAs," The Methods and Materials of Demography, Vols. I & II, Washington, D. C., United States Government Printing Office, United States Department of Commerce, Bureau of the Census Publication, 1976, pp. 127-129.

9. Ryder, Norman B. and Charles F. Westoff, Reproduction in the United States, Princeton, Princeton University Press, 1971.

10. United States Bureau of the Census, Census Tracts of Standard Metroplitan Statistical Areas, Census of Population and Housing, Washington, D.C., United States Government Printing Office, 1970.

CHAPTER III

DESCRIPTION OF THE POPULATION

The results of the descriptive analysis of the data and appropriate interpretation and discussion are presented in this chapter. The presentation of the results is divided into three parts: (1) an interpretation of the minimum and maximum in the range of values based on the concept of functional specialization, (2) a description of the population using descriptive statistics in the construction of a typology of SMSAs ranging from high to low in occupational opportunities for women, and (3) an application of the typology in understanding marriage and fertility.

Interpretation of Descriptive Statistics Based on Functional Specialization

The population includes the one-hundred largest SMSAs in the United States. The following tables illustrate descriptive statistics for each variable. The SMSA that represents the minimum and the maximum in the range is also listed. The descriptive statistics illustrate the extent to which structural characteristics, such as economic and socio-economic factors, represent SMSA specialization. An analysis of only the mean of each variable distorts the structural diversity among the distinct SMSAs. A comparison of the

TABLE IV

DESCRIPTIVE STATISTICS FOR THE POPULATION*

Variable Name	Mean
Independent Variables (Economic Variables)	
1. Femaleness of Industrial Structure	37.89
2. Female-Median Income	$2,490.66
3. Total Unemployment Rate	4.20
4. Percentage of Clerical and Kindred Workers	13.90
5. Career Participation: percentage of females in male-dominated professions by total female-labor force	9.96
Control Variables (Socioeconomic Variables)	
6. Median-Age Population	28.01
7. Percent Jewish: (data collected for 1971)	2.06
8. Sex Ratio: ratio of number of males aged 25-29 to females aged 22-24	133.02
9. Sex Ratio: ratio of number of males aged 30-34 to females aged 25-29	81.68
10. Population Size	1,154,389
11. Male-Median Income	$6,939.98
12. Percentage of females aged 25-29 with one or more years of college	28.18
13. Percentage of the population classified as Black	10.83
14. Percentage of the population classified as Catholic	22.78
(Migration Variables)	
15. Female Migration: ratio of number of females aged 20-24 in 1970 to females aged 10-14 in 1960	1.14
16. Female Migration: ratio of number of females aged 25-29 in 1970 to females aged 15-19 in 1960	1.20
17. Selective Female Migration Aged 20-24	1.13
18. Selective Female Migration Aged 25-29	1.04
Dependent Variables	
19. Percentage of women aged 22-24 who have ever married	73.92

TABLE IV--Continued

Variable Name	Mean
20. Percentage of women aged 25-29 who have ever married	88.11
21. Fertility: cumulative number of children ever born by female per 1,000 women.	2,418.56

*Refer to Chapter II for operational definitions and discussion of all variables.

TABLE V

RANGE AND STANDARD DEVIATION OF SELECTED VARIABLES BY SMSAs

Variable No.	Standard Deviation	Maximum	Minimum
1.	1.58	40.79 New York	33.50 Youngstown
2.	345.92	$3,827.00 Washington,D.C.	$1,787.00 Mobile
3.	1.31	8.40 Tacoma	2.10 Lancaster
4.	2.34	19.70 Washington,D.C.	1.20 Grand Rapids
5.	1.69	16.59 Washington,D.C.	5.90 Wilkes Barre
6.	2.82	37.92 Ft.Lauderdale	22.73 El Paso
7.	2.91	20.59 New York	.10 Oxnard
8.	8.32	160.00 Oxnard	114.00 Jacksonville
9.	5.46	95.99 Toledo	71.00 Mobile
10.	574,246	11,571,899 New York	302,672 Binghamton
11.	345.92	$8,786.00 Anaheim	$4,629.00 Columbia
12.	6.23	46.50 San Francisco	15.40 Wilkes Barre
13.	8.37	27.40 Memphis	.50 Wilkes Barre
14.	15.38	69.39 Boston	1.70 Greensboro
15.	.21	1.73 Lansing	.73 Norfolk
16.	.13	3.27 Atlanta	.52 Harrisburg
17.	.19	1.45 San Jose	.25 New York
18.	1.69	1.79 San Diego	.75 Tacoma
19.	6.26	87.52 Oxnard	52.76 Boston
20.	3.47	93.59 Fort Worth	77.79 New York
21.	167.89	2,922.00 Salt Lake City	2,010.00 Ft.Lauderdale

maximum and minimum of several of the variables exemplifies SMSA specialization and differentiation.

Functional specialization describes the extent to which a city or region is differentiated in some way from other cities and regions. In a technical and industrialized society, knowledge and inventions increase and contribute to the performance of

> additional kinds of functional activities. . . . As these increasingly numerous activities become different from one another (differentiation), ecological units respectively tend to specialize in performing some limited part of them (specialization) and to leave other tasks to other units. As this differentiation and specialization occur, each specialized unit tends to become less self-sufficient and to depend increasingly on services performed by others (1, p. 306).

Economists and geographers have been instrumental in constructing typologies of functional specialization. Most of these typologies utilize economic variables, but it is possible to consider additional variables in any classification schema. Usually, the reliance on economic variables is based on the availability of data. However, given the availability of data, it would be possible to classify cities according to recreation, entertainment, education, medical services, and religion (2, pp. 66-68).

Based on the concept of functional specialization, it is possible to interpret the minimum and the maximum in the range of values resulting from the statistical analysis. Variables utilized in this study that lend themselves to

interpretation from the standpoint of functional specialization are median age of the population, percent Jewish, percent Catholic, percent clerical, the femaleness of the industrial structure, female income, unemployment, and career participation.

All of the SMSAs in Florida have a higher median age than any of the remainder of the population. The median age in Ft. Lauderdale is 37.9, which is the maximum in the range. The median age influences the fertility rate, and, partly for this reason, Ft. Lauderdale is the minimum in the range for fertility. In addition to Ft. Lauderdale, all of the other SMSAs in Florida (Miami, Tampa, and West Palm Beach) have a median age of 34.2 or higher. No other state demonstrates such a consistent pattern of median age for its respective SMSAs.

The distribution of the Jewish population illustrates the degree of concentration in large urban centers predominately in the Northeast. The largest percentage of Jewish population is in New York with 20.59 percent, while other areas of concentration are Paterson, New Jersey, with 10.28 percent, and Miami with 14.82 percent. Los Angeles, Philadelphia, Newark, and New Haven have from 8.12 percent to 5.63 percent Jewish population. All other SMSAs have considerably less than three percent Jewish population. Although the distribution of the Jewish population is a characteristic of population compositions, the percentages reflect the

tendency for several SMSAs to function as a spatial and social nuclei for this group.

Several SMSAs in the population are specialized for religious affiliation. Boston, El Paso, Salt Lake City, and Lancaster, Pennsylvania are dominated by one religious group. The Catholic population predominates in the Northeast. A city in which fifty percent or more of the total population is Catholic might be assumed to be specialized for that religion which would influence the attitudes and life style of the population. Surely Boston is influenced by its large Catholic population (69.39 percent). El Paso is another SMSA dominated by a Catholic population. The descriptive statistics illustrate the possibility of Catholicism as an influence on structural characteristics. El Paso has the lowest median age for the population with 22.73 and the next to the highest fertility with 2,858 (cumulative number of children ever born by female per 1,000 women). Although less than fifty percent, the Catholic population is one of the largest outside of the Northeast with 40.62 percent. Salt Lake City is the SMSA with the highest fertility with 2,922 and the next to the lowest median age for the population with 23.21. The Mormon religion which predominates in Salt Lake City emphasizes family values and large numbers of children.

A description of the Lancaster SMSA is of interest for several reasons. Lancaster County is characterized by a

high percentage of Amish population. This group relies entirely on agriculture as a source of income which might account for the low unemployment rate of 2.10 percent. The percentage of females with one or more years of college is one of the lowest with 19.71 percent, and fertility is above average with 2,536. Only 9.21 percent of the labor force is classified as clerical and kindred while the average is 13.90 percent. The descriptive statistics of the Lancaster SMSA possibly represent the influence of Amish values. It is consider virtuous to remain close to the land and to educate only in accordance with this value.

The unemployment rate could also be considered as an indirect indicator of functional specialization. As mentioned, the 2.10 percent unemployment rate in the Lancaster SMSA possibly represents the influence of the Amish population. The unemployment rate reflects the industrial structure and tends to be higher in highly specialized SMSAs that are dependent on one industry that is declining. Aviation is an important industry in Tacoma and Seattle. The high unemployment rates of 8.40 percent and 8.20 percent in the Washington SMSAs in 1970 reflect contract cutbacks and regional dependence on the aviation industry. Although utilizing unemployment rates as single indicators is not warranted, the use of unemployment rates as part of a composite measure is justified, based on their correlation with other economic variables.

A Typology of SMSAs Rrepresenting Occupational Opportunities for Women

The economic variables pertaining to female employment can also be used as indicators of functional specialization. Since the variables are interrelated, it is possible to form a composite measure of occupational opportunities for women that indicate functional specialization by SMSA.

For descriptive as well as predictive purposes, a typology of SMSAs ranging from high to low for occupational opportunities for women has been constructed by utilizing two indexes. The first index is of labor-force characteristics and is a composite of the following variables: (1) the femaleness of the industrial structure, (2) the percentage of clerical and kindred, and (3) career participation. The index is constructed by a cumulative point system using the variables that are related to each other in the same direction.* The second index is of income and is constructed by utilizing female-median income. The first or labor-force index has been constructed in the following way:

1. A cumulative score for each SMSA for the following labor-force variables has been calculated: the femaleness of the industrial structure, percentage of the total labor force classified as clerical and kindred, and career participation.

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*Unemployment is not used in the construction of the typology since it is negatively related to the other economic variables.

2. After a cumulative score for each SMSA has been calculated, it is determined that Washington, D.C. has the highest score with 72.8 for the three labor-force variables, and Grand Rapids has the lowest score with 46.4. The range is 26.7.

3. Then the range has been divided into three equal intervals resulting in the following categories:

72.8-64.0 (1) High Labor-Force Opportunities

63.9-55.1 (2) Medium Labor-Force Opportunities

55.0-46.2 (3) Low Labor-Force Opportunities

4. Each SMSA has been categorized into one of the above categories labeled as high, medium, and low for labor-force opportunities.

The second index utilizing female-median income has been constructed in the following way:

1. The maximum in the range of income is Washington, D.C. with $3,827, and the minimum is $1,787 in the Mobile SMSA. The range is $2,040.

2. The range has been divided into three equal intervals resulting in the following categories:

$3,827-3,147 (A) High Income

$3,146-2,466 (B) Medium Income

$2,467-1,787 (C) Low Income

3. Each SMSA has been categorized in one of the income categories.

After classifying each SMSA by the labor-force index and the income index, a typology of twelve possibilities exists. Table VIII represents the typology and all possible categories.

TABLE VI

A TYPOLOGY OF SMSAs FOR OCCUPATIONAL OPPORTUNITIES FOR WOMEN

Income	Labor-Force Opportunities		
	72.8-64.0 High	63.9-55.1 Medium	55.0-46.2 Low
$3,827-3,147 High	1A	1B	1C
$3,146-2,466 Medium	2A	2B	2C
$2,467-1,787 Low	3A	3B	3C

The categorization process results in the following types of SMSAs. Table IX illustrates specific SMSAs by category, specific scores for the labor-force index, and specific scores for the income index.

In addition to sharing the same position in the typology, 1A SMSAs share other similar structural characteristics. Except for Honolulu, 1A SMSAs are among the eight most populous areas in the population. Each of these SMSAs is above the average for the female educational level, which is measured as the percentage of females aged 25-29 with one or more years of college. San Francisco has the highest in the population with 46.50 percent of the female population having

TABLE VII

SMSAs CLASSIFIED BY OCCUPATIONAL OPPORTUNITIES FOR WOMEN UTILIZING THE LABOR FORCE AND INCOME INDEXES

SMSA	Labor Force	Income
1A SMSAs 72.8-64.0 High for Labor Force $3,827-$3,147 High for Income		
Washington, D.C.	72.8	$3,827
New York	69.6	3,220
San Francisco	69.5	3,264
Honolulu, N=4	66.4	3,350
1B SMSAs 72.8-64.0 High for Labor Force $3,146-$2,446 Medium for Income		
Boston	69.2	$2,707
Sacramento	68.4	2,680
Denver	67.4	2,538
Richmond	67.2	2,823
Albany	66.9	2,565
Columbus	66.5	2,607
San Diego	66.5	2,523
New Haven	66.3	2,821
Lansing	66.3	2,587
Atlanta	66.2	2,867
Los Angeles	65.7	2,987
Hartford	65.6	2,950
Columbia	65.5	2,474
Seattle	65.2	2,788
Nashville	65.0	2,476
Minneapolis	65.0	2,609
Kansas City	64.9	2,800
San Jose	64.8	2,842
Columbia	65.5	2,474
Trenton, N=20	65.3	2,928
1C SMSAs 72.8-64.0 High for Labor Force $2,467-$1,787 Low for Income		
Albuquerque	61.9	$2,384
Tucson	66.0	2,054
Oklahoma City	66.8	2,462
Jacksonville	65.6	2,399
Tampa, N=5	64.2	2,040

TABLE VII--Continued

SMSA	Labor Force	Income
2A SMSAs (no data in this category)		
2B SMSAs 63.9-55.1 Medium for Labor Force $3,146-$2,466 Medium for Income		
Dallas	63.8	$2,796
Paterson	63.7	2,872
Syracuse	63.4	2,539
Charlotte	63.2	2,735
Phoenix	63.1	2,477
Newark	63.0	2,981
Chicago	62.9	3,125
Philadelphia	62.4	2,671
Anaheim	62.2	2,868
St. Louis	61.9	2,523
Miami	61.5	2,507
Harrisburg	61.9	2,187
Indianapolis	61.3	2,748
Jersey City	60.4	3,131
Cleveland	60.0	2,624
Rochester	59.7	2,723
Greensboro	59.5	2,702
Milwaukee	59.6	2,505
Oxnard	59.3	2,478
San Antonio	59.2	2,145
Utica	59.1	2,566
Dayton	59.1	2.404
Detroit	58.4	2,701
Bridgeport	57.5	2,872
Louisville	57.5	2,519
Little Rock	56.2	2,501
Houston, N=27	61.7	2,468
2C SMSAs 63.9-55.1 Medium for Labor Force $2,467-$1,787 Low for Income		
Omaha	63.6	$2,435
Salt Lake City	63.6	2,397
Portland	63.4	2,397
Memphis	63.0	2,186
New Orleans	62.9	2,119
Tacoma	62.9	2,236
Norfolk	62.8	2,201

TABLE VII--Continued

SMSA	Labor Force	Income
Wilmington	62.7	2,424
Ft. Lauderdale	62.7	2,367
El Paso	62.6	2,385
Springfield	62.1	2,290
Knoxville	61.6	2,081
Orlando	61.5	2,207
Wichita	61.3	2,397
San Fernardino	61.1	2,228
Birmingham	60.9	1,894
Cincinnati	60.9	2,365
Tulsa	60.9	2,209
Akron	60.7	2,187
West Palm Beach	60.6	2,231
Fort Worth	60.5	2,339
Worcester	60.3	2,400
Bakersfield	60.1	1,997
Fresno	60.0	1,986
Buffalo	59.1	2,304
Chattanooga	58.9	2,402
Mobile	58.8	1,787
Charleston	58.5	2,155
Pittsburgh	58.4	2,056
Binghamton	58.2	2,452
Davenport	58.0	2,250
Peoria	57.9	2,182
Toledo	57.8	2,141
Providence	56.9	2,435
Beaumont-Port Arthur, N=35	56.5	1,811
3A SMSAs		
(no data in this category)		
3B SMSAs 55.0-46.2 Low for Labor Force $3,146-$2,466 Medium for Income		
Flint, N=1	52.2	$2,519
3C SMSAs 55.0-46.2 Low for Labor Force $2,467-$1,787 Low for Income		
Gary	54.3	$2,187
Canton	54.0	2,088

TABLE VII--Continued

SMSA	Labor Force	Income
Wilkes Barre	52.5	$2,252
Allentown	52.5	2,446
York	52.2	2,442
Youngstown	51.3	2,117
Lancaster	50.8	2,351
Grand Rapids, N=8	46.4	2,230

at least one year of college. Until recently, California offered a tuition-free college education to its residents which might account for the high female educational level. The female educational level in Washington, D.C. is 41.24 percent of women age 25-29 have at least one year of college. Selective migration can probably explain the female educational level of the capital city. Honolulu's female educational level is 40.92 percent which might reflect another site where selective migration occurs. New York's female educational level of 29.82 percent is higher than the population average of 28.18 percent, but is the lowest of the 1A SMSAs. Still the destination of a southern migration flow, New York absorbs low-income groups which probably decreases the female educational level. New York, Washington, D.C., and Honolulu fall below the population average for unemployment, and New York, Washington, D.C., and San Francisco are above average for male income. A low unemployment rate and above average male-median income are probably reflective of favorable economic conditions generally in 1A SMSAs.

There is no discernible pattern in 1B SMSAs, but 1C areas possibly represent regional economic differences. It is noteworthy that of the twenty 1B areas, four are in California. On the other hand, many of these areas are located in states in which they are the only SMSA. The 1C areas are located in states in which they are the only SMSA. The 1C areas are located in the South and Southwest, regions characterized by a lower than average national income.

Using the index as constructed, there are no 2A areas, 2B areas represent nineteen different states, and 2C areas represent twenty-eight states. On the average, 2B areas are larger in population and more often in the Northeastern region of the United States than 2C areas. There is a greater concentration of Southern and Southwestern areas in the 2C type than any other type. Perhaps this pattern reflects regional differences in occupational opportunities for women.

No 3A types exist; only one area fits the criteria of the 3B type; and eight areas can be categorized as low in both the labor force and income index. Four states are represented in the 3C category and are contiguous to each other. Each of the SMSAs in the 3C category has a population of 550,000 or less and is characterized by heavy industry which is typically male dominated. Since all of the 3C type areas are located in close proximity, it is possible to conclude that collectively these SMSAs represent a natural

area for labor-force characteristics. Therefore, it would appear that by analyzing areas in this type, population size and regional economics influence occupational opportunities for women.

Application of the Typology in Understanding Percent Married and Fertility by SMSA

The major hypothesis of this investigation is that there is an inverse relationship between occupational opportunities for women and percentage married by specific age group and work opportunities and fertility. There should be a lower average for percentage married in the 1A areas and a higher average for percentage married in the 3C areas. There should also be a lower average fertility among 1A types and a higher average fertility among 3C types. The hypothesized inverse relationship is illustrated in Table VIII.

TABLE VIII

HYPOTHESIZED RELATIONSHIP BETWEEN OCCUPATIONAL OPPORTUNITIES FOR WOMEN AND MARRIAGE AND FERTILITY

Income	Labor-Force Characteristics		
	High 1	Medium 2	Low 3
High A	Percentage Married-Low Fertility-Low		
Medium B		Percentage Married-Medium Fertility-Medium	
Low C			Percentage Married-High Fertility-High

A pattern of increasing fertility and decreasing occupational opportunities for women is established with the use of descriptive statistics. Type 1A SMSAs have the highest level of work opportunities for women, and type 3C has the lowest. From type 1A, the average fertility declines from 2,272.50 to an average of 2,541.00 for type 3C areas. The only deviation from a pattern of consistently declining increments is for type 3B. The statistics in this category are not based on an average but on the individual characteristics for Flint, Michigan, as this is the only area fitting the criteria of the 3B type. A similar pattern for percentage married by specific age group occurs. The average for the percentage married aged 22-24 is 63.42 percent for 1A areas and 74.38 percent for 3C areas, and the average for percentage married age 25-29 also increases as occupational opportunities decrease. Again, type 3B is a deviation to the pattern. Following 3B, the percentage married age 22-24 does deviate from a consistently increasing average percentage married. This deviation can probably be accounted for by regional differences in age at first marriage. In Northeastern and Western SMSAs, there are on the average fewer married in the age 22-24 category. In the South and Southwest, the percentage is higher. Out of thirty-five SMSAs in the 2C type, eighteen are located in the Northeastern and Western regions of the country. In looking at the average percentage married age 25-29, the pattern is of

a consistent increase as occupational opportunities decrease. As a result, the deviation in the 22-24 age group is probably the result of regional differences in age at first marriage.

Table IX illustrates the average percentage married and fertility for each occupational opportunity type.

TABLE IX

AVERAGES FOR PERCENTAGE MARRIED AND FERTILITY FOR EACH OCCUPATIONAL OPPORTUNITY TYPE

Income	Labor Force Characteristics		
	High 1	Medium 2	Low 3
High A	Fertility 2272.5 Married 22-24 63.4% Married 25-29 81.5% N=4		
Medium B	Fertility 2340.5 Married 22-24 71.4% Married 25-29 87.2% N=20	Fertility 2383.2 Married 22-24 77.9% Married 25-29 90.4% N=27	Fertility 2718.0* Married 22-24 79.5% Married 25-29 91.3% N=1
Low C	Fertility 2347.2 Married 22-24 77.8% Married 25-29 90.4% N=5	Fertility 2484.7 Married 22-24 77.0% Married 25-29 90.7% N=35	Fertility 2541.0 Married 22-24 74.4% Married 25-29 91.0% N=8

*Not an average, but the actual data for the one case.

An analysis of the descriptive statistics lends support to the major hypotheses of this study, and the typology illustrates functional specialization for women's work opportunities and the resulting influence on the percentage married and fertility. However, more sophisticated statistical tests have been utilized, and control variables have been

introduced into the statistical model in an effort to refine an understanding of the relationship among work, marriage, and fertility patterns.

CHAPTER BIBLIOGRAPHY

1. Quinn, James A., Human Ecology, New York, Prentice Hall, 1950.

2. Thomlinson, Ralph, Urban Structure: The Social and Spatial Character of Cities, New York, Random House, 1969.

CHAPTER IV

CORRELATION AND REGRESSION ANALYSIS

The findings of the correlational and regression analyses of the data and appropriate interpretation and discussion are presented in this chapter. The presentation of the findings is divided into four sections: (1) a discussion of the correlations among the economic variables, (2) a discussion of the hypotheses based upon correlational analyses, (3) a discussion of the regression analyses, and (4) a summary of the findings.

Correlations Among the Economic Variables

The rationale underlying utilization of the economic variables in the typology is based on the assumption that the variables are related to each other. With the exception of unemployment, all of the economic variables are positively related to each other. Table X illustrates the zero-order correlations among these variables.

It is significant to note the weak correlation between the femaleness of the industrial structure and female-median income. The correlation of .05 is among the weakest of the economic variables and probably reflects the extent to which there is income inequality between female and male industrial structures. One can assume that SMSAs are specialized

TABLE X

ZERO-ORDER CORRELATIONS AMONG ECONOMIC VARIABLES

	Femaleness Industrial Structure	Percent Clerical	Female Income	Unemployment	Career Participation
Femaleness Industrial Structure	1.00				
Percent Clerical	.34	1.00			
Female Income	.05	.58	1.00		
Unemployment	.03	-.18	-.21	1.00	
Career Participation	.52	.51	.31	.18	1.00

for male or female industry. Although not illustrated in this table, there is a moderately strong inverse correlation (-.48) between male-median income and the femaleness of the industrial structure. This correlation illustrates that SMSAs specialized for female industry are characterized by a low male-median income.

Of the remaining economic variables, the femaleness of the industrial structure is more strongly correlated with career participation. The correlation of .52 between these two variables reflects the existence of labor markets specialized for occupational opportunities for women. In these SMSAs where female industry predominates, women's career participation is greatest. The moderately strong correlation

of .34 between femaleness of the industrial structure and percent clerical and .51 between career participation and percent clerical reflects related structural characteristics favorable to work opportunities for women, thus justifying the inclusion of these variables into a composite measure.

Unemployment is the variable that is the least correlated with the other four economic variables. It was expected that there would be an inverse relationship between unemployment and the other economic indicators, and such is the case between unemployment and percent clerical and income. However, the direction of the other two correlations is positive, and the stronger of the two positive correlations is between unemployment and career participation. Ordinarily a correlation of .18 would not signify a definitive relationship. However, when viewed from the position that men and women compete for jobs in the marketplace, the direction of the correlation is important. The correlation is supportive of this position for two reasons: first, the unemployment rate as operationalized includes men; second, the likelihood exists that, in this SMSAs characterized by high female career participation, there is also high male unemployment.

The strongest correlation among the economic variables is between percent clerical and income. This can be interpreted in several ways. First, the strength of the correlation supports the earlier assumption that the economic

variables are related and can be used singularly or as a composite predictor of marriage and fertility. Second, the correlation indicates occupational specialization for women. For instance, the finding might represent broader structural characteristics of SMSA economics. Areas marked by a high female-median income and percent clerical and typically white-collar business centers where economic conditions are generally favorable to both men and women.

Although the correlations among the economic variables are not as strong as expected, the earlier assumption is supported that the variables can be used as indicators of occupational opportunities for women. The strength of the correlation between income and percent clerical is the strongest argument for the validity of the assumption. The low correlation of unemployment with the other variables is the weakest point in the assumption, but might be nothing more than an artifact of the operational definition.

Discussion of Hypotheses Based on Correlational Analyses

The results of the correlational analyses are presented in three parts: (1) a presentation of the hypotheses based upon zero-order correlations, (2) a presentation of the partial-correlational analyses through the elaboration model and a discussion of the influence of the control variables on the original relationships, and (3) a summary of the correlational analyses.

Presentation of Hypotheses Based on Zero-Order Correlations

Concerning the relationship between marriage and fertility, the following hypotheses have been subjected to statistical analysis:

H_1 The percentage of ever-married females age 22-24 is positively related to fertility.

H_2 The percentage of ever-married females age 25-29 is positively related to fertility..

The hypotheses that there are positive correlations between the percentage married for both age groups and fertility is supported by the zero-order correlations in Table XI. The higher the percentage married age 22-24 and 25-29, the higher the fertility. The correlation is weak, and the stronger of the two relationships indicates a higher correlation for the 25-29 age group. The importance of the correlation is that percentage married should be used as a control variable when a statistical analysis of differential fertility rates is at issue. As mentioned in Chapter I, it is possible that fertility is low in an SMSA because marriage is late. As a result, the inclusion of marriage when analyzing levels of fertility is justified.

Concerning the relationship among the economic variables and marriage and fertility, the following hypotheses have been subjected to statistical analysis:

TABLE XI

ZERO-ORDER CORRELATIONS AMONG ECONOMIC VARIABLES AND DEPENDENT VARIABLES

	Femaleness Industrial Structure	Percent Clerical	Female Median Income	Unemployment	Career Participation	Percent Females Married 22-24	Percent Females Married 25-29	Fertility
Femaleness Industrial Structure	1.00							
Percent Clerical	.34	1.00						
Female Median Income	.05	.58	1.00					
Unemployment	.03	-.18	-.21	1.00				
Career Participation	.52	.51	.31	.18	1.00			
Percent Females Married 22-24	-.21	-.32	-.52	.18	-.03	1.00		
Percent Females Married 25-29	-.22	-.31	-.52	.20	-.01	.87	1.00	
Fertility	-.18	-.47	-.49	.22	-.25	.18	.22	1.00

H_3 Femaleness of the industrial structure is negatively related to fertility.

H_4 Femaleness of the industrial structure is negatively related to the percentage of ever-married females age 22-24.

H_5 Median earnings of females is negatively related to fertility.

H_6 Median earnings of females is negatively related to the percentage of ever-married females age 22-24.

H_7 The percentage of clerical and kindred workers is negatively related to the percentage of ever-married females age 22-24.

H_8 Unemployment is positively related to fertility.

H_9 Unemployment is negatively related to the percentage of ever-married females age 22-24.

H_{10} Career participation is negatively related to fertility.

H_{11} Career participation is negatively related to the percentage of ever-married females age 25-29.

Except for unemployment, it was hypothesized that there would be an inverse relationship among the economic variables and the percentage married, and work opportunities and fertility. The zero-order correlations demonstrate an inverse correlation between work opportunities and marriage and fertility.

Specifically, income is most strongly correlated with marriage and fertility. In SMSAs where the female median income is high, marriage and fertility are low. The pattern is the same for percent clerical and the femaleness of the industrial structure. The weakest correlation exists between career participation and marriage and fertility. The correlation of -.03 between career participation and percentage married age 25-29 implies that career participation does not act as a deterrent to marriage in SMSAs. The correlation between career participation and fertility is -.25 and implies that SMSAs characterized by a large number of women in male-dominated careers will also be characterized by a low measure of fertility.

Without representative national data collected at the individual level, interpretation of these findings is speculative. A further complication exists. None of the variables as mentioned occurs in isolation. Introducing control variables into the statistical model helps to refine our understanding of the original zero-order correlations and their operation with other structural characteristics in the environment.

Partial-Correlational-Analyses Presentation of Elaboration Model

The control variables will be presented within the framework of an elaboration model. The objective of the elaboration model is to include control or test variables

through partial-correlational analyses in order to evaluate the validity of the original or zero-order correlations. A partial relationship is a correlation between any two variables controlling for the effects of all other variables in the statistical analysis. If the original relationships held during the partial-correlational analysis, then the the original relationship is supported. If the original relationship does not hold, then several possibilities for interpretation exist. Either the original relationship is spurious and the addition of control variables offers an alternative explanation of the relationship between the variables, or, depending on the outcome of the partial analysis, a specification to the original relationship has been achieved. If the zero-order correlations among any of the variables discussed so far disappear or change, then the strength of the relationships are in question and a different interpretation based on the addition of control variables is required. In order to compare the original relationships with other environmental factors, Table XII illustrates the zero-order correlations and the partials for the economic, marriage and fertility, and test variables.

As expected, the median age of the population is negatively related to fertility. Following the partial analysis, the zero-order correlation of -.55 changed to -.77. As a result, a negative relationship between occupational

TABLE XII

ZERO-ORDER CORRELATIONS AND PARTIALS AMONG ALL VARIABLES*

		1	2	3	4	5
Median-Age Population	1	1.00				
Female Migration 25-29	2	-.10 (-.23)	1.00			
Selective Female Migration 25-29	3	-.16 (.27)	-.09 (-.15)	1.00		
Population Size	4	.15 (.06)	.09 (-.03)	-.03 (-.04)	1.00	
Sex Ratio 22-24	5	-.01 (.13)	.29 (.03)	.03 (-.09)	-.002 (.01)	1.00
Sex Ratio 25-29	6	-.08 (-.05)	.14 (.14)	.18 (.25)	-.12 (-.05)	.19 (-.01)
Percent Black	7	-.10 (-.42)	.02 (.01)	.12 (.11)	.16 (.08)	-.20 (-.01)
Female Migration 20-24	8	-.19 (-.29)	.62 (.16)	.02 (.11)	.09 (.01)	.10 (.01)
Selective Female Migration 20-24	9	.17 (.34)	.03 (.18)	-.47 (.17)	-.25 (-.22)	-.10 (-.13)
Percent Jewish	10	.41 (.09)	.02 (.07)	.04 (.06)	.69 (.43)	-.05 (.07)
Percent Catholic	11	.34 (.07)	-.18 (-.11)	.03 (.14)	.19 (-.17)	-.07 (.11)
Male-Median Income	12	.01 (-.30)	.20 (.15)	.37 (-.32)	.30 (.29)	.08 (-.13)
Female Educational Level	13	-.22 (.18)	.40 (.06)	.09 (.05)	.17 (-.08)	.07 (.17)
Femaleness Industrial Structure	14	-.05 (-.12)	.04 (-.04)	.29 (-.09)	.11 (.01)	-.21 (-.23)

*The partials in parentheses are correlations between any two variables controlling for the effects of all other variables in the statistical analysis.

TABLE XII--Continued

		1	2	3	4	5
Percent Clerical	15	-.01 (-.18)	.28 (-.10)	-.01 (.04)	.33 (.12)	-.15 (-.18)
Female-Median Income	16	.11 (-.22)	.34 (.11)	.01 (-.08)	.47 (.05)	.12 (.29)
Unemployment	17	-.25 (.15)	.14 (-.16)	-.05 (.003)	.02 (.20)	.19 (.14)
Career Participation	18	-.31 (.01)	.41 (.21)	.24 (.17)	.20 (.08)	.05 (-.004)
Females Married 22-24	19	-.36 (-.17)	.06 (-.08)	-.01 (-.03)	-.41 (-.11)	.17 (.11)
Females Married 25-29	20	-.40 (-.16)	.05 (-.06)	-.04 (.02)	-.50 (.22)	.19 (.15)
Fertility	21	-.55 (-.77)	-.35 (-.23)	-.01 (.01)	-.30 (.09)	-.03 (.06)
		6	7	8	9	10
Sex Ratio 25-29	6	1.00				
Percent Black	7	-.14 (-.08)	1.00			
Female Migration 20-24	8	.05 (-.04)	-.06 (-.22)	1.00		
Selective Female Migration 20-24	9	-.29 (.39)	-.07 (.20)	.03 (.15)	1.00	
Percent Jewish	10	-.18 (-.12)	.11 (.01)	.02 (-.01)	-.26 (-.26)	1.00
Percent Catholic	11	-.17 (.09)	-.33 (-.37)	-.22 (-.05)	.01 (.04)	.37 (.001)
Male-Median Income	12	-.05 (.05)	-.27 (-.17)	.18 (-.07)	.42 (.44)	.19 (.24)

TABLE XII--Continued

		11	12	13	14	15	16
Percent Catholic	11	1.00					
Male-Median Income	12	.24 (.26)	1.00				
Female Ed. Level	13	.03 (-.24)	.24 (-.26)	1.00			
Femaleness Ind. Level	14	.01 (.07)	-.48 (-.56)	.47 (.43)	1.00		
Percent Clerical	15	.07 (.13)	.16 (-.01)	.48 (-.08)	.34 (.10)	1.00	
Female-Median Income	16	.18 (-.22)	.44 (.15)	.48 (.09)	.05 (-.20)	.58 (.28)	1.00
Unemployment	17	.02 (.10)	.02 (.04)	.13 (.07)	.03 (.02)	-.18 (-.14)	-.21 (1.19)
Career Participation	18	-.14 (.15)	-.01 (-.08)	.75 (.57)	.52 (.03)	.51 (.26)	.31 (-.02)
Females Married 22-24	19	-.70 (-.34)	-.26 (-.13)	-.30 (-.41)	-.21 (-.01)	-.32 (-.08)	-.52 (-.12)
Females Married 25-29	20	-.63 (-.29)	-.12 (.24)	-.16 (.05)	-.22 (-.03)	-.31 (.08)	-.52 (-.37)
Fertility	21	.04 (.10)	-.15 (-.19)	-.28 (-.11)	-.18 (-.16)	-.47 (-.30)	-.49 (-.29)

		17	18	19	20	21
Unemployment	17	1.00				
Career Participation	18	.18 (.14)	1.00			
Females Married 22-44	19	.18 (.08)	-.03 (.26)	1.00		
Females Married 25-29	20	.20 (-.06)	-.01 (-.02)	.87 (.53)	1.00	
Fertility	21	.22 (-.09)	-.25 (.05)	.18 (-.14)	.22 (-.15)	1.00

opportunities for women and low fertility will be influenced by a high-median age of the population.

Population has been included in the statistical model in order to assess the influence of size of SMSA on marriage and fertility. Earlier, it was suggested that with increasing population size marriage prospects also increase and might result in a positive correlation between population size and marriage and size and fertility. But an inverse correlation could also result based on the existence of alternatives to marriage and childbearing for women in large urban areas. It appears that with increasing work opportunities for women in highly populated SMSAs, women choose work over marriage and children. The zero-order correlation between population size and the dependent variables is strong enough to assume an inverse relationship. However, when the partials are examined, two of the original relationships disappear. The strong negative correlation between population size and percentage married age 22-24 and the strong negative correlation between population size and fertility disappear. The conclusion is that the original relationships are spurious ones.

The original relationship between population size and percentage married age 25-29 does not disappear. The zero-order correlation is -.50, and the partial correlation remains at -.22. Although there is a decline in the original relationship, it does not disappear. The implication is

that in large cities women age 25-29 select work rather than marriage.

The sex ratio has a positive influence on the number of females married in an SMSA and a negative effect on female-median income. It was expected that there would be a positive correlation between the sex ratio (number of males age 25-29 to females age 22-24) and percentage married age 22-24. It was also expected that there would be a positive correlation between the sex ratio (number of males age 30-34 to females age 25-29) and percentage married age 25-29. However, the strongest positive correlation exists between the percentage of females married age 22-24 and the sex ratio defined as the number of males age 30-34 to females age 25-29. Although the strength of the partial correlation is negligible, there is a slight inverse correlation between the percentage of females married age 25-29 and the number of males age 30-34. Regardless of the advantageous sex ratio, the percentage of women who are married in the 25-29 age category is lower than the age 22-24 cohort. The negative correlation between the sex ratio and female-median income indicates that as the number of women in both age groups increases, the female-median income increases.

The inclusion of percent Black as a test variable is based on the assumption of differences in Black and white family structures. The original zero-order correlations between percentage Black and percentage married age 25-29

and percentage Black and fertility are slightly stronger negative correlations. When the partials are examined, moderately strong negative relationships surface. Although difficult to explain, it appears that in SMSAs characterized by a large Black population the percentage married age 25-29 is low and so is fertility. This relationship warrants further investigation. At this point, it is sufficient to understand that the percentage of Black population specified one of the conditions under which the relationships among work, marriage, and fertility operates.

The migration variables are introduced into the model to measure the effect of migration as an intervening variable in the original relationships. It has been assumed that structural characteristics of labor markets influence native populations. The inclusion of migration as a test variable is necessary in assessing the merit of this assumption. It was thought that selective female migration would be dominated by single women seeking work, resulting in a negative relationship between migration and marriage and migration and fertility. No such pattern emerged.

The zero-order correlations between the migration variables for both age groups and the economic opportunity variables indicate that economic factors do influence female migration patterns. There is a strong negative correlation between migration and fertility, indicating that either migration flows are predominately single women with no children

or young married women with few children. A recent publication by the Census Bureau indicates that "of women 25-34 in 1970, 14.5% of these who were ever married had made an interstate move during the previous five years, as opposed to 11.0% of the single" (1). Even though economic factors might influence female migration, the partials are too weak to be interpreted, and married women are more likely to move than single women.

As anticipated, the percent Catholic and percent Jewish are influential variables in understanding marriage and fertility patterns. The zero-order correlations between these variables and the dependent variables are impressive, and the original relationship does not disappear during partial analysis. As supported in the literature and by this data set, Catholics have a tendency to marry late, and the Jewish population marries late and has few children. When an SMSA is characterized by either a large percentage of Catholic and/or Jewish population, then the percentage married in both age groups will be low regardless of work opportunities for women, and fertility will decrease as the Jewish population increases.

The remaining control variables reflect female opportunity specialization and are necessary in a specification of the relationships between work and marriage and work and fertility. There is a strong inverse correlation between male income and the femaleness of the industrial structure

which is strengthened through the partial analysis. In SMSAs where the male income is high, the femaleness of the industrial structure is low. There is a weak negative correlation between male income and the percentage married age 22-24 and male income and fertility. This finding suggests that males with higher incomes marry late and have small families. A similar interpretation can be applied to the partial correlations between female educational level and marriage and education and fertility. In SMSAs where the female educational level is high, marriage is late and fertility is low. Areas that have a large number of women age 25-29 with one or more years of college are specialized for female industry and have a large number of women participating in male-dominated careers, as suggested by the strong partial correlation of .57 between career participation and female educational level.

Based on the strength of the partial correlations as specified, male income and female educational level are influential in understanding the relationship among women's work, marriage, and fertility. The partial correlations of .05 between female educational level and percentage married age 25-29 and .24 between male income and percentage married age 25-29 are found to be in marked contrast to the negative correlation of -.37 between female income and percentage married age 25-29. Apparently, as male income increases,

the marriage rate increases, but as the female income and educational level increases, the marriage rate decreases.

Summary of Correlational Analysis

The introduction of eight control variables (2) into the statistical analysis has substantially changed the correlation between marriage and fertility. The partials between marriage and fertility demonstrate a negative correlation, and it was hypothesized that there would be a positive correlation. Therefore, the hypothesis is not confirmed. This finding might be an artifact of the operational definitions of these two concepts. Marriage is defined specifically as the percentage of females married age 22-24 and 25-29. Fertility, on the other hand, is a cumulative score of ever-married women age 15-44. The finding might also be the result of a change in family planning. Couples are getting married and either remaining childless or having few children. The finding might also be the result of the tendency of the Catholic population to marry late and have large families and to be so disproportionately represented in the large Northeastern SMSAs.

Except for an unexpected positive correlation between career participation and percentage married age 22-24, the control variables did not substantially change the correlation among the economic variables and marriage and fertility. The hypotheses concerning a negative relationship between

occupational opportunities for women and marriage and work opportunities and fertility are accepted on the basis of a moderately strong negative partial correlation between income and percentage married age 25-29 (-.37) and income and fertility (-.29). Although there is not a strong negative correlation between percent clerical and percentage married, percent clerical and kindred does have a negative effect on fertility. These two findings give support to the argument that women age 25-29 with high incomes choose not to get married, thus lowering the fertility level. These SMSAs characterized by a large clerical pool experience no decline in the percentage married, but in these SMSAs women possibily lower their family size, since fertility decreases. Either case implies that increased occupational opportunities for women lower fertility, whether the favorable market condition is income or the existence of numerous clerical positions in the SMSA.

The following diagram (Fig. 3) represents an elaboration model of the original relationships after the test variables have been introduced.

In terms of the elaboration model, specification variables specify the particular conditions under which the original relationships hold. The diagram in Fig. 3 indicates that in SMSAs where female income is high, and specifically if there is a large Catholic population, and the sex ratio and the female educational level are high, there will

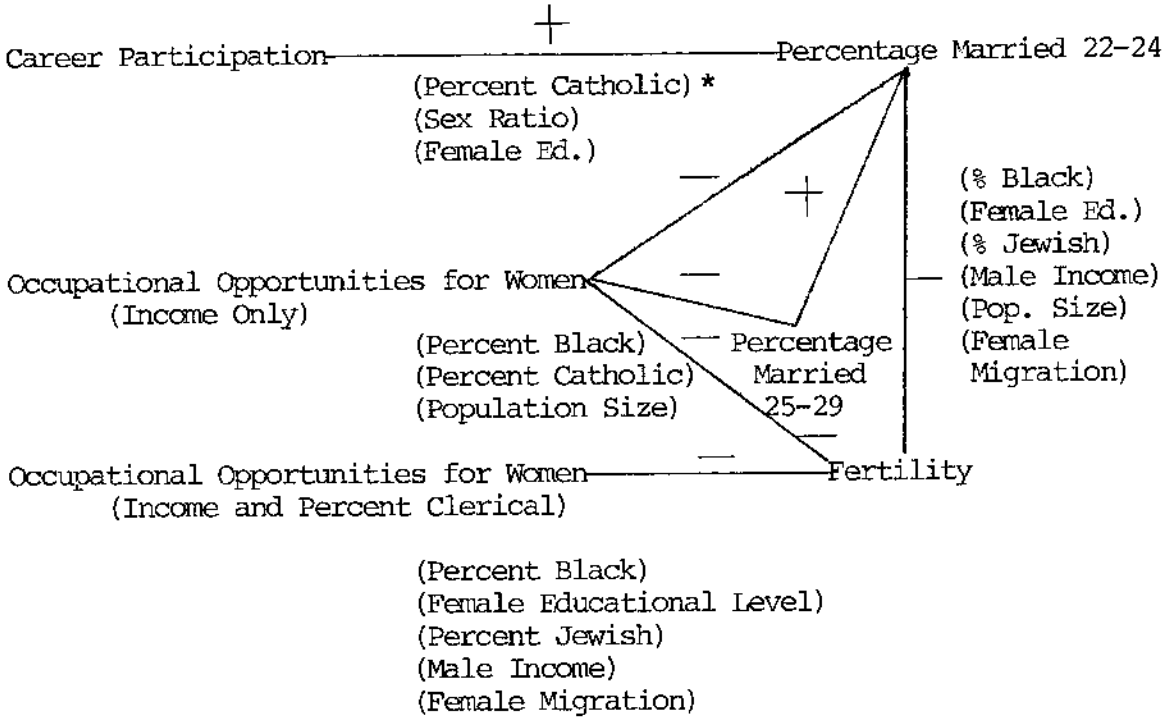

Fig. 3--An elaboration model of the relationship among occupational opportunities for women, marriage, and fertility.

*Specification variables are in parentheses.

a low percentage of females age 22-24 who are married. Also, in areas where female income is high and specifically there is a large population and large percentage of Blacks and or Catholics, the percentage of women married age 25-29 and fertility will be low. The relationship between the economic variables and fertility occurs with the presence of one or more of the specification variables listed in Fig. 3. With the addition of population size, the same set of specification variables operates between marriage and fertility. Although the original negative correlation between the economic predictors (income and percent clerical) and the marriage and fertility variables does hold, the correlation

is most likely during the simultaneous occurrence of the specified test variables.

Regression Analysis

The final hypotheses presented in this study are as follows:

H_{13} Percent clerical and femaleness of the industrial structure will explain more of the total variance of percentage married age 22-24 than career participation.

H_{14} Career participation will explain more of the total variance of percentage married age 25-29 than the percent clerical and femaleness of the industrial structure.

H_{15} Career participation will explain more of the total variance of fertility than the percent clerical and femaleness of the industrial structure.

These hypotheses can be tested through regression analysis. The regression analysis using each of the three dependent variables is demonstrated in Parts A, B, and C of the outline which follows. For each dependent variable, separate regressions are run for the economic variables; the economic and socioeconomic variables; and the economic, socioeconomic, and migration variables. Separate regressions are run in order to determine the cumulative effect of each set of variables in explaining the total variance. In the outline, the

regression coefficient is presented with the standardized regression coefficient (beta weight), and standard error of the beta weight is shown in parentheses. The regression equation variables are as follows:

Y = Fertility: cumulative number of children ever born by female per 1,000 women by SMSA, 1970.

X_1 = Femaleness of Industrial Structure: percentage of workers in an SMSA who would be female if each industry had the same percentage female as that industry for the nation as a whole.

X_2 = Median earnings for females with earnings (1970).

X_3 = Total unemployment rate, April 1970.

X_4 = Percentage of jobs in an area that are classified as clerical or kindred (1970)

X_5 = Percentage Catholic in SMSA (1970)

X_6 = Percentage Jewish in SMSA (1971)

X_7 = Sex Ratio: ratio of number of males aged 25-29 to females aged 22-24 (1970)

X_8 = Number of inhabitants in SMSA (1970)

X_9 = Ratio of number of females aged 20-24 in 1970 to females aged 10-14 in 1960: Female Migration.

X_{10} = Median earnings for males with earnings, 1970.

X_{11} = Percentage of females aged 25-29 with one or more years of college.

X_{12} = Percentage of the population classified as Black (1970)

X_{13} = Ratio of numb er of males aged 20-24 in 1970 to males aged 10-14 in 1960, and a ratio of female to male migration by subtracting X_9 from X_{13}: Selective female migration.

X_{14} = Career Participation: the percentage of females in male-dominated professions by the total female labor force in an SMSA (1970).

All of the above variables apply to Part A, Part B, and Part C; only Y differs each time; hence, only Y will be footnoted after Part B and Part C.

PART A: Percentage Married 22-24, Predicted by Three Sets of Variables, 100 Largest SMSAs: United States, 1970.

1. Economic opportunity variables only:

$$Y = -1.3866X_1 \underset{(.35,\ .10)}{} -0.0107X_2 \underset{(-.19,\ .11)}{} +1.3610X_{14} \underset{(.37,\ .11)}{} +141.69$$

$R = .62 \qquad R^2 = .39$

2. Economic opportunity and socioeconomic variables:

$$Y = -.0047X_2 \underset{(-.26,\ -.08)}{} -.2361X_5 \underset{(-.58,\ .06)}{} -0.4166X_6 \underset{(-.19,\ .08)}{}$$

$$+.0858X_7 \underset{(.11,\ .06)}{} +0.0006X_{10} \underset{(.09,\ .08)}{} -0.4274X_{11} \underset{(-.43,\ .11)}{}$$

$$-0.1106X_{12} \underset{(-.15,\ .06)}{} +1.1746X_{14} \underset{(.32,\ .09)}{} +79.334$$

$R + 8925 \qquad R^2 = .7965$

PART B: Percentage Married 25-29, Predicted by Three Sets of Variables, 100 Largest SMSAs: United States, 1970.

1. Economic opportunity variables only:

$$Y^* = \underset{(-.38,\ .10)}{-0.8361X_1} \quad \underset{(-.61,\ .10)}{-0.0061X_2} \quad \underset{(.28,\ .11)}{+0.7812X_{14}} \quad +127.55$$

$R = .63895 \quad R^2 = .40826$

2. Economic opportunity and socioeconomic variables:

$$Y = \underset{(-.36,\ .08)}{-0.0036X_2} \quad \underset{(-.56,\ .06)}{-0.1259X_5} \quad \underset{(-.16,\ .08)}{-0.1952X_6}$$

$$\underset{(.09,\ .05)}{+0.0637X_7} \quad \underset{(0.14,\ .08)}{-0.0000X_8} \quad \underset{(.20,\ .08)}{+0.000X_{10}}$$

$$\underset{(-.16,\ .11)}{-0.0896X_{11}} \quad \underset{(.23,\ .06)}{-0.0932X_{12}} \quad \underset{(.19,\ .09)}{+0.4079X_{14}} \quad +92.634$$

$R = .88530 \quad R^2 = .7838$

3. Economic opportunity, socioeconomic, and migration variables:

$$Y = \underset{(-.37,\ .08)}{-0.0037X_2} \quad \underset{(-.57,\ .06)}{-.01288X_5} \quad \underset{(-.17,\ .08)}{-.01964X_6}$$

$$\underset{(.07,\ .06)}{+0.0525X_7} \quad \underset{(-.15,\ .08)}{-.0.000X_8} \quad \underset{(.22,\ .09)}{+0.0008X_{10}}$$

---

*Y = Percentage of women aged 25-29 who have ever married by SMSA (1970).

$$-.0899X_{11} \quad -0.0960X_{12} \quad +0.3554X_{14}$$

$$(-.16, .11) \quad (-.24, .06) \quad (.17, .10) \quad +91.668$$

$R = .8869 \quad R^2 = .7865$

PART C: Fertility, Predicted by Three Sets of Variables, 100 Largest SMSAs: United States, 1970).

1. Economic opportunity variables only:

$$Y^* = -0.1596X_2 \quad -16.8667X_4$$

$$(-.33, .11) \quad (-.23, .12) \quad +3365.1$$

$R = .55754 \quad R^2 = .31085$

2. Economic opportunity and socioeconomic variables:

$$Y = -0.1110X_2 \quad -20.5165X_4 \quad +2.8559X_5$$

$$(.23, .13) \quad (-.29, .12) \quad (.26, .10)$$

$$-25.6034X_6 \quad +0.0000X_8$$

$$(-.44, .12) \quad (.18, .13) \quad +3371.5$$

$R = .64757 \quad R^2 = .41935$

3. Economic opportunity, socioeconomic, and migration variables:

$$Y = -0.0919X_2 \quad -19.9186X_4 \quad +2.1078X_5 \quad -27.2216X_6$$

$$(-.19, .13) \quad (-.28, .12) \quad (.19, .10) \quad (-.47, .13)$$

$$+0.000X_8 \quad -209.5284X_9 \quad -120.7523X_{13}$$

$$(.13, .13) \quad (.26, .11) \quad (-.14, .11) \quad +3579.1$$

$R = .68315 \quad R^2 = .46669$

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*Y = Fertility: Cumulative number of children ever born by female per 1,000 women by SMSA, 1970.

The hypothesis that percent clerical and femaleness of the industrial structure will explain more of the total variance of marriage age 22-24 is not supported by regression analysis. Of the economic opportunity variables, female median income explains more of the variance of marriage age 22-24. The beta weight is -.5919 with a standard error of only .1139. Of the remaining economic variables, career participation has the highest beta weight (.3667) with a standard error of .1104. The beta weight of the femaleness of the industrial structure is almost as large as that of career participation (.3503) with a standard error of .0973. Percent clerical has the least predictive ability of marriage age 22-24, as the standard error is larger than the beta weight. The importance of career participation, the femaleness of the industrial structure, and the percent clerical as predictors of female marriage age 22-24 is that they operate in a positive direction marriage. Apparently, these three economic variables do not act as deterrents to marriage in SMSAs.

The hypothesis that career participation will explain more of the total variance of percentage married age 25-29 than percentage clerical and the femaleness of the industrial structure is not confirmed. Again, income explains more of the variance and is a better predictor of marriage for this age group. However, there is very little difference in the beta weights of the femaleness of the industrial structure

(-.3823) with a standard error of .0956 and career participation (-.3819) with a standard error of .1085. As a result, career participation is nearly as important a predictor of marriage age 25-29 as the femaleness of the industrial structure.

The hypothesis that career participation will explain more of the total variance of fertility than the percent clerical and femaleness of the industrial structure is not confirmed. Of the economic variables, income is the best predictor with a beta weight of -.3285, and career participation did not even enter into the regression equation as its predictive ability is less than .00001.

It is possible to explain more of the total variance of marriage than fertility. When percentage married age 22-24 is dependent, the inclusion of the control variables doubles the total variance explained. The variance changes from R^2 = .39 using only the economic predictors to R^2 = .80 with the introduction of all of the test variables. The pattern is essentially the same when percentage married age 25-29 is dependent. However, when fertility is dependent, the inclusion of all test variables changes the variance explained from R^2 = .31 to only R^2 = .47, certainly not as substantial a difference as the change in variance explained when marriage is dependent. It appears, at least from this data set, that economic factors are more influential in explaining marriage than in explaining fertility.

Of the economic indicators, income has the higher predictive ability. When the dependent variable is the percentage married age 22-24, a $1,000 increase in female-median income results in a 10.7 percent decrease in marriage in this age group. A $1,000 increase in female-median income results in a 6.1 percent decrease in the percentage married age 25-29. Both of these findings tend to support the hypothesis of a negative correlation between occupational opportunities for women and the percentage married in SMSAs.

To a lesser extent than income, the femaleness of the industrial structure and percent clerical act as predictors of marriage and fertility. A comparison of the standardized regression coefficients (beta weights) indicates that the percent clerical is second only to income among the economic variables in predicting fertility, and the femaleness of the industrial structure follows income in its ability to predict the percentage married.

Of the socioeconomic variables, the percent Catholic in an SMSA is the best predictor of marriage. A ten percent increase in the Catholic population leads to a 2.4 percent decrease in percentage married age 22-24. When the dependent variable is percentage married age 25-29, a ten percent increase in the Catholic population leads to a 1.3 percent decrease in marriage. These findings are as expected and verify a positive correlation between the percent Catholic in an area and late marriage, and the correlational finding

in this case is supported with data collected at the individual level (3).

Fertility can most accurately be predicted by knowing the percentage of the Jewish population in an SMSA. For every one percent increase in the Jewish population, there is a predicted decrease in fertility of 25.60, and the standard error is less than three times the beta weight for this predictor. For each $1,000 increase in female-median income, there is a predictor decrease in fertility of 159.60.

Migration serves as a precaution against a spurious negative relationship between marriage and employment opportunities. If all of the structural factors operate through migration, then the coefficients of these variables should be substantially reduced when migration is introduced into the regression analysis. However, when introduced into the analysis of each dependent variable, none of the coefficients of structural characteristics changes greatly. In fact, the variable measuring selective female migration has a beta weight of .06 or less and an even larger standard error in each case. Therefore, it appears that the structural characteristics of economic opportunities for women (income specifically) operate on the "native" population and tend to reduce marriage and fertility.

Although the percentage married by SMSA has been utilized in regression analysis as a dependent variable, it has also been used as a control variable during the regression

analysis of fertility. It has been suggested in Chapter I that fertility might be low in an SMSA because marriage is late in that area. If that is the case, there should be a strong positive correlation between marriage and fertility. The zero-order correlations are weak (.18 age 22-24 and .22 age 25-29), the partials are in the wrong direction (-.14 age 22-24 and -.15 age 25-29), and the contribution of the percentage married in explaining fertility is negligible. It would seem that a positive correlation should exist between these two variables, but as suggested in the discussion of the correlational analysis, the finding might be an artifact of the operational measures. The regression analysis does support the partial analysis that the percentage married by SMSA is not influential in understanding levels of fertility. Certainly the reverse direction of the sign during the partial analysis bears further investigation.

Before presenting a summary of the findings, a word of caution is warranted in the interpretation of the findings. It has already been mentioned during the discussion of specific findings that without representative national data at the individual level some of the implications of the correlational and regression analyses cannot be confirmed. National data at the individual level do support the findings concerning the correlations among religion, marriage, and fertility (1, 5) and female income and marriage (2). The major findings of this study are supported by the earlier work utilizing

individual data. In other words, rather than an ecological correlation, Catholics do marry late, and upper-income females do marry less frequently than middle- or lower-income females. However, findings of this study do remain that possibly are ecological correlations and must be interpreted as such.

Additional caution is exercised in the interpretation of the findings. Causality has not been established with this synchronic data set. But several highly suggestive correlations have been established concerning the relationship among work, marriage, and fertility.

Summary of Findings

There is a negative correlation between occupational opportunities for women and the percentage married by specific age groups and a corresponding negative correlation between work opportunities and fertility. Specifically, female-median income appears to act as a deterrent to marriage and fertility. Career participation does not compete impressively in explaining the variance of marriage or fertility. In fact, career participation is positively correlated with the percentage married in the 22-24 age group. As such, this indicator does explain part of the total variance when introducing economic variables only, but in the wrong direction.

The inclusion of the control variables helps to refine the original relationships. The inclusion of the religious variables is justified, not only a priori, but the data support their importance in understanding marriage and fertility. Population size has been included, since its effect could act in either direction. Large cities could either offer a larger marriage pool to select from or provide greater alternatives to marriage. The partials indicate that population size has a negative effect on marriage in the 25-29 age group, but not on fertility, which might illustrate the heterogeneity of lifestyles found in large populations. The inclusion of the migration variables did not significantly alter any of the regression coefficients. Originally, it was thought that female in-migration would be dominated by young single women seeking occupational opportunities. In fact, it has been illustrated that young married women are more likely to make interstate moves than young single women. Therefore, it is possible that favorable job markets operate on the local population.

Considering the hazards inherent in predicting from ecological data, predictions can be suggested. One might expect that as the sex ratio increases by .10 percent, the percentage of females married age 22-24 increases by .01. In the 25-29 age group, a .10 percent increase in the sex ratio leads to an increase of .01 in the percentage married. One might also expect from an ecological perspective that a high

female educational level does delay marriage and decrease fertility levels as does the percentage of Blacks in an SMSA.

When economic opportunities are favorable to both men and women, men apparently can afford marriage, and women apparently can afford not to get married. Although there is a weak negative correlation between male earnings and percentage married age 22-24, this is probably a reflection of a tendency toward late marriage which surfaces in a moderately strong positive correlation between male earnings and the percentage of women married age 25-29. When compared to the negative effect that female income has on marriage and fertility, the implications for the future of the American family are profound.

CHAPTER BIBLIOGRAPHY

1. Broom, Leonard and Betty Maynard, "The Jewish Family," unpublished paper, Department of Sociology, University of Texas, Dallas, 1973.

2. Havens, Elizabeth Maret, "Women, Work and Wedlock," Changing Women in a Changing Society, edited by Joan Huber, Chicago, University of Chicago Press, 1971, pp. 213-219.

3. United States Bureau of the Census, Migration, Special Report, P-4 Series, Washington, D.C., United States Government Printing Office, 1970.

4. Preson, Samuel, "Women's Work Opportunities and Marriage Rates, Demography, 12 (May, 1975), 209-222

5. Ryder, Norman B. and Charles F. Westoff, Reproduction in the United States, Princeton, Princeton University Press, 1971.

CHAPTER V

INTERPRETATION OF FINDINGS

The theoretical approach of this study is that societal rewards, either economic or social-psychological, influence fertility. Several hypotheses have been generated from this general position. The objective has not been to investigate the social-psychological rewards of marriage and family, but to analyze economic correlates of marriage and fertility.

There is convincing support in the literature by Bowen and Finegan in 1970, Kreps in 1972, and Oppenheimer in 1971 (2, 8, 9) that a negative relationship between labor-force participation and fertility exists. It is time now to refine our understanding of this phenomenon and to determine the conditions under which this relationship is most likely to occur. The major contribution of this study is in the specification of conditions under which the negative relationship among work, wedlock, and fertility occurs. The interpretation of the findings is divided into three parts: (1) a discussion of the findings of this study that are supported by other studies with data collected at the individual level, (2) ecological correlations and their implications, and (3) a conclusion including predictions for the future, implications for policy makers, and suggestions for future research.

Interpretation of Findings Supported with Data Collected at the Individual Level

The finding that there is a negative relationship between female income and marriage is supported with data by Havens (7) collected at the individual level. One of the major conceptual arguments of the current study is that labor-force participation per se will not necessarily lower fertility and certainly not marriage rates. Women can work in light industry or clerical positions after childbearing has been completed. On the other hand, if a career is planned, then the quality of women's labor-force participation may delay marriage and reduce fertility, or eliminate marriage and fertility altogether. As operationalized in this study, i.e., proportion of total female-labor force in male-dominated professions, career participation does not influence marriage and fertility. Logically, it would seem that the concept and inferred relationship is sound. Several interpretative statements can be made concerning the lack of a relationship found between career participation and fertility. Perhaps income is an indicator of career participation. Of the structural characteristics--economic indicators--income is by far the best predictor of marriage and fertility.

Income is an objective measure, but it implies subjective or interactional characteristics of SMSAs. In the literature concerning power structures, one important factor influencing the diffuseness of power in a community is the

size of minority populations in the area (4). The implication is that a large minority population exerts pressure on monolithic structures as they vie for power in decision-making at the interactional level. As a result, a structural characteristic (a diffuse power structure) results from a characteristic of population composition. A similar interpretation might be applied to the relationship between female-median income and the sex-ratio as discovered in this study. A positive correlation exists between these two variables; as female-median income increases, the number of women age 25-29 increases. As the number of women in an area increases, more women will be in the labor force in some capacity, placing a tension on decision-making structures affecting their income. As a result, a structural characteristic such as female income might result from the interaction of a demographic characteristic (sex ratio) with the job market. Income is money, but an SMSA characterized by a high female-median income might imply career involvement on the part of the women living there.

It is also possible that with a 1970 data set women have not yet moved into male-dominated careers, and as a result it is too soon for career participation to be a strong predictor of marriage and fertility. With a 1980 data set, the effects of career participation might reveal a stronger relationship with the dependent variables. The strong pro-natalist socialization in this society means that women perceive few

alternatives to marriage and childbearing. Even if women do seek a career, societal support for mothering far outweighs societal support for non-mothering roles. The result is the working-wife/mother often portrayed in the media as the "perfect manager." Seeking not to alienate potential disciples, even the thrust of the feminist movement has been toward a "do both" philosophy. In fact, one might view the institution of marriage as intervening on behalf of parenthood or simply an expression of the desire for children. Meaningful alternatives to motherhood conceptualized as career participation have not surfaced by 1970.

Since income is the strongest of the economic predictors, it does lower fertility, but probably through marriage. The strongest partial correlation among all of the economic indicators and the dependent variables is the negative relationship between income and the proportion of females married in the 25-29 age group. The negative relationship between income and proportion married age 22-24 is only one-third the strength, but the percentage of clerical and kindred and income exert equal strength in their effects on fertility. The implications of these findings tend to suggest the choice of career participation over marriage in the 25-29 age group and the choice of marriage over a career in the 22-24 age group.

The findings of this study suggest that at least two types of working women exist. As illustrated by the Havens'

study in 1971 (7), marriage consistently declines with increasing income. Thirty-seven percent of all professional, technical, and kindred female workers are unmarried. Fifty-six percent of all female college professors, instructors, and nec (not elsewhere classified workers) classified in 1960 are unmarried. The women in these occupational categories who are unmarried might be described as career participants. Only twenty-five percent of these classified as clerical and kindred and who have yearly earnings much less than the professional groups are unmarried. These women might be described as a clerical force.

Income acts as a deterrent to fertility for both groups but in different ways. In the clerical group, which is assumed to be the 22-24 age group since this group is too young to have achieved a career, income is low and does not lower fertility, but labor-force participation does. From the theoretical perspective of this study, one can imply that the economic rewards of childbearing are negative, due to the negative correlation between percent clerical and fertility, but the social-psychological rewards of childbearing are positive. There is a very weak negative correlation between percent clerical and percentage married age 22-24 (-.08), but a stronger negative correlation between percent clerical and fertility (-.30). If marriage is an expression of motherhood, then a comparison of these two correlations implies that clerical workers limit their family size but

possibly receive social-psychological rewards from the motherhood role.

Career participants appear to avoid the marriage role altogether. If marriage is an expression of motherhood, then possibly this group receives neither economic nor social-psychological rewards from anticipated childbearing. If career aspirations cannot be combined with marriage and its incumbencies, then marriage and a family is the cost of a career.

Apparently economic independence for women fosters the decision not to marry. As mentioned in Chapter I, Kingsley Davis (5) has interpreted a decline in average age at first marriage as the result of increased occupational opportunities for women. Couples don't have to wait to get married but can afford an early marriage based on the availability of work opportunities for women. The assumption is that early marriage is possible since males can afford additional responsibilities if their wives are working. But if males can now afford marriage, increased occupational opportunities for women means that women can now afford not to get married. This decision might be based on the females' knowledge of the prevailing division of labor within the family, or a lack of integration of familial and occupational roles. Receiving very little institutional support for restructuring the husband-wife dyad, economic independence means that women can afford not to get married. Also, Havens (7) found a

positive relationship between male income and marriage. With little strength, but in the right direction, the finding of this study concurs. If occupational opportunities for women reduce the age at first marriage, then there should be a positive correlation between female income and the percentage married. The findings of this study do not support this assertion. On the contrary, female income has a negative effect on marriage, while male income has a slight positive effect on marriage. The interpretation given these two correlations is that, with increased occupational opportunities for women, men can afford marriage, women can afford not to marry.

Of the socioeconomic indicators, religion is the best predictor of marriage and fertility. This finding can also be interpreted from a rewards perspective. Westoff and Ryder (10) found that Catholics do marry late but have larger families. In the urban setting, the economic costs of children are negative, but given the values of the Catholic religion, social-psychological rewards for childbearing are positive. A Catholic farming community might have a higher fertility level than a concentration of the Catholic population in an urban setting.

Also supported with data collected at the individual level, Jewish families have fewer children, according to Broom and Maynard (4). The Jewish people value achievement, and this value is reflected in various ways. The Jewish

population is disproportionately represented in higher education, the professions, and upper-income categories. Preference for small family size is congruent with specific success values. Since the Jewish community is predominately urban, the economic rewards of children are negative. Although one can assume that social-psychological rewards are attached to motherhood, a large family would jeopardize the prevailing success goal.

Sub-societies within the dominate societal network can be viewed from a rewards analysis. The Amish female fits the criteria of economic and social-psychological rewards from childbearing. The economy is agriculture, so an increasing number of children provides economic rewards to the household. Congruent with the economic benefit, the culturally approved adult role for women is motherhood. Although not accurately described as a sub-society, childless couples are a statistical category that apparently finds neither economic nor social-psychological rewards for childbearing. The assumption could be made and frequently is that couples are childless because something is "wrong" with one or both, and that they cannot have children. An equally plausible explanation is that a number of these couples see no positive reward in having children according to Blake (1). If the female in the relationship has a career, perhaps she purposely seeks a marriage partner with similar views concerning a family and her anticipated career objectives. If the

career participant is not able to find a partner who can support her views concerning the negative rewards of child-bearing, possibly she remains single as a safeguard to her professional objectives.

Participation in clerical and kindred positions appears to lower fertility, but female career participation appears to lower the marriage rate. In spite of the findings of this study that are supported with studies using data collected at the individual level, correlational studies demonstrate a wide variance in the negative effects of income on fertility. One of the contributions of this study is that the findings clarify this variance and may be interpreted within an ecological framework.

Ecological Correlations

Since migration variables do not substantially change the regression coefficients of the economic and socio-economic variables, we assume that structural characteristics operate on the local population. However, this finding must be interpreted with caution due to the problem of boundary line divisions.

The four type 1A SMSAs will be used to demonstrate the consequences of boundary lines. Washington, D.C., New York, San Francisco, and Honolulu share similar geographical features and/or a scarcity of land which causes the cost of land to be much higher than in most other SMSAs. In fact,

each of these SMSAs is an island--either geographical or political--which might characterize them as underbounded SMSAs.

As population density increases and property values go up in 1A SMSAs, commuting patterns expand. Coupled with perceived dangers in densely populated central cities, young couples with growing families move further away from the city in search of suburban development. Still tied economically and socially to the SMSA, they have moved beyond its boundaries. As a result, the fertility level of the SMSA is lower. Those who remain within the boundaries of 1A areas are those who can afford it: upper-income groups, the single, and the childless. The low marriage and fertility rates of 1A types might be a function of the underbounded nature of the SMSA.

In spite of the boundary-line-division problem that affects the interpretation of the findings, the current study provides interpretations of the wide variance in the negative correlation between income and fertility. Although existing studies consistently report a negative correlation between income and fertility, the variance in the findings is so wide as to suggest that other variables are influencing the relationship. As illustrated in Chapter I, from the Gibbs and Havens' (6) article, the following table demonstrates the variation in the negative correlations reported in other studies. The current study's use of the typology

and an understanding of the influential control variables will help clarify the correlations and refine the interpretation of the variation in the findings from other studies.

The extreme range of correlations in Table XIII can be interpreted in this way. The lowest correlation in the table is -.25 resulting from a universe of nine Northeastern states. The findings of the current study illustrate that the Catholic population is concentrated in the Northeast and demonstrates a positive correlation with fertility. The Boston SMSA alone is 69 percent Catholic, New York City is 36 percent, Syracuse is 44 percent, and Jersey City is 59 percent Catholic. The universe in this case includes a concentration of the Catholic population which influences the weak negative correlation between income and fertility.

The concept of femaleness of the industrial structure clarifies another of the low correlations. Type 3C SMSAs are without exception located in the North Central states and demonstrate the highest fertility of all types. In Table XIII, the correlation of -.29 is based on a universe of the North Central states which is characterized by male-dominated industry, low-income levels for females, and high-marriage rates and fertility levels. As a result, any time the population of a study includes the North Central states, the correlation between labor-force participation and fertility will be affected by the male-dominated industry in this region.

TABLE XIII

CORRELATIONS BETWEEN FEMALE LABOR FORCE PARTICIPATION RATES AND FERTILITY RATES IN 19 UNIVERSES OF TERRITORIAL DIVISIONS IN THE UNITED STATES*

No.	Universes of Territorial Divisions	Rank Order Coefficient of Correlation Between Percentage of Females (14 and over) in the Labor Force and Number of Children Ever Born to Females per 1,000 Females of Ages 15-44
I.	51 states, 1960	-.59
II.	9 states, Northeast, 1960	-.25
III.	12 states, North Central, 1960	-.52
IV.	17 states, South, 1960	-.51
V.	13 states, West, 1960	-.70
VI.	54 SMSAs of 249,999, North, 1960	-.56
VII.	29 SMSAs of 249,999, South, 1960	-.43
VIII.	18 SMSAs of 249,999, West, 1960	-.34
IX.	101 SMSAs of 249,999, 1960	-.54
X.	24 SMSAs of 999,999, 1960	-.27
XI.	29 SMSAs of 500,000 to 999,999, 1960	-.60
XII.	48 SMSAs of 500,000 to 999,999, 1960	-.50
XIII.	89 SMSAs of 100,000 to 249,999, 1960	-.50
XIV.	22 SMSAs of less than 100,000, 1960	-.48
XV.	49 states, 1950	-.69
XVI.	9 states, Northeast, 1950	-.48
XVII.	12 states, North Central, 1950	-.29
XVIII.	17 states, South, 1950	-.46
XIX.	11 states, West, 1950	-.56

*Gibbs and Havens, 1975 (6)

Another finding of this study illustrates that population size affects fertility. One of the stronger of the negative correlations in XI (-.60) can be interpreted by understanding the influence of population size on fertility. The correlation of -.60 is based on a definition of the universe which includes twenty-nine SMSAs of a population of 500,000 to 999,999. The population size of these SMSAs is larger than the population size of most of the other SMSAs used as a universe. In one case there is a negative correlation of -.27 when the universe includes twenty-four SMSAs with a population of 999,999. The low correlation (-.27) appears to be an exception to the influence of population size on fertility, but the geographical location of the SMSAs in this universe is unknown from the information in this table. If these SMSAs are located in the Northeastern states where the Catholic population is concentrated, it is possible that religion influences the weak correlation between labor-force participation and fertility. Without knowing the specific location of these SMSAs, it is not possible to interpret such a weak correlation.

The strongest of the negative correlations in Table XIII (-.70) is based on a definition of the universe which utilizes thirteen Western states. This correlation can also be interpreted based on the findings of this study. If the universe includes states that are predominately urbanized into a few large population centers, the fertility level will

be lower than if the universe includes states with a predominately rural population. Several of the Western states might be described as being predominately urban. California's population is concentrated in large urban areas, and San Francisco is one of the 1A SMSAs which might influence the strong negative correlation found when the universe includes Western states. In addition, on the average, there is a lower percentage of females married age 22-24 and 25-29 in SMSAs located in Western states. The strong negative correlation of -.70 might be influenced by the low percentage of females married in SMSAs located in Western states.

The typology and introduction of control variables illustrates that a definition of the universe influences the findings and is in part responsible for the wide variation in the negative correlations. If the universe is composed of SMSAs or states in the Northeast, the correlation between labor-force participation and fertility will be influenced by the large Catholic population in this region. If the universe is composed of states in the North Central area, the correlation will be influenced by the male-dominated industry of this region. If the universe consists of Western SMSAs, the correlation will be influenced by the low percentage of females married in this region. If the universe is composed of large SMSAs and/or predominately urbanized states, the correlation will be influenced by population size. The findings of the current study clarify and refine existing

knowledge concerning the negative correlation between labor-force participation and fertility.

Two of the ecological correlations resulting from the present study that are the most puzzling can be interpreted from the standpoint of urban heterogeneity. A positive-partial correlation (.26) between career participation and percentage married age 22-24 possibly reflects the heterogeneity of life styles found in the urban setting. In many cases, the SMSA reaches out and incorporates large suburban development. Borrowing from land-use models, familism increases in a gradient pattern moving out from the central city. The center of the city is more often the home of singles and childless couples. The move to the suburbs occurs as family size increases or different stages in the life cycle develop. Within the boundary of the SMSA, it would be possible to find a high percentage of single career women living in the central city and high marriage rates continuing in the suburbs. And if the SMSA is over-bounded, the complication of including rural-urban distinctions is aggravated. Of course, one interpretation could be that career women are getting married and remaining childless.

The negative correlation between percentage married and fertility can be interpreted from the under-bounded concept as described earlier. Land values increase with population density forcing families beyond the SMSA boundary in search of cheaper housing and better living conditions for their

children. At the same time, at least one parent and maybe both parents make the journey to work each day in the densely populated SMSA. Obviously, the economic rewards of childbearing are negative in the central city, and the move to the suburbs might be an expression of the positive social-psychological rewards attached to childbearing. In fact, the physical structure of the city itself dictates a "no children allowed" environment. As a result, there is a concentration of singles and childless couples living within the SMSA which distorts the effect of structural characteristics operating on the area population. This phenomenon leads to findings that are difficult to interpret or that strain our conception of logical cause-and-effect relationships. The negative correlation between percentage married and fertility is a good example of the frequently unusual nature of ecological correlations, and it serves as a reminder of the need to avoid the ecological fallacy.

Any time an urban setting is the home of a large percentage of Catholics, Jews, and Blacks, female-median income is high and the industrial structure for females is generally favorable; these combined effects will influence marriage rates and fertility levels. The test variables in this study are the socioeconomic characteristics of urban population heterogeneity.

Conclusion

Extrapolating from the data, predictions can be made concerning the relationship among work, marriage, and fertility; implications for policy makers can be derived from the predictions; and suggestions for future research are based on the assumption of a continuing trend for female career participation.

Predictions and Implications for Policy Makers

If career salience competes successfully with traditional roles for women, then fewer women will marry and fewer married women will have children. The findings of this study demonstrate a positive-partial correlation between female educational level, career participation, and female-median income. Considering current trends in female education and the emphasis on expanding career choices, the negative correlation among income, marriage, and fertility suggests that a greater selection of alternatives to motherhood might lower fertility. However, the data set used in this study indicates that the decline may occur only among urban, highly educated, and better-than-average-income women. Whether a declining fertility level for this select group will decrease fertility generally is problematic.

Career participants are a small statistical category, and this group will not have children to socialize into their value system. They will die off without replacement.

Replenishing their numbers depends on a new cohort with the same values. Unless pronatalist policies are silenced, the economic and social-psychological rewards of remaining childless will go unnoticed.

If pronatalist policies do not subside and lower fertility, the urban environment will continue to place limitations on family size. It has been emphasized that Type 1A SMSAs place financial strains on families, forcing them beyond the area boundary in search of cheaper housing. Some day there may be no escape. Eventually, the price of housing might force couples to remain childless. The negative economic rewards could become so pervasive that social-psychological rewards would no longer be a consideration. The costs of food, housing, medical care, and education could price children out of the market.

Similar to the implications of the demographic transition theory where the assumption is that, with increased levels of industrialization, fertility rates will drop, one can also assume that, with the rising cost of living, fertility rates will drop. But this is a dangerous and risky assumption if your objective is population policy in the United States. The assumption indicates that policy makers can wait on inflation to lower fertility. Rather than wait for the cost of living to decrease fertility, a more consistent and direct approach is necessary.

The implication of this study is that higher income for females is an alternative to motherhood and does lower fertility. This finding is not necessarily useful unless there is a decision-making body from which policy emanates. At this point, there is no such organization that formulates comprehensive population policy. Through indirect means there are groups whose objectives influence women's income. Interest groups have formed whose primary goal is to promote women's issues and causes. Although their objective might be to eliminate income inequality for women, indirectly perhaps these groups might foster the decision of women not to get married. Whatever can be done to eliminate discriminatory barriers to female employment and earnings has the potential for creating tension between pronatalist and antinatalist practices. The result might lead to an acceptance of childlessness as an appropriate life style for women.

Suggestions for Further Research

Several of the findings of this study need to be monitored with each dicennial census. With a 1980 data set, the correlations between income and marriage and income and fertility should be analyzed; female migration should be investigated; and an interactional study of the Jewish family is warranted. An attitudinal study of single women and childless couples would reveal the decision-making process leading to nonfertility, cross-cultural utilization of the economic-

social-psychological model could be enacted, and continuing efforts to investigate the career participation of American women should be encouraged.

Further correlational studies need to be conducted so as to monitor the relationship among income, marriage, and fertility. If with a 1980 data set the negative correlation among these variables holds, then a pattern beginning at least in 1950 and supported by the findings of the present study has been substantiated.

It would seem that as women become better educated, remain single, and move into career positions their mobility rates will increase. Even if structural characteristics operate through migration, the United States is a closed system to the extent that structural characteristics at the societal level operate on American women. As a result, one could still claim that structural characteristics such as economic factors influence local populations.

Since the Jewish family, single women, and childless couples are prototypes of low-fertility groups, a panel study of each of these groups could investigate the decision-making process that leads to lower fertility. If a 1980 data set reveals a negative correlation between income and fertility, a panel study might reveal the extent to which institutions, role models, peer groups, and the mass media socialize women into preferring few children or childlessness.

A cross-cultural analysis of economic and social-psychological rewards contributing to fertility might be used to evaluate social change. As societies become industrialized, the assumption is that economic rewards for childbearing are negative, and the result is lower fertility. Yet, in some societies undergoing rapid industrialization, such as several Latin American and African nations, fertility levels remain high. The assumption is in some cases that the widespread use of contraceptives cannot be successfully implemented because social-psychological rewards for childbearing prevail throughout the culture. To the extent that social-psychological rewards for childbearing diminish, social change is said to have occurred.

But a complication exists in some societies where there might be political rewards attached to childbearing. This dimension of a rewards structure would have to be explored prior to utilizing the reward spectrum as a measure of social change.

Career participation as operationalized in this study did not materialize as a predictor of marriage and fertility; however, the concept is sound. The outcome of this study implies that the operational definition is in question. The concept as measured should be investigated with a 1980 data set. If women choose a career as an alternative to marriage, then fertility will decline. If women choose a career in

addition to marriage, then alternatives to traditional sex-role relationships will create a new group of pioneers.

CHAPTER BIBLIOGRAPHY

1. Blake, Judith, "Coercive Pro-natalism and American Population Policy," Commission on Population Growth and the American Future, Vol. VI, Aspects of Population Growth Policy, edited by Charles F. Westoff and Robert Parke, Jr., Washington, D.C., United States Government Printing Office, 1972, pp. 85-108.

2. Bowen, William G. and T. Aldrich Finegan, The Econoomics of Labor Force Participation, Princeton, Princeton University Press, 1969.

3. Broom, Leonard and Betty Maynard, "The Jewish Family," unpublished paper, Department of Sociology, University of Texas, Dallas, 1973.

4. Dahl, Robert A., "Who Governs," The Search for Community Power, edited by Willis D. Hawley and Frederick M. Wirt, New Jersey, Prentice-Hall, Inc., 1968, pp. 93-114.

5. Davis, Kingsley, "The Sociology of Demographic Behavior," Sociology Today: Problems and Perspectives, edited by Robert Merton, Leonard Broom, and Leonard S. Cottrell, New York, Basic Books, 1959, pp. 309-333.

6. Gibbs, Jack and Elizabeth Maret Havens, "The Relation Between Female Labor Force Participation and Fertility: A Theory of Variability," Sociological Methods and Research, 3 (Feb. 1975), 258-290.

7. Havens, Elizabeth Maret, "Women, Work and Wedlock," Changing Women in a Changing Society, edited by Joan Huber, Chicago, University of Chicago Press, 1971, pp. 213-219.

8. Kreps, Juanita, Sex in the Marketplace, Policy Studies in Employment and Welfare, edited by Sar A. Levitan and Garth L. Mangum, Baltimore, John Hopkins University Press, 1971.

9. Oppenheimer, Valerie Kincaid, "Demographic Influence on Female Employment and the Status of Women," American Journal of Sociology, 78 (1973), 946.

10. Ryder, Norman B. and Charles F. Westoff, Reproduction in the United States, Princeton, Princeton University Press, 1971.

BIBLIOGRAPHY

Books

Beshers, James, Population Processes in Social Systems, New York, The Free Press, 1967.

Bogue, Donald J., Principles of Demography, New York, John Wiley and Sons, 1969.

Bowen, William G. and T. Aldrich Finegan, The Economics of Labor Force Participation, Princeton, Princeton University Press, 1969.

Churches and Church Membership in the United States, edited by Douglas W. Johnson, Washington, D.C., Glenmary Research Center, 1974.

Commission on Population Growth and the American Future, Vol. VI, Aspects of Population Growth Policy, edited by Charles F. Westoff and Robert Parke, Jr., Washington, D.C., United States Government Printing Office, 1972, p. xiii.

Ford, Thomas R. and Gordon F. DeJong, Social Demography, New Jersey, Prentice Hall, 1970.

Hauser, Philip M. and Otis Dudley Duncan, editors, The Study of Population: An Inventory and Appraisal, Chicago, University of Chicago Press, 1959.

Kreps, Juanita, Sex in the Marketplace, Policy Studies in Employment and Welfare, edited by Sar A. Levitan and Garth L. Mangum, Baltimore, John Hopkins University Press, 1971.

Population and the American Future: The Report of the Commission on Population Growth and the American Future, New York, A Signet Special from New American Library, 1972.

Quinn, James A., Human Ecology, New York, Prentice Hall, 1950.

Rockefeller, Nelson, The Use of Land: A Citizens' Policy Guide to Urban Growth--A Task Force Report Sponsored by the Rockefeller Brothers Fund, New York, Thomas Y. Crowell Company, 1973.

Ryder, Norman B. and Charles F. Westoff, Reproduction in the United States, Princeton, Princeton University Press, 1971.

Thomlinson, Ralph, Urban Structure: The Social and Spatial Character of Cities, New York, Random House, 1969.

Articles

Back, Kurt W., "New Frontiers in Demography and Social Psychology," Population Studies: Selected Essays and Research, edited by Kennety C. W. Kammeyer, Chicago, Rand McNally College Publishing Company, 1975, pp. 10-14.

_____ and Paula H. Haas, "Family Structure and Fertility Control," Psychological Perspectives on Population, edited by James T. Fawcett, New York, Basic Books, 1973, p. 77.

Bindary, Aziz and Colin B. Baxter, "Urban-Rural Differences in the Relationship Between Women's Employment and Fertility: A Preliminary Study," Journal of Biosocial Science, 5 (1973), 159-167.

Blake, Judith, "Coercive Pro-natalism and American Population Policy," Commission on Population Growth and the American Future, Vol. VI, Aspects of Population Growth Policy, edited by Charles F. Westoff and Robert Parke, Jr., Washington, D.C., United States Government Printing Office, 1972, pp. 85-108.

_____, "Demographic Science and the Redirection of Population Policy," Social Demography, edited by Thomas R. Ford and Gordon F. DeJong, Englewood Cliffs, New Jersey, Prentice-Hall, Inc., 1970, pp. 326-347.

_____, "Ideal Family Size Among White Americans: A Quarter of a Century's Evidence," Demography, 3 (1966), 154.

Bogue, Donald J., "Ecological Correlation Reexamined: A Refutation of the Ecological Fallacy," Essays in Human Ecology 1, edited by Donald J. Bogue and Elizabeth J. Bogue, Chicago, Community and Family Study Center, University of Chicago, 1976, pp. 1-42.

Burgess, Ernest W. and Paul Wallen, "Idealization, Love and Self-Esteem," Family Roles and Interaction, edited by Jerald Heiss, Chicago, Rand McNally, 1969, pp. 121-122.

Cain, Glen G. and Adriana Weininger, "Economic Determinants of Fertility: Results from Cross-Sectional Aggregate Data," Demography, 10 (1973) 205-223.

Dahl, Robert A., "Who Governs," The Search for Community Power, edited by Willis D. Hawley and Frederick M. Wirt, New Jersey, Prentice-Hall, Inc., 1968, pp. 93-114.

Davis, Kingsley, "Social Demography," The Behavioral Sciences Today, edited by Bernard Berelson, New York, Basic Books, Inc., 1963, pp. 44-58.

_____, "The Sociology of Demographic Behavior," Sociology Today: Problems and Perspectives, edited by Robert Merton, Leonard Broom, and Leonard S. Cottrell, New York, Basic Books, 1959, pp. 309-333.

_____ and Judith Blake, "Social Structure and Fertility: An Analytic Framework," Economic Development and Cultural Change, 4 (April, 1956), 211-235.

Freedman, Ronald and Lolagene Coombs, "Economic Considerations in Family Growty Decisions," Population Studies, 20 (1966), 197-222.

Gibbs, Jack and Elizabeth Maret Havens, "The Relation Between Female Labor Force Participation and Fertility: A Theory of Variability," Sociological Methods and Research, 3 (Feb., 1975), 258-290.

Goldberg, David, "Modernism: The Extensiveness of Women's Roles and Attitudes," World Fertility Survey Occasional Paper No. 14, Voorburg, The Netherlands, International Statistical Institute, 1974.

Hauser, Philip M., "Demography in Relation to Sociology," Population Studies: Selected Essays and Research, edited by Kenneth C. W. Kammeyer, Chicago, Rand McNally College Publishing Company, 1975, pp. 6-9.

Havens, Elizabeth Maret, "Women, Work and Wedlock," Changing Women in a Changing Society, edited by Joan Huber, Chicago, University of Chicago Press, 1971, pp. 213-219.

Julian, Joseph, "The Population Crisis," Social Problems, edited by Joseph Julian, Englewood Cliffs, New Jersey, Prentice-Hall, Inc., 1973, pp. 521-555.

Miro, Carmen A. and Walter Mertens, "Influences Affecting Fertility in Urban and Rural Latin America," Milbank Memorial Fund Quarterly, 46 (1968), 89-114.

Moore, Wilbur, "The Relation Between Demography and Sociology," The Study of Population: An Inventory and Appraisal, edited by Philip M. Hauser and Otis Dudley Duncan, Chicago, University of Chicago Press, 1959.

Morris, Judy K. "Professor Malthus and His Essay," Population Studies: Selected Essays and Research, edited by Kenneth C. W. Kammeyer, Chicago, Rand McNally College Publishing Company, 1975, pp. 114-134.

Oppenheimer, Valerie Kincaid, "Demographic Influence on Female Employment and the Status of Women," American Journal of Sociology, 78 (1973), 946.

Peterson, William, "Malthusian Theory: A Commentary and Critique," The Politics of Population, edited by William Peterson, New York, Doubleday and Co., Inc., 1964, pp. 26-45.

Pinnelli, Antonella, "Female Labour and Fertility in Relationship to Contrasting Social and Economic Conditions," Human Relations, 24 (1971) 603-610.

Preston, Samuel, "Female Employment Policy and Fertility," Commission on Population Growth and the American Future, Vol. VI, Aspects of Population Growth Policy, edited by Charles F. Westoff and Robert Parke, Jr., Washington, D.C., United States Government Printing Office, 1973, pp. 379-388.

_____, "Women's Work Opportunities and Marriage Rates," Demography, 12 (May, 1975), 209-222.

Ryder, Norman, "A Critique of the National Fertility Study," Demography, 10 (November, 1973), 495-504.

Safilios-Rothschild, Constantina, "The Relationship Between Work Commitment and Fertility," International Journal of Sociology of the Family, 2 (1972), 93-97.

Shryock, Henry S., Jacob S. Siegel, and Associates, "SMSAs," The Methods and Materials of Demography, Vols. I & II, Washington, D.C., United States Government Printing Office, United States Department of Commerce, Bureau of the Census Publication, 1976, pp. 127-129.

Sklar, June, "Marriage Regulation and the California Birth Rate," California's Twenty Million: Research Contributions to Population Policy, edited by Kingsley Davis and Frederick G. Styles, Berkeley, Institute of International Studies, University of California, 1971, pp. 165-206.

Stycos, J. Mayone and Robert H. Weller, "Female Working Roles and Fertility," Demography, 4 (1967), 210-217.

Thompson, Warren S. and Davis T. Lewis, "Theories Since Malthus," Population Problems, 5th ed., New York, McGraw Hill Book Company, 1970.

Waite, Linda J. and Ross M. Stalzenberg, "Intended Childbearing and Labor Force Participation of Young Women: Insights from Non-recursive Models," American Sociological Review, 41 (April, 1976), 235-252.

Weller, Robert H., "The Employment of Wives: Role Incompatibility and Fertility," Milbank Memorial Fund Quarterly, 46 (1968), 507-526.

Public Documents

American Jewish Yearbook, edited by Douglas W. Johnson, New York, American Jewish Commission, 1971.

United States Bureau of the Census, "Birth Expectations of American Wives: June, 1973," Current Population Reports, Series P-20, October, 1973.

_____, Census Tracts of Standard Metropolitan Statistical Areas, Census of Population and Housing, Washington, D.C., United States Government Printing Office, 1970.

_____, Detailed Characteristics of the Population, Washington, D.D., United States Government Printing Office, 1970.

_____, Migration, Special Report, P-4 Series, Washington, D.C., United States Government Printing Office, 1970.

Unpublished Materials

Broom, Leonard and Betty Maynard, "The Jewish Family," unpublished paper, Department of Sociology, University of Texas, Dallas, 1973.