ANNUAL REPORT

OF THE

POPULATION STUDIES CENTER, THE UNIVERSITY OF MICHIGAN

JULY 1, 1974 -- JUNE 30, 1975

Lolagene C. Coombs, Editor
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GRADUATE TRAINING

About forty graduate students participated in the Center's program at some time during the year.

Seven apprentices were in the graduate program in Economics, one in the program conducted jointly by Sociology and Social Work, one from the Demography program of the London School of Economics, and twenty-six were Sociology students. One special non-degree student, one post-doctoral student and one Fulbright fellow also used Center facilities.

Eleven of the thirty-six apprentices received partial or full support from a source other than the Center's basic supporting grants from the Ford and Rockefeller Foundations.

Training opportunities were provided through the Center for students from Bangladesh, Canada, England, Japan, Malaysia, Nigeria, Pakistan, Taiwan, Turkey and the U.S. Under the supervision of a Center staff member, one Sociology graduate student was in Taiwan as a University Overseas Population Intern, working with Chinese social scientists at National Taiwan University and the Academia Sinica.

BASIC RESEARCH

Interrelated studies of population dynamics, principally in developing countries, have been carried out in a number of cultural settings over a period of years. Among the topics investigated during the past year for Taiwan are: the desire for additional children as a predictor of later fertility; the measurement and correlates of family composition preferences; contraceptive history and unwanted births; the relation of family structure, income, and female labor force participation to fertility behavior; IUD use and later fecundity; and the relation of worker characteristics to family planning program effectiveness. Comparative analyses of Turkish and Mexican studies is continuing, with emphasis on the topics of women's roles and fertility, stratification, and population clustering. Comparative work histories in Yokohama and Detroit are being used for analysis of inter-generational occupational mobility. Family composition preferences have been investigated in several different cultures, both developing and developed.
Investigation of the causes and consequences of population differentiation and segregation continues with analyses of: residential segregation, the implications of racial segregation for school segregation, rural-urban transition and changes in agricultural and land use patterns, state population composition and Equal Rights Amendment ratification, inter-regional migration in Canada, and the measurement and implications of population clustering.

Economic-demographic interactions are being studied in a number of settings and theoretical models, including historical studies of preindustrial England, inheritance laws and 19th century French nuptiality, stochastic time series models for studying relationships between variables, and analysis of time series implications of homeostatic population models. Other investigations emphasize the economic and demographic conditions contributing to the value of children in peasant societies, and the relation of economic-demographic factors in household decisions. Studies of women's roles, work experience and earnings, and their relation to fertility in the U.S., the changing socio-economic status of women and of blacks, education-ability interaction and occupational attainment, and the development of new occupational prestige scores have been carried on by several of the Center staff.

A relatively new emphasis on measurement issues and measurement errors has been evidenced in research on interviewer effects, measurement errors in reports on aspirations and expectations, estimations of an event's occurrence based on reports from different sources, models for developing scales for family composition preferences, theoretical exploration of the meaning of "don't know" responses, examination of monotonicity in survey attitudinal measures, and the development of a new computerized technique for determining scale feasibility in combining variables in large scale studies. These investigations utilize data from a number of countries and are potentially useful for demographic research in a variety of settings.

DOCTORAL DISSERTATIONS

Four dissertation projects in Sociology were brought to completion during the 1974-75 year. The topics investigated include: the impact of marital stability on fertility; changes in social class identification in Detroit; characteristics of family planning field workers and job performance; economic status, resources, costs and tastes and their impact on fertility.

ASSISTANCE TO POPULATION STUDIES ABROAD

Eleven foreign students participated in the apprenticeship program during 1974-75. In addition, two special status students from abroad spent the year at the Center.
Faculty associates of the Center visited Bangkok, Egypt, Hong Kong, India, London, and Taiwan to conduct studies, to assist investigators, and to familiarize themselves with demographic work being carried out by organizations in the respective countries.

PROFESSIONAL ACTIVITIES OF STAFF

Some forty-five manuscripts written by associates of the Center were published or accepted for publication during 1974-75.

Among the professional assignments undertaken by staff members during the year were:

- membership on committees advisory to the Bureau of the Census, the National Institutes of Health, the Population Council, the U.S. National Survey of Family Growth, the World Fertility Survey, the National Advisory Council of the Center for Family Planning Program Development of the Department of Health, Education and Welfare, the Governor's Commission on Higher Education in Michigan, the Michigan Housing Authority, the Taiwan Provincial Department of Civil Affairs, the Taiwan Provincial Committee on Family Planning, the Hong Kong Family Planning Association, the Center for Coordination of Research on Social Indicators, the Population Division of the United Nations;

- service as officers or committee members of the International Union for the Scientific Study of Population, the Population Association of America, the Population Council, the American Sociological Association, the Social Science Research Council, and the American Statistical Association;

- presentation of some thirty papers or lectures at special conferences, other universities, or professional meetings;

The Population Studies Center, now completing its thirteenth year of operation, has a program with three major emphases: graduate training in population studies; basic research on population within a social, social psychological, economic, or ecological framework; and assistance to demographic studies in selected developing countries. Since its inception the Center has operated under basic supporting grants from the Ford Foundation. Since calendar 1971 a part of the basic support for Center activities also comes from a grant from the Rockefeller Foundation. Specific research projects and special activities continue to be funded separately by various government agencies and private sources.

During the past year, Ronald Freedman, formerly Director and now an Associate Director of the Center, was elected to the National Academy of Sciences.

Professor Karol J. Krotki of the Department of Sociology, University of Alberta, Edmonton, Canada, was a visiting professor for the 1974 Fall and the 1975 Winter terms.

Andrei Stanoiu, on leave from the Sociology Department, Bucharest University, Roumania, has been a Fulbright scholar at the Center during the past year.

John S. Parsons, a postdoctoral Population Council Fellow working at the Center during 1974-75, will take a position in August 1975 as Field Associate for the Population Council in Mojokerto, Indonesia.

John Knodel is joining the Center staff as a Research Associate in July 1975 and the Department of Sociology as Associate Professor in September 1975. Previously Dr. Knodel has been a Visiting Professor at Brown University and a Field Representative for the Population Council in Thailand. Deborah Freedman, an Assistant Professor of Economics at the University of Michigan, will also join the Center staff as a Research Associate in September 1975.

GRADUATE TRAINING

Each year the Center provides an opportunity for about thirty graduate students to obtain on-the-job training in the conduct of demographic research. Thirty-six graduate students participated in the Center's
traineeship program at some time during 1974-75. Ten were nearing completion of the doctoral program and were working on their dissertation research projects. Of the eleven students new to the Center program, six were just beginning graduate study at Michigan; five had begun their graduate study at Michigan earlier, but had not previously been associated with the Center's traineeship program.

Seven graduate student apprentices were in the program in Economics, one was in the program conducted jointly by Sociology and Social Work, one was in the Demography program at the London School of Economics, and twenty-six were Sociology students. In addition, one special non-degree student was assisted by the Center, one Population Council post-doctoral scholar and one Fulbright Scholar were located at the Center for the year.

Eleven of the thirty-six apprentices received partial or full support from a source other than the Center's basic supporting grants. The sources of support included fellowship programs administered through the Department of Sociology, fellowship programs of the National Science Foundation, the Population Council, and the Economic Demography program.

Support and Training

The basic supporting grants from the Ford and Rockefeller Foundations make possible the flexible arrangements so essential to an effective training program. The form of assistance provided trainees by the Center continues to depend on the stage of apprenticeship and the support available to the student from other sources. The detailed report on the types of financial assistance provided by the Center for apprentices during 1974-75, which appears as Appendix A, reflects the differing needs and resources of individual students.

In addition to assuring financial support, the Center facilitates the training of graduate students by involving them in research projects housed at the Center. In the first two years of the traineeship, each student spends twelve hours each week working at the Center under the close supervision of a member of the professional staff. By the third or fourth year, the student usually is ready to devote full time to the investigation to be reported in a doctoral dissertation.

The students and members of the professional staff participate in an informal weekly seminar at which a staff member, an advanced student, or an occasional visitor reports on his current research activity. W. Mason and B. Moots coordinated the seminar in 1974-75. The selected titles given below illustrate the range of topics covered.
Demographic Constraints on Higher Education (D. Goldberg)
The Relationship Between Income and Fertility in Taiwan
(E. Mueller)
Research Possibilities for the World Fertility Survey
(R. Freedman)
Models of Change in Residential Segregation: 1940-1970
(H. Winsborough)
Political Alienation in America: 1952-1968 (W. Mason)
Models for the Analysis of Inconsistent Reports from Two
Sources (A. Hermalin)
The Effects of Community Level Variables on Fertility in
Taiwan (P. Pastor)
Recent Change in Women's Sex-role Attitudes (K. Mason)
Population Policy in Canada (K. Krotki)
Trends in Socioeconomic Segregation: a Re-evaluation of
the Concept of Community (C. Flinn)
Racial Integration in Public Schools, 1967-1972: Assessing
the Effects of Government Programs and Litigation
(R. Farley)
Demographic Aspects of the Household Asset Function (A. Mason)

To extend the professional horizon of the trainees, attendance at the
annual meetings of the Population Association of America has been
encouraged. During the year, a number of students gave papers at
professional meetings.

Former Students

Upon completion of their training at the Population Studies Center,
the typical pattern in the past has been for students to accept a
position at an academic institution. Changing emphasis on the
salience of demography for many areas of research and policy making,
however, has recently been reflected in increased employment in non-
academic research positions, both in the United States and abroad.
A list of the 54 Center trainees receiving the Ph.D. in Sociology or
Economics since the Center's inception in 1962 is given in Appendix C.
The range of institutions with which they are now affiliated gives an
overview of the scope of preparation provided at the Center.

Modern mobility complicates any attempt at a complete accounting of
all students who have had training at the Center. In addition to the
Ph.D. degree recipients listed in Appendix C, many students from the
U.S. and abroad have received Center training. All together about 57
former trainees currently hold academic positions at about 27 uni-
versities in the United States and at 8 universities abroad. Another
46 are engaged in research in about 17 national, 12 foreign, and 4
international organizations concerned with population issues, including:
SPECIAL TRAINING PROGRAMS

The Center offers students three special training programs. One is directed by Center research associates M. Coble and A. Anderson. Two non-Center complementary programs are coordinated by faculty associates of the Center, L. Kish of the Survey Research Center, and R. Lee and E. Mueller, in cooperation with the Economics Department.

Computer Training Program

Ten years ago, the Center initiated for students beginning an apprenticeship in the Center a special training program in the use of Michigan's electronic computer for demographic research. In a series of one-hour noncredit training sessions organized by M. Coble and A. Anderson, students learn basic computer techniques and are given the opportunity to familiarize themselves with the Center's library of tapes and programs and their application to problems of population analysis. Such training is required of all Center student trainees.

Sampling Program for Foreign Statisticians

L. Kish continues as director of the Sampling Program for Foreign Statisticians, which is housed in the Survey Research Center of the Institute for Social Research. R. Freedman and A. Hermalin participate as lecturers. The program is for statisticians from underdeveloped countries who want to learn survey sampling methods for
work in their own countries. The intensive eight-week summer program accommodating about twenty fellows combines two courses in sampling with a workshop in sampling procedures. Each summer many graduate students in demography or statistics at other universities as well as some Center students enroll for this program.

Economic Demography

A program in Economic Demography, supported by a National Institutes of Health training grant, is carried out in cooperation with the Department of Economics. R. Lee and E. Mueller are the Center coordinators of this program, which is administered by the Department of Economics. Students in economics interested in demographic approaches to economic issues receive training in the use of demographic data and techniques through participating in the Center apprenticeship program and through taking appropriate courses in population. During the past year seven such students received training and partial support from the Center.

BASIC RESEARCH

The Center organizes no centralized program of investigation. Considerable research focuses on a number of social-demographic topics on which there is extensive staff interaction and collaboration. The research projects undertaken by members of the professional staff and the dissertation projects initiated by doctoral candidates, however, reflect their individual interests within the broad spectrum of population research. Under basic grants from the Ford and Rockefeller Foundations, the Center has flexibility in facilitating research activities in a variety of ways, but each large-scale project has been financed under a separate grant or contract for research. In the past year, individual research projects have been funded from a number of sources including major grants or contracts from the National Institute of Child Health and Human Development, National Institutes of Health, and Health Resources Administration, World Bank, U.S. Agency for International Development, National Science Foundation, Statistics Canada, and the National Institute of Mental Health. The major research activities of the professional staff during 1974-75 are listed below.

POPULATION DYNAMICS IN TAIWAN

Members of the Center's professional staff continued their close collaborative and consulting relationships with various agencies in Taiwan on a range of research topics. R. Freedman and A. Hermalin have been jointly responsible for the broad range of research and consulting activity in Taiwan. L. Coombs and B. Moots have been senior research associates in important aspects of this work. E. Mueller of the Economics Department
(in collaboration with D. Freedman) concentrates on analyses of Taiwan sample survey data on economic-demographic interconnections.

Support for the analyses of Taiwan population dynamics at the Center comes primarily from a grant from the Center for Population Research of the National Institute of Child Health and Development. The Population Council provides the principal support for the Taiwan agencies.

The broad objective of this research is a continuing study on a wide range of topics related to the demographic transition in Taiwan, with special attention to fertility changes in relation to socioeconomic development and the family planning program. Since the project covers a great number of related subprojects, with domestic and foreign collaborators, the brief reports given below are selective.

**Family Structure and Traditional Familial Values in Taiwan**

R. Freedman, B. Moots, and T. H. Sun are using data from the 1973 KAP-4 study to analyze familial structure and attitudes. Preliminary results indicate that the prevalence of households based on extended kinship has changed little since the 1962 and 1967 studies, despite rapid economic development and demographic change. These studies take into account the availability of the pertinent relatives for various forms of extended household structure. Vertical extension involving parents and married sons remains a dominant principle of familial organization, with interacting effects on many other aspects of family life. A variety of traditional familial attitudes are also being investigated in relation to both family structure and reproductive behavior. An important early finding is that the high level of contraceptive practice attained in Taiwan is found among both more and less traditional couples. However, the preferred number of children is lower in the higher status and less traditional population strata. Makoto Nohara has been a student trainee in this research.

**Desire for Additional Children and Later Fertility**

The KAP survey conducted in 1970 involved a reinterview of women previously interviewed in 1967. From these data sets, R. Freedman and A. Hermalin, in collaboration with M. C. Chang, have established that statements of additional children desired at the early date are highly predictive of fertility in the subsequent three years. The women interviewed have been followed up in the household register through 1972 and a further extension is under way. Analysis of the longer term patterns of fertility (1967-1972) indicate continued success by those who desired no more children in 1967 to avoid further births. These data are also being used to study the relationship between changes in contraceptive practices and changes in desired number of children.

**The Preferences of Taiwanese Wives for Number and Sex of Children**

L. Coombs is analyzing the relationship of family composition preferences to a wide variety of demographic, social, and personal characteristics of respondents in the 1973 KAP-4 study. This analysis is proceeding in
two phases. 1) The first emphasizes the demographic and socioeconomic "profiles" of women with underlying preferences (as measured by I-scale values in the Coombs preference scales) for small or large families and for sons or daughters. Relating these measures to the conventional global statement of "ideal" family size reveals that not only are underlying preferences frequently at variance with global statements, but they are more predictive of desire to continue childbearing and of the use of contraception. This analysis is nearing completion and a paper is in progress. 2) The second focus is on attitudes and values which underlie or are supportive of preference differences. Analysis underway indicates that the I-scale values for number and gender preference are consonant with attitudes such as the importance of having a male heir, duty to have many children, expectations for co-residence and/or financial support from sons, desired number of children or sons for a daughter-in-law to have, marriage arrangement patterns and preferences regarding life cycle timing. Further analysis will include husband-wife roles, fatalism vs. life control, and other attitudinal measures. J. Rogers has worked as research assistant and Katherine Gaskin and Michael Koenig as student trainees in this research.

Evaluation of Planning Programs through Areal Analysis

In previous analyses, A. Hermalin has demonstrated that a useful method of evaluating the effect of a family planning program is through an areal analysis in which levels of fertility are regressed on family planning inputs and socio-economic variables. The analysis is being updated in two ways: data through 1972 have been added, including new variables about characteristics of acceptors; and new methods of analysis, involving the use of unobserved variables and confirmatory factor analysis, are being employed to clarify the theoretical structure.

Estimation of an Event's Occurrence from Reports from Two Sources

A. Hermalin continued development and testing of a model for utilizing reports of an event from two sources to obtain improved estimates of the frequency of the event's occurrence and the relative degree of accuracy of each source. The model has been applied to reports of contraceptive use by husbands and wives in Taiwan, Dacca, and India. Applications to other events and countries are planned, and discussion is underway for use of the technique in connection with the World Fertility Survey. A report of this work was made at the annual meeting of the Population Association of America, Seattle, April 1975. S. Etter has served as research assistant on this project.

The Relation between Income and Fertility in Taiwan

On the basis of the data from the Economic Correlates of Fertility survey, E. Mueller and R. Coon have studied the relation between income and fertility in Taiwan. A number of alternative income measures were used in an attempt to clarify how income may influence the demand for children. The income measures included current income, long term income, income change, relative income, and husband's income. Further, an attempt was
made to isolate the "pure" income effect which remains after allowance is made for the indirect impact of income on fertility via attitude change. Path models were employed for this purpose, supplemented by a two-stage least squares analysis. This research does not provide any evidence of a positive relation between income and fertility. Rather, a marginal negative relation between income and fertility is diminished when account is taken of the effect of income on tastes and attitudes pertaining to family size. The conclusion is that the amount of money a family has available for the support of children does not of itself have an appreciable effect on family size. A paper resulting from this research has been accepted by *Economic Development and Cultural Change*.

**The Impact of Female Labor Force Participation on Fertility in Taiwan**

Barbara Devaney is continuing earlier work by E. Mueller on the effects of female labor force participation on fertility in Taiwan. The type and amount of work reported by women in 1969 and 1970 is being related to the fertility of these same women in the subsequent three years as obtained from the Population Register. Use of longitudinal data should alleviate some of the problems of simultaneity which complicate analysis of the work-fertility relationship. As having or not having a birth in three years is a dichotomous dependent variable (very few women have more than one birth), the data are being subjected to probit as well as multiple classification analysis.

**Contraceptive Histories and Wanted and Unwanted Births**

Mary Beth Weinberger, under the direction of A. Hermalin, is carrying out analyses of: 1) Contraceptive histories and the number of wanted and unwanted pregnancies. Results here indicate that a large proportion of women initially select a highly effective contraceptive method, most often those made available by the program; over time, some move to sterilization while others adopt less effective methods. The sterilization rate appears to be a function of both the occurrence of an unwanted birth and the socioeconomic status of the couple. Women 35-39 retrospectively report about 30 percent of their births occurring at these ages as unwanted at the time of pregnancy. 2) Comparison of different measures of unwanted births indicates sizable differences, with the relative ordering of the measures quite different in Taiwan from those found in the U.S. National Fertility Surveys. 3) Reliability and validity of the survey data. IUD life table termination rates constructed from reports in KAP-4 show close agreement with those from separate IUD studies. Fertility rates derived from the detailed pregnancy and birth histories closely parallel the rates from the official household register.

**Development of Attitude Scales**

As increased use of psychological or attitudinal variables occurs in fertility studies, the need to clarify the measurement issues involved
becomes more important. L. Coombs has been doing scalogram analysis of responses to attitudinal questions that are frequently combined in an ad hoc manner, to determine whether a common dimension does exist, and whether scales can be developed. Using Taiwan data, Guttman scales have been developed on a number of attitudinal variables which may be related to fertility behavior, including husband-wife role relationships and decision making, parent-child decision making, abortion approval, and fatalism versus life-control approaches. Katherine Gaskin has been a student trainee on this research.

IUD Use and Later Fecundity

B. Moots and A. Jain, of the Population Council, have been investigating the influence of IUD use on later fecundity. This work is based on data from the Taichung IUD Acceptance Study. The final round of interviewing in this study was carried out in 1974. Data from the previous five rounds continue to be analyzed by a number of scholars presently or formerly at the Center. A paper summarizing some of this work was presented by B. Moots at the Third International Conference on IUDs in Cairo, December 1974. In this long-term study, contraceptive-pregnancy histories of 9 to 11 years duration have now been accumulated. Plans for the coming year include the preparation of a summary report evaluating the experience and results of this unique study. Francis Osagie and M. Kahlid Siddiqui have been assistants in this research.

IUD Reinsertion and Continuation

Exclusive focus on the rather high, first-segment discontinuation rates of IUD leads to needless pessimism about the amount of IUD protection received per acceptor. R. Potter and B. Moots have extended the life methodology to cover reinsertions as a function of duration from termination of first device. Based on Taichung IUD follow-up data, it is found that among women retaining an incentive to practice contraception, the proportion of first-segment terminators who eventually reinsert reaches well over fifty percent, many of these women having a reinsertion after experiencing pregnancy or after a period with other contraceptives.

To estimate births averted per acceptance of contraceptive, one must make assumptions about continuation, which means extrapolating beyond the one or two years of continuation as determined by life table methods applied to the data of a typical follow-up study. Four functions— including the ones most commonly used and three new ones—are being compared by R. Potter and P. Kulkarni on the basis of data from the Taichung IUD Follow-up Study that commands an effective observation period of eight years. This unusual length permits one to perform the experiment of pretending that observation length is one, two, ..., five years long and then compare results based on these varying abbreviated spans to those based on the full observation period.
Studies by Collaborating Researchers in Taiwan

In addition to research already cited, considerable work is being done by scholars in Taiwan with whom the Center has been cooperating on the continuing Taiwan project over the past decade. Some of their work is listed below.

Cernada, G. and T. H. Sun, Knowledge into Action: the Use of Research in Taiwan's Family Planning Program, East-West Communication Institute Paper Series, No. 10, July 1974 (37 pp.).


THE DISTRIBUTION AND DIFFERENTIATION OF POPULATION

Several members of the Center staff are working on problems related to population distribution and differentiation, using a variety of data sets from U.S. and foreign sources. Components of the research are funded by the National Institute of Health's Center for Population Research, the National Science Foundation, and the Rockefeller Foundation. The purpose is to measure, decompose, and detect the consequences of population differentiation and segregation.

Causes and Consequences of Population Segregation

Residential Segregation in Metropolitan Areas. R. Farley, supported by a grant from the Center for Population Research of the National Institutes of Health is analyzing for the nation's 25 largest urbanized
areas data taken from the Census of 1970 and particularly from the Fourth Count census tapes. The research aims are: to describe and account for city-suburban differences in racial composition, to analyze city-suburban differences in socioeconomic status, and to measure residential segregation of socioeconomic groups both within central cities and suburban rings. Separate analyses of black and white communities show that within racial communities there is moderate socioeconomic segregation, with levels no higher in suburban rings than in the central cities. Socioeconomic segregation, however, is much less extreme than racial segregation. The marked black-white segregation found in all cities and suburban rings is evident for the poor as well as the rich and apparently does not result from economic factors. Michael Hitchcock has been assisting in this research.

Implications of Racial Residential Segregation for School Segregation. Elementary school trends in racial segregation and their relationship to residential distributions of blacks and whites are being studied by R. Farley. In spite of the decrease in racial segregation for the past decade in many districts, city-suburban racial residential differences results in segregated schools; either residential desegregation or merging of districts are needed to accomplish school integration. While some "white flight" from the central cities has occurred, it is not evident that districts which integrated their schools between 1967 and 1972 lost white students at a higher rate than those which maintained their segregated schools.

The Measurement and Implications of Population Clustering. Several problems with conventional segregation indexes have been recognized in the literature, and new computer technology now makes possible the incorporation of measures of distance by utilizing population potential models. Using such models in preliminary analysis of data from several cities in the U.S. and in LDCs, D. Goldberg and B. Moots suggest that conventional indexes fail to distinguish between contiguous population clusters (a ghetto) and segregation made up of a series of clusters (a multinucleated situation). This confusion could lead to misleading correlations between community characteristics and levels of segregation. Arguments of some ecologists that dissipation of residential clustering results in disappearance of 'race' or 'culture,' with resulting homogenization, are being examined with data from Ankara and Mexico City. Further work seeks to relate "net ethnic effects" to the residential segregation of racial-ethnic groups. This research is being funded by the Rockefeller Foundation. A paper on the topic was presented at the 1975 PAA meetings, and one dealing with clustering and fertility will appear shortly in a Resources for the Future volume on population policy.

The Transition of Areas from Rural to Urban

By virtue of the way Standard Metropolitan Statistical Areas are defined and enlarged, it is possible to identify retrospectively cohorts of counties which met various criteria of urbanism--primarily inclusion in an
SMSA—at different points in time, and to trace prior and subsequent developments in them. P. Siegel is exploring changes in population composition and distribution, changes in land-use patterns, and changes in agriculture. The latter is relevant to assessing claims that the spread of urban areas removes our ability to feed the population by removing from agricultural use the "best" farm land. Also of interest are differences in the time path of these changes for cohorts of counties which became urban in different historical periods. Christopher Flinn has been the student trainee on this project.

Prestige in the American Occupational Structure

P. Siegel is developing occupational prestige scores for the 1970 occupational classification scheme, which was greatly modified by the Bureau of the Census from their previous detailed occupational categories. Earlier work by D. Duncan provided socioeconomic status scores based on prestige ratings from 1947-1950 Census data, and Siegel provided ratings obtained in 1964 for the 1960 Census occupational categories. The present up-dating, which will appear as an appendix in a monograph with W. Hodge and P. Rossi on the place of prestige in the American occupational structure, will facilitate demographic-socioeconomic research related to population differentiation and other issues.

State Composition and the Ratification of the Equal Rights Amendment

W. Mason is assessing the relevance of state population composition and other factors for the ratification by state legislatures of the Equal Rights Amendment. The purpose of this research is to establish an interpretable probability function to explain which states have ratified, or will ratify the Equal Rights Amendment. Explanatory dimensions include demographic and labor-force composition, state-specific legislation governing the conditions of women's work, and other dimensions bearing on the political process. Robert Mare is a student assistant in this work.

The Changing Socioeconomic Location of Blacks and Women in the United States

Research by W. Mason aims to characterize and explain changes in race-sex specific differentials in education, occupation and earnings, as well as other aspects of socioeconomic status. Currently under analysis are race-sex specific differentials estimated from detailed tabulations for states in the decennial censuses of 1940-1970. The innovation of this analysis is that the statistical model simultaneously embraces both temporal and cross-sectional variation, and both individual and aggregate (state) level variation. Explanatory dimensions include demographic composition, economic factors, governmental activities intended to ameliorate race and sex socioeconomic differentials, and civil rights and equal rights activities—all of these dimensions being measured specific to year and state. Robert Mare has been a student assistant in this work.
Inter-Regional Migration in Canada

A study on the educational and occupational composition of inter-regional migration streams in Canada, using 1971 Census data, was completed by L. Stone. This work included the development of modifications in existing techniques for the multivariate analysis of contingency tables.

DATA REQUIREMENTS TO MAXIMIZE THE USEFULNESS OF HOUSEHOLD SURVEYS IN LDC FOR ECONOMIC ANALYSIS

Important household activities such as work, income generation, fertility, child care, education, and migration are interrelated. Recent economic theories and modern statistical techniques, especially the techniques of econometrics, offer promising means for disentangling some of these complicated interrelationships, provided suitable data are available. This project, sponsored by AID and the World Bank, attempts to develop two kinds of questionnaires. The first is a standard package, consisting of brief sequences of prototype questions about each of a number of household activities, which would be suitable as an add-on to more specialized household surveys. The second is a set of longer and more self-contained question modules which could be used to investigate selected types of household activity in greater depth. E. Mueller and D. Freedman are collaborating in this work, assisted by Roberta Barnes. They are particularly interested in new approaches to the measurement of time use and employment.

THE ECONOMIC VALUE OF CHILDREN IN PEASANT AGRICULTURE

E. Mueller has been developing estimates of the work contribution in peasant agriculture of men and women in various age groups (from early childhood to old age), and of the consumption requirements of these same age-sex groups. Information from censuses and a variety of surveys have been pieced together in an attempt to establish approximate values for these production and consumption profiles. An aggregate model, suggested in part by Goran Ohlin, and a life cycle model, suggested in part by Frank Lorimer, were then used to estimate the value of children from the national point of view and over the life cycle from the peasant family's point of view. One purpose is to evaluate the contention that in peasant agriculture children have positive economic value which acts as barrier to the acceptance of family limitation. Another purpose is to determine what additional data are needed to measure variations in the economic value of children and its impact on fertility. Stanley Smith participated in the research. A paper on this topic was presented at a conference on Population Policy sponsored by Resources for the Future and will be published in a conference volume.
AN ECONOMETRIC ANALYSIS OF U.S. FERTILITY CHANGE, 1947 TO 1974

R. Lee is investigating the interrelations of fertility, population size and age structure, and the age distribution of income in the U.S., 1947 to 1974. The emphasis is on building a closed growth model with endogenous population which may then be used for forecasting. The project is funded under a contract with the National Institute of Child Health and Human Development. Michael Arthur is assisting in this work.

MEASUREMENT OF MODERNISM

The relationship of ownership of consumer durables or modern objects to use of contraception and number of children wanted has been of considerable interest in past research. During the past year, L. Coombs, C. H. Coombs and J. Lingoes have been developing and computerizing a new method of scaling "modernism" as reflected in such variables, which will permit clearer delineation of the measures under scrutiny and provide a better base for large sample studies of their possible impact on fertility and fertility related behavior.

FAMILY SIZE EXPECTATIONS AND PREFERENCES: FINDINGS FROM THE NATIONAL SURVEY OF FAMILY GROWTH-CYCLE I

L. Coombs is investigating a number of issues on the relationship of expectations and preferences for family size, using the data from the 1973 U.S. National Survey of Family Growth. With support from the Health Resources Administration, preliminary tape development and exploratory work by L. Coombs is being followed by detailed analysis of data from a revised tape on a number of topics including: relation of preference scale values to range responses on expectations or intentions for future childbearing; distribution of number and sex preference scale values in the U.S. population and selected geographic, demographic and socioeconomic subgroups; their relationship to measures of first preference, and assessment of implications for future fertility behavior; variation among significant subgroups in how expectations or preferences are related to underlying preference structure; and the interrelationship of preferences for number and for sex of children and their likely relative impact on reproductive goals and performance. J. Rogers and Michael Koenig have been assisting in this research.

COMPARATIVE RESEARCH ON FAMILY COMPOSITION PREFERENCES

Methodological and substantive studies of the Coombs preference scales have been carried out in cooperation with researchers in the Philippines, Malaysia, Korea, Taiwan, Hungary and the U.S. This work has been under the direction of L. Coombs, in conjunction with the IUSSP Subcommittee on Comparative Fertility Studies, of which R. Freedman is chairman.
Analysis has been carried out and was presented by L. Coombs at a conference in June, sponsored by the IUSSP and the East-West Center, and will form the basis for a publication on the feasibility and usefulness of the scales. Further analysis of special interest concerns the congruence of preferences of husband and wives in Malaysia, and of brides and bridegrooms in a sample of newly married couples in Hungary. The latter study is to be longitudinal and it is expected to relate the scale positions of the couples at marriage to their later fertility. C. H. Coombs has been a collaborator in the technical analysis and J. Rogers, Katherine Gaskin and Michael Koenig have assisted in the project.

CHANGES IN SEX ROLE ATTITUDES AND DEFINITIONS

K. Mason's ongoing project, supported by a grant from the National Institute of Mental Health, has in the past year focused on recent change in the sex-role attitudes and definitions of U.S. women. Using a series of local and national U.S. surveys, the project has adjusted women's responses statistically to a set of replicated sex-role attitude items in order to assess the direction, degree and structure of recent change in such attitudes. The project has also produced a handbook of sex-role attitude items that will be distributed by NIMH. John Czajka is a student trainee on this research.

SEX ROLES AND FERTILITY

D. Goldberg has shown that measures of women's roles and attitudes produce strong net effects on the fertility behavior of Mexican and Turkish women. Recent publications attempt to relate this to "fertility theories" dealing with modernization (World Fertility Survey, Occasional Paper No. 14) and the microeconomic approach (Social Forces, September 1975). The research is being replicated with data sets from the U.S. and Taiwan.

ECONOMIC-DEMOGRAPHIC INTERACTIONS IN PREINDUSTRIAL EUROPE

Using econometric techniques, R. Lee is analyzing economic-demographic interactions in preindustrial Europe, with applications to England. He is collaborating with E. A. Wrigley and Roger Schofield of the Cambridge Group for the History of Population and Social Structure on the analysis of aggregate time series from a sample of 404 English parishes covering the period 1538-1838. Philip Mirowski has been the student assistant in this work. A book with Wrigley and Schofield is in preparation. This work is now funded by a grant from the National Institute of Mental Health.
INHERITANCE LAWS AND 19th CENTURY FRENCH NUPTIALITY

A. Hermalin, in a collaborative effort with E. Van de Walle of the University of Pennsylvania, has been exploring the influence of the change in inheritance laws in 19th century France on levels of nuptiality. Data from each of the departments are used in an areal multivariate analysis to study the relation between an area's traditional inheritance pattern and nuptiality, while taking into account other demographic and socioeconomic factors. Preliminary results were presented at the conference, Behavioral Models in Historical Demography, in Philadelphia, October 1974. S. Etter has assisted in this analysis.

STOCHASTIC MODELS FOR ANALYSIS OF DEMOGRAPHIC TIME SERIES

Using techniques of cross-spectral analysis, R. Lee is developing stochastic time series models of demographic variables mutually interacting, and interacting with economic variables. Applications are in the areas of forecasting of demographic time series, analysis of incomplete data, study of relationships between variables, and analysis of time series implications of homeostatic population models.

WOMEN'S LABOR-FORCE PARTICIPATION AND FERTILITY

K. Mason is completing a monograph on a series of analyses intended to assess the extent to which aspects of U.S. women's employment influences their fertility behavior. A primary focus of the research is determining whether economic or psychological incentives or rewards of married women's employment have unambiguous influence on the timing and number of births. Jonathan Hodgdon is assisting as a student trainee.

DETERMINANTS OF WOMEN'S EMPLOYMENT IN 1880

Working in conjunction with Maris Vinovskis of the History Department, K. Mason is analyzing 1880 U.S. Census data from Essex County, Massachusetts. The project is concerned with describing the nature of female employment and occupations in this sample, and with analyzing the family socioeconomic determinants of female labor-force participation.

COMPARATIVE WORK HISTORIES

Under a grant from the National Science Foundation, P. Siegel is continuing the analysis of intra-generational occupational mobility displayed in work histories of males in Detroit and Yokohama. Interest focuses on the relations between the prestige, income, and education
and skill requirements in successive jobs and the extent to which suc­
cessive jobs can be said to constitute a career. Current effort in­
volves examination of possible reasons why both the inter- and intra-
firm rates of occupational mobility are approximately twice as high
in Detroit as in Yokohama, and the question of whether differences in
work histories have any consequences for individual reports of their
own job and life satisfaction. David Thompson has been a student
trainee in this project.

MEASUREMENT ERROR IN DEMOGRAPHIC AND NON-DEMOGRAPHIC DATA

If one of the prime objectives of error assessment is to "correct" data
to specify the "true" relationship among variables, then the impact of
interviewer effects should be fully explored. Attempts can be made to
identify individual interviewer biases in surveys, correct the data and
explore the corrected relationships. D. Goldberg and P. Siegel have
done preliminary work with demographic surveys in Ankara, Mexico City,
and Detroit. The objective is to determine levels of error for dif­
ferent types of questions and to see if the uncorrected substantive
relationships should be modified.

THE EFFECTS OF MEASUREMENT ERRORS IN MODELS OF THE PROCESS OF SOCIO­
ECONOMIC ATTAINMENT

W. Mason is analyzing models of the socioeconomic attainment process
using multiple indicators of parental socioeconomic status. This re­
search seeks to determine the consequences of errors in measures of
parental status on youthful aspirations and expectations. A paper in
press is based on analysis of information collected from Fort Wayne,
Indiana youths. A second analysis applies identical measurement error
models to a number of different data sets to replicate results.
Jennifer Madans has been a student assistant in this work.

EDUCATION-ABILITY INTERACTIONS AND NONLINEARITIES IN THE PROCESS OF
SOCIOECONOMIC ATTAINMENT

W. Mason is conducting research which seeks to establish whether the
effects of ability on occupational attainment and earnings are the
same for persons with different amounts of schooling. Conflicting re­
results in this area of research appear to be due in part to the nature
of the samples used. A paper applying a common analytic regime to
various bodies of data is in process. John Talbot has been a student
trainee in this work.

BIRTH-SPACING AND COLLEGE ENROLLMENT

Results from the study by D. Goldberg and A. Anderson of Michigan
College Enrollment Projection suggest that the current enrollment
decline stems largely from a family sibling squeeze or what might be called the $50,000 mortgage with the seven year payment plan. The work is being extended to U.S. data sets, analyzing the family economic enrollment squeeze for several subsets of the population, with concern centering on policy questions insofar as possible.

VARIATION IN THE MEANING OF STATED IDEAL FAMILY SIZE

The hypothesis that similar statements about desired number of children have different meanings for persons with different social or economic backgrounds is being examined by L. Coombs with the preference scale data from Taiwan, and similar data from Detroit and the U.S. This analysis should throw further light on differential use of contraception and the relationship of family size desires to achieved fertility.

CULTURAL VARIATION IN INTER-CHILD DISTANCES

L. Coombs is investigating variations in psychological distances between birth orders in selected cultural settings and in significant subgroups within cultures. Using J scale analysis based on unfolding theory, early work by D. Goldberg and C. H. Coombs based on Detroit 1962 data indicated that the distance between the third and the fourth child, for example, varied considerably depending on the parity of the respondent. During the past year computerized techniques for determining Dominant J scales and Stochastic J scales have been developed by C. H. Coombs and J. Lingoes, permitting wider use of these methods. Tape preparation on data from Morocco (collected by R. Lapham) has been completed and preliminary work done on a reevaluation of the Detroit data. Comparative analyses will be made by L. Coombs with data from Ankara and Mexico City (collected by D. Goldberg) and from the 1973 National Survey of Family Growth. J. Rogers is assisting in this work.

THE MEANING OF "DON'T KNOW" RESPONSES

Many of the attitudinal variables increasingly being incorporated into fertility surveys yield a considerable number of responses in the "depends," or "don't know" category. Little theoretical measurement consideration has been given to this issue. The problem of what such responses really mean and how they should be incorporated in attitude measures is being investigated from a psychological measurement point of view by L. Coombs and C. H. Coombs, using Taiwan data on attitude toward abortion as an example. The findings have import for the handling of such responses in a wide variety of measures and studies. A joint publication is in progress and a preliminary report on the research was presented by C. H. Coombs at the March meetings of the Psychometric Society.
DIET AND THE GEOGRAPHIC DISTRIBUTION OF MULTIPLE SCLEROSIS

D. Goldberg, working jointly with B. Agranoff of the Department of Biological Chemistry, have been applying demographic-epidemiological methods to the topic of the prevalence of multiple sclerosis. Using U.S. states and counties as units, they have found a persistent relationship of diet (particularly fats) to M.S., while taking into account several other variables considered important by the medical profession. While still open to questions, the results are consistent with several animal laboratory findings and some questionable evidence from M.S. patients. A paper has been published in The Lancet. Additional epidemiological research is being conducted with data from the Scandanavian countries, with the purpose of developing hypotheses specific enough to be tested in the laboratory. James Walker, a student trainee, and Michael Hitchcock, a research assistant, have participated in these efforts.

SOCIAL AND DEMOGRAPHIC POSITIONS, AND THE STABILITY AND IMPACT OF POLITICAL OPINIONS ON VOTING BEHAVIOR

W. Mason is conducting research which seeks to determine the stability of political opinions about common economic and social problems and to assess the impact of these opinions on individual voting behavior. Previous research on this topic has concluded, erroneously, that political opinions are so unstable as to have little impact on the electoral process. Other research, which attempts to demonstrate that political opinions are stable, has over-estimated stability by ignoring the social and demographic positions of individuals. The present research attempts to redress the balance by use of a more properly specified model which includes the effects of these positions. The model is estimated using British and American electoral surveys.

THE STATUS OF FAMILY PLANNING PROGRAMS

In collaboration with Dr. Bernard Berelson, R. Freedman is preparing a monographic review of the current status of family planning programs in relation to overall strategies for development and population policy to lower birth rates.

A LONGITUDINAL FIFTEEN-YEAR FERTILITY STUDY IN THE DETROIT METROPOLITAN AREA

A project is underway to attempt to find and reinterview the respondents who participated in a longitudinal fertility study during the period 1962-1966 of white, married Detroit women at selected parities. D. Freedman and A. Thornton are principal investigators with L. Coombs and R. Freedman as consultants. This is a joint project with the Survey Research Center. Funding from the University of Michigan-Ford Population Development Fund makes possible a feasibility pretest to determine the possibilities and problems in reaching the original respondents after a ten year period.
DATA PROCESSING UNIT

M. Coble and A. Anderson are responsible for coordinating data processing at the Center and for instructing Center apprentices in the use of the data processing and computing facilities.

K. Richardson joined the programming staff, replacing S. Bittner. Richardson and R. Nylund provide programming and data processing support for the Center.

Programs have been developed during the past year to assist in the analysis of a variety of new data files. Files acquired during the past year include: data on the racial composition of schools in the United States for 1968, 1970, and 1972; selected data for Essex County, Massachusetts, from the 1880 U.S. Census; two data files from the National Longitudinal Surveys; the N.O.R.C. General Social Science Survey data; and historical vital statistics compiled from the records of English parishes. The library of programs supported at the Center is being revised to accommodate recent changes made in hardware and software at the University Computing Center.

As in the past, the programming staff has consulted with and provided professional services to researchers from several other institutions.

DOCTORAL DISSERTATIONS

Four dissertation projects were brought to completion during 1974-75:

An Analysis of the Field Workers' Performance in Recruiting IUD Acceptors in Taiwan

Charles H. C. Chen, a doctoral candidate in Sociology, analyzed Taiwan family planning field workers' performance in terms of the number of IUD cases recruited, in relation to workers' characteristics such as age, education, marital status, the characteristics of the areas in which they worked, and the methods of recruiting used, such as home visits, group meetings, etc. The data, mainly from field workers' monthly reports, provide information on each worker's background, personal record, activities, and achievement. Policy implications associated with the analysis are also being studied, with the aim of bringing about improvement in the family planning program in Taiwan. This study was done under the direction of A. Hermalin. Dr. Chen is now at the International Institute of Rural Reconstruction in the Philippines.
Income and Expected Family Size in the United States

James C. Cramer, a doctoral student in Sociology, used a longitudinal data set from the Panel Study of Income Dynamics at the Survey Research Center, The University of Michigan (J. Morgan, principal investigator) to test central aspects of the widely discussed "new household economics" theory of fertility, with essentially negative results. However, paradoxically there was some evidence that the theory might apply to lower status groups. Another contribution of the thesis is an estimation of the effects of having a baby on the earnings of the wife and the amount of time given to housework. R. Freedman was chairman of the dissertation committee.

Changes in Subjective Social Class Identification in Detroit Between the 1950's and 1971

Mark Evers, a doctoral student in Sociology now a member of the Department of Sociology at Duke University, completed his study of class identification based on data from the Detroit Area Studies of 1953, 1956, 1957 and 1971. The research analyzed respondent class identification as a function of time, sex, race and several socioeconomic characteristics. The log-liner framework for estimation was used throughout the analysis. Although central findings in the literature on class identification were replicated, the study also obtained new results concerning the nonmonotonicity of relationships--results which were obtained through use of an estimation technique more adequate for the problem than those used in previous research on class identification. The dissertation was done under the direction of W. Mason.

Marital Instability and Fertility

This research by Arland Thornton, a candidate in Sociology, was primarily concerned with marital dissolution and remarriage. One focus of the study was the incidence and distribution of these events in the American population. The second focus was the relationships existing between these marital processes and childbirth. The study was carried out using data from the National Fertility Studies conducted in the United States in 1965 and 1970. The research was done under the supervision of A. Hermalin. Dr. Thornton is now at the Institute for Social Research, University of Michigan.

Six dissertations approved in an earlier year are in progress:

Homemakers and Ghetto Dwellers: A Study of Home Ownership and Race

Ernest B. Attah, a doctoral candidate in Sociology and a member of the Sociology Department at Brown University, is doing a study which, first,
examines historical trends in home ownership by blacks and whites in the United States; second, investigates correlates of home ownership; and third, analyzes the implications of home ownership for the residential distribution of blacks in the city. The major data source is the Decennial Censuses of Population and Housing. Case studies for selected metropolitan areas will supplement the analyses for the United States as a whole. R. Farley is chairman of the dissertation committee.

Inequalities in the Educational Process at the School District Level: Michigan, 1970

Robert I. K. Hastings, a doctoral candidate in Sociology, is investigating inequality in education. Using data from the Michigan Educational Assessment Program and the 1970 Census of Population (Fourth Count), the study attempts to account for inter-school district variation in scores on a state-wide achievement test by reference to population and organization variables. This study is under the supervision of P. Siegel.

The Correlates of Family Structure in Taiwan

Robert Klein, a doctoral candidate in Sociology now on the faculty of Fordham University, is conducting a study that examines correlates of family structure, attempts to develop a multivariate model of demographic and socioeconomic determinants of family structure, and examines changes in family structure at two points in time. M. White of the Sociology Department is chairman and R. Freedman is a member of his committee.


This research of Margaret Nielsen, a candidate in Sociology now on the staff of SUNY at Buffalo, aims 1) to describe racial segregation in the large public school districts of metropolitan United States, 2) to examine the demographic and socioeconomic correlates of racial segregation in city school districts in 1970 and to test hypotheses about the effects of prior desegregation-oriented policies or actions, and 3) to explore correlates of recent changes in the racial segregation of city school districts and to assess the effects of specific decisions or actions on changes in school segregation. W. Mason serves on this dissertation committee.

Labor Force Participation and Fertility

Linda Waite Stolzenberg, a doctoral candidate in Sociology presently in the Population Division, U.S. Bureau of the Census, is analyzing
the relationship between labor force participation of women and
t heir fertility at various stages of the family life cycle, taking
into account, where possible, better measures of the occupational
and income status and history of the husband and wife. The data
come from a longitudinal study of Detroit Family Growth. R.
Freedman is chairman of her committee.

Age at First Marriage: A Social-Psychological Investigation of the
Determinants of the Timing of Marriage in the United States

Paul Voss, a doctoral candidate in Sociology and now on the staff of
the Department of Sociology and The Roper Public Opinion Research
Center, Williams College, is investigating the social-psychological
aspects of the nuptial process. The research utilizes data from a
one-third random sample of Wisconsin high school seniors in 1957 and
a follow-up survey seven years later (W. H. Sewell, principal investi­
gator). Models which quantify the effects of social-structural and
attitudinal factors on the timing of marriage are proposed. The study
is being done under the direction of R. Farley.

Proposals were formally approved and considerable progress made
during the current year on the following six dissertations:

Religious Fertility Differential in Lebanon

Joseph Chamie is studying the relationship of religion to fertility
in Lebanon, with data from the first National Fertility and Family
Planning Survey of Lebanon done in 1971. The research aims are:
1) describing fertility levels and fertility control behavior in
Lebanon, and 2) investigating religious, marital fertility differ­
entials. One key issue addressed is whether religious fertility
differentials can be explained in terms of demographic, social, and
economic characteristics of the couples. A theory is proposed which
maintains that the religious effect is dependent to a great extent
on the religions involved and the level of socioeconomic development.
This research is under the supervision of R. Freedman.

An Economic Analysis of the Young Adult's Decision to Form a House­
hold Separate from the Parental Unit

Martha Hill is investigating decision making by young adults about
separate household formation. Using the University of Michigan Survey
Research Center Panel Study of Income Dynamics she is analyzing the
"split decision" of young adults by simultaneously analyzing four
basic decisions facing young adults--the schooling decision, the de­
cision to work full-time, the decision to marry, and the decision to
form a household separate from the parental household. R. Lee is
supervisor of this research.
Religious Subcommunities in Detroit: Social Changes from the 1950’s to the 1970’s

An analysis by Robert Johnson employs a pooling of Detroit Area Studies (specifically the 1958, 1959, 1966 and 1971 studies) to draw inferences about the character of religious change and its linkage to religious subcommunities. Of special theoretical importance are changes in the extent of religious homogamy in marriages and friendships. In the causal analysis of religious change, important substantive variables (e.g. educational attainment, social and geographic origins) thought to be factors conditioning levels of involvement in religious subcommunities are introduced and causal models of the "socio-religious life cycle" are tested. This research is under the supervision of W. Mason. In the fall of 1975 R. Johnson will be a member of the Sociology faculty at the University of Colorado in Boulder.

Models of Household Size, Saving, and Income: An Empirical Investigation

This investigation by Andrew Mason is primarily an analysis of the effect of household composition and the number of children on the lifetime income of each member and the total assets accumulated by the household. A life-cycle model adopted to consider accumulation of assets is tested using the National Longitudinal Survey of Older Men. The survey was conducted between 1966 and 1971 and approximately 5,000 household heads were interviewed in five different years. This research is under the direction of W. H. L. Anderson of the Economics Department; R. Lee and K. Mason serve on the committee. Mr. Mason will be on the staff of the East-West Center Population Institute in the Fall, 1975.

Effects of Community Residence on Fertility

Patricia Pastor's research involves an analysis of the additive and nonadditive effects of community level variables on the fertility of Taiwanese women. Of particular interest is an assessment of the contribution which the inclusion of community characteristics makes to the explanation of the fertility attitudes and behavior of individual couples. The data for the study are three KAP surveys of married women in Taiwan, information about local areas from Taiwan's household register and measures of the activities of the national family planning program in various local communities. This research is under the supervision of A. Hermalin.
The Interaction Between Female Labor Force Participation and Fertility in Mexico City

Stanley Smith, a doctoral candidate in Economics, is formulating a model as a framework for studying the relation between women's work patterns and fertility. The model, which visualizes a joint determination of labor force participation and fertility decisions, will be applied to data from Mexico City. The research is particularly concerned with the degree of compatibility between various kinds and durations of work on the one hand and childbearing on the other. Background economic and attitudinal variables will be employed to explain the fertility-work interaction. E. Mueller is chairman of the dissertation committee.

PROFESSIONAL AND PUBLIC SERVICE ACTIVITIES

Professional staff members of the Center participate in a wide range of professional services and activities which contribute to the development of demographic research and public policy decisions. Some of these activities are international in scope and are listed in the succeeding section; others are professional contributions to U.S. activities. Some of the major professional and public service assignments undertaken by staff members during the year are listed below. These activities are related to ongoing Center activities, but are not part of the immediate University assignments of the staff.

Lolagene C. Coombs

Member, Scientific Review Panel on Research on the Regulation of Fertility, National Institutes of Public Health, Department of Health, Education, and Welfare
Coordinator, Subcommittee on Comparative Fertility Analysis, International Union for the Scientific Study of Population
Consultant, National Survey of Family Growth, National Center for Health Statistics, Division of Vital Statistics, Department of Health, Education, and Welfare
Editorial Consultant, Demography

Reynolds Farley

Member, Board of Directors, Publications Committee of the Population Association of America; Subcommittee on Birth and Fetal Death
Certificates of the Technical Consultant Panel on Content and Format Revision of Standard Certificates, U.S. Public Health Service; Advisory Board of Editors of the Journal of Human Resources; Committee on Population Statistics; and the Advisory Committee on Population Statistics, U.S. Bureau of the Census
Reynolds Farley (continued)

Associate Editor, American Sociological Review
Reviewer, American Journal of Sociology; Arnold Rose Monograph Series; Demography; Explorations in Economic History; Social Forces; Sociological Inquiry; Sociological Quarterly; Sociological Focus

Ronald Freedman

Member, President's Study on Food and Nutrition; National Academy of Sciences; Committee on Comparative Fertility Analyses of the International Union for the Scientific Study of Population; Technical Advisory Committee and Consultant to the World Fertility Study
Chairman, for 1975 of the International Advisory Committee of the Population Institute of the East-West Center
Consultant, Population Council; Ford Foundation; Academia Sincia, Taiwan; and the Committee on Family Planning of Taiwan

David Goldberg

Member, Board of Directors, Population Association of America; Fellowship Committee, Population Council
Consultant, World Fertility Survey; Governor's Commission on Higher Education; Michigan Housing Authority
Editorial Consultant, Land Economics

Albert Hermalin

Member, Committee on Demographic Aspects of Family Planning Programs, International Union for the Scientific Study of Population
Consultant to the Population Division, United Nations, for study on methods of measuring the impact of family planning programs
Technical Advisor to the Taiwan Committee on Family Planning, and to the Taiwan Ministry of Interior on research activities
Editorial Consultant, American Sociological Review; Studies in Family Planning; Sociological Methods and Research

Ronald Lee

Member, History Advisory Committee of the Mathematical Social Sciences Board
Editorial Consultant, Journal of the American Statistical Association; Demography; Explorations in Economic History; Princeton University Press; reviewed research proposals for NICHD and NSF

Karen Mason

Member, Secretary's Advisory Committee on Population Affairs, Department of Health, Education, and Welfare; Population Association of America Committee on the Secretariat; American Sociological Association Committee on the Rights of Non-academic Sociologists
INTERNATIONAL ACTIVITIES

Of major importance in the area of international activities is the Center's continuing training of foreign students in Ann Arbor. The terms of each award are arranged to make it possible for the student to function effectively in his training program. Training opportunities were provided this year for students from Bangladesh, England, Japan, Malaysia, Nigeria, Pakistan, Taiwan and Turkey. In addition, a Fulbright scholar from Roumania has been in residence at the Center.
The Center maintains close cooperation with the Sampling Program for Foreign Statisticians, directed by L. Kish of the University of Michigan Survey Research Center. Each year intensive training in sampling is given under the program to a group of twenty-five foreign statisticians, including a majority who have a special interest in population.

Members of the Center's professional staff have participated in international conferences or assisted investigators on population research in several overseas areas. A list of such activities occurring in 1974-75 follows.

**Bangkok**

As a consultant to the World Fertility Survey, R. Freedman visited Bangkok in June to consult on the analysis of the Thailand fertility survey.

**Egypt**

B. Moots and R. Potter visited Egypt to present papers and participate in the Third International Conference on Interuterine Contraception, in Cairo, December 1974.

**ESACP**

R. Potter has been serving as consultant to the East and South Asia Commission on Population project on the Multi-national Study in Methodologies for Setting Family Planning Targets in the ESACP Region.

**India**

A. Hermalin has been consultant for Resources for the Future on a study to evaluate a fertility reduction incentive program in operation on tea estates in India.

**Hong Kong**

R. Freedman visited Hong Kong in June to discuss the recent activities in the Hong Kong Family Planning Program and the Department of Census and Statistics.

**International Union for the Scientific Study of Population**

A subgroup of the Comparative Fertility Analysis Subcommittee has been involved in comparative methodological and substantive studies using the Coombs preference scales in a variety of cultures. This work, directed by L. Coombs, has been carried out by investigators
in Hungary, Korea, Malaysia, the Philippines, Taiwan, Thailand, and the United States. A conference on the results was held in Hawaii in June 1975, hosted by the East-West Center with the cooperation of the IUSSP. C. H. Coombs also participated in the conference. R. Freedman has been chairman of the IUSSP Subcommittee, was co-organizer with J. Palmore of the East-West Center, and a participant in the conference.

R. Freedman is a member of the new IUSSP Committee on Comparative Fertility Analysis, with primary responsibility for drafting a working document on comparative analysis of the World Fertility Survey data.

London

R. Freedman worked in London in the summers of 1974 and 1975 as consultant on the World Fertility Survey. L. Kish visited London in October 1974 for a meeting of the Technical Advisory Committee of WFS, and in May 1975, for consultation on the project on computing sampling errors for the fertility surveys.

Taiwan

R. Freedman visited Taipei in June 1975 for consultation with the Division on Census Registration Statistics of the Ministry of the Interior, and with the Joint Commission on Rural Reconstruction and other agencies. He also spent considerable time in Taipei for consultation with the Taiwan Committee on Family Planning.

CONFERENCES, COLLOQUIA, PAPERS

Part of the professional activities of the Center staff consists of participation in special conferences, giving colloquia or research seminars at other universities, and the presentation of papers at professional meetings. Participation in such activities during 1974-75 is given below.

Lolagene C. Coombs

 Participated in a conference on New Measures of Preference for Number and Sex of Children at the East-West Center, Honolulu, June 1975, and presented a paper on "Comparative Methodological and Substantive Findings for Six Cultures."

 Participated in a conference on Research on Determinants of Sex Preferences sponsored by COMBEP (Committee for Comparative Behavioral Studies in Population) and the East-West Population Institute in Honolulu, June 1975.
Organized and chaired a session on Family Size, Childspacing and Childlessness at the April 1975 PAA meetings in Seattle, Washington.

Gave a colloquium on Models and Scales for Family Composition Preferences at Cornell University, November 1974.

Organized and chaired a session at the University of Michigan Conference on New Research on Women, March 1975.

Reynolds Farley


Organized a session on Fertility, Theory and Methods, at the Population Association of America's 1975 annual meetings in Seattle.

Ronald Freedman

Participated in the Resources for the Future Conference in Washington, D.C., February 1975, and was a discussant in the group on "Population Policy from the Socio-Economic Perspective."

Gave a colloquium at the University of North Carolina, Chapel Hill in March 1975, on the topic of "Research Potential of the World Fertility Survey."

Participated in the first meeting of the Food and Nutrition Committee of the National Academy of Sciences, called at the request of President Ford, in May 1975.

Participated in and was co-chairman of the Conference on Measurement of Preferences for Number and Sex of Children, at the Population Institute, East-West Center, Honolulu, in June 1975.

David Goldberg


Gave colloquia at the following universities:

Albert Hermalin

Presented a paper, "Models for the Analysis of Inconsistent Reports of an Event from Two Sources—with Application to the Accuracy of Husband-Wife Reports" at the annual meeting of the Population Association of America, Seattle, April 1975. 

Ronald Lee

Participated in the Workshop on Fertility and Household Behavior at the University of Minnesota in November 1974.
Co-organizer of the Mathematical Social Sciences Board Sponsored conference on Behavioral Models in Historical Demography, Philadelphia, October 1974; presented a paper on "Methods and Models for Analyzing Historical Series of Births, Deaths and Marriages."

Karen Mason


William Mason

Participated in a Social Science Research Council conference on the merits of constructing an econometric model of society, held in Washington, D.C., in October 1974.
Participated in a year-long Sex Stratification Seminar sponsored by the American Sociological Association, and presented results from his work in progress on the Equal Rights Amendment and on race-sex specific trends in socioeconomic differentials at a meeting of the Seminar in Chicago, June 1975.
Baron Moots

Presented a paper "Factors Affecting the Long-Term Impact of IUDs on Fertility Control," at the Third International Conference on Intrauterine Contraception, Cairo, December 1974.

Eva Mueller


Robert Potter


Paul Siegel

Participated in the NSF Mathematical Social Sciences Board Seminar on Measurement and Models in Stratification and Mobility Research, Toronto, Canada, August 1974, and presented preliminary materials from the Detroit/Yokohama Comparative Work History Project.

David Thompson


PUBLICATIONS AND MANUSCRIPTS IN PRESS

This listing includes manuscripts written by a member of the Center staff or a student apprentice (as author or coauthor) that have been published or accepted for publication since the last annual report of the Center was issued.

Listings of the Center reprint series and other available publications by the staff were circulated in the fall of 1974 to about 800 individuals and agencies working in the population field or indicating an interest in demographic research.


Components of Suburban Population Growth (forthcoming in a special publication of the American Journal of Sociology devoted to the suburbs, 1975).


Methods and Models for Analyzing Historical Series of Births, Deaths and Marriages (forthcoming in the proceedings of the conference on Behavioral Models in Historical Demography, held in October 1974).


B. Moots (with M. Chang). Long-Term Use of Contraceptives by IUD Acceptors in Taichung, Taiwan, Studies in Family Planning, June 1975.

Factors Affecting the Long-Term Impact of IUDs on Fertility Control, Proceedings of International Conference on IUDs, December 1974 (forthcoming).


The Relation between Income and Fertility in Taiwan (forthcoming in Economic Development and Cultural Change).


### APPENDIX A

**CENTER FINANCIAL ASSISTANCE PROVIDED FOR GRADUATE STUDENTS, 1974-1975**

<table>
<thead>
<tr>
<th>Stage of Apprenticeship and Academic Term</th>
<th>Number of Students Receiving Assistance</th>
<th>All Students</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Any Form</td>
<td>Tuition</td>
</tr>
<tr>
<td>Total, 1974-1975</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Summer half-term</td>
<td>18</td>
<td>14</td>
</tr>
<tr>
<td>University year</td>
<td>29</td>
<td>22</td>
</tr>
<tr>
<td>Spring half-term</td>
<td>15</td>
<td>12</td>
</tr>
<tr>
<td>First Year Students c</td>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td>Continuing Students</td>
<td>25</td>
<td>19</td>
</tr>
<tr>
<td>Total, 1974-1975</td>
<td>35</td>
<td>26</td>
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<table>
<thead>
<tr>
<th>Stage of Apprenticeship and Academic Term</th>
<th>Number of Students Receiving Assistance</th>
<th>Foreign Students</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Any Form</td>
<td>Tuition</td>
</tr>
<tr>
<td>Total, 1974-1975</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Summer half-term</td>
<td>10</td>
<td>8</td>
</tr>
<tr>
<td>University year</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Spring half-term</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>First Year Students c</td>
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<tr>
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<td>6</td>
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<tr>
<td>Total, 1974-1975</td>
<td>25</td>
<td>18</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Stage of Apprenticeship and Academic Term</th>
<th>Number of Students Receiving Assistance</th>
<th>American Students</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Any Form</td>
<td>Tuition</td>
</tr>
<tr>
<td>Total, 1974-1975</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Summer half-term</td>
<td>12</td>
<td>10</td>
</tr>
<tr>
<td>University year</td>
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<td>17</td>
</tr>
<tr>
<td>Spring half-term</td>
<td>13</td>
<td>10</td>
</tr>
<tr>
<td>First Year Students c</td>
<td>8</td>
<td>5</td>
</tr>
<tr>
<td>Continuing Students</td>
<td>17</td>
<td>13</td>
</tr>
<tr>
<td>Total, 1974-1975</td>
<td>25</td>
<td>18</td>
</tr>
</tbody>
</table>

a Number of students receiving financial assistance from the Population Studies Center in period indicated; numbers by period or type of assistance are not additive because of overlap.

b Direct expenditures for individual students, including some hourly payments for work on Center projects and travel funds for six foreign students. Excludes consultation, provision of space, and use of general facilities.

c Students who were not associated with the Center before Summer, 1974.
APPENDIX B

POPULATION STUDIES CENTER STAFF
1974 - 1975

Director
David Goldberg, Professor of Sociology

Associate Directors
Reynolds Farley, Associate Professor of Sociology
Ronald Freedman, Professor of Sociology
Albert I. Hermalin, Associate Professor of Sociology
Paul M. Siegel, Associate Professor of Sociology

Research Associates
Albert Anderson, Assistant Research Scientist
J. Michael Coble, Assistant Research Scientist
Lolagene C. Coombs, Assistant Research Scientist
Deborah Freedman, Assistant Professor of Economics
Leslie Kish, Professor of Sociology, and Program Director, Survey Research Center
John Knodel, Associate Professor of Sociology
Ronald D. Lee, Associate Professor of Economics
Karen O. Mason, Assistant Professor of Sociology
William M. Mason, Assistant Professor of Sociology
Baron Moots, Assistant Research Scientist
Eva L. Mueller, Professor of Economics
Robert G. Potter, Visiting Research Associate (Professor, Brown University)
Leroy O. Stone, Adjunct Associate Professor of Sociology (Statistics Canada)

Supporting Staff
Helen L. Dempster, Administrative Associate
Mary P. Scott, Administrative Assistant
Richard Nylund, Programmer
Karlin Richardson, Programmer
Susan Etter, Research Assistant
James Rogers, Research Assistant
Lois Groesbeck, Secretary - Librarian
Billie Jo Burton, Secretary (Half-time)
Carolyn P. Copley, Secretary
Carol Crawford, Secretary (Half-time)
Dorothy Strand, Secretary (Half-time)
Claudia Canale, Receptionist - Clerk (Half-time)
Charlotte Smart, Receptionist - Clerk (Half-time)
APPENDIX C

FORMER POPULATION STUDIES CENTER TRAINEES WHO RECEIVED A PH.D. IN SOCIOLOGY OR ECONOMICS
(Chronologically listed - 1962 to 1975)

Krishnan Namboodiri
Professor and Chairman (Sociology)
Editor, Demography
University of North Carolina

Tattamangalam R. Balakrishnan
Professor (Sociology)
University of Western Ontario

Allan Feldt
Professor (Urban and Regional Planning, Natural Resources)
The University of Michigan

William Smit
Department of Sociology
Calvin College

William F. Pratt
Chief, Family Growth Survey Branch
National Center for Health Statistics

Partha S. Mohapatra
Staff Associate (Population Division)
ECAFE, Sala Santitham, Bangkok

Kodaganallur Srikantan
Staff Associate
The Population Council

Roy C. Treadway
Staff Associate
Technical Assistance Division
The Population Council

Fred Campbell
Associate Professor (Sociology)
University of Washington

Larry L. Bumpass
Professor (Sociology) and Research Associate (Center for Demography and Ecology)
University of Wisconsin

Patricia R. Ferman
Associate Professor (Sociology)
Eastern Michigan University

Robert M. Hauser
Professor (Sociology) and Research Associate (Center for Demography and Ecology)
University of Wisconsin

Anrudh K. Jain
Assistant Director (Biomedical Division)
The Population Council

Albert M. Marckwardt
Demographer
World Fertility Survey
(International Statistical Institute)

William S. Pooler
Assistant Professor (Sociology)
Syracuse University

Allan Schnaiberg
Associate Professor (Sociology)
Northwestern University

Te-Hsiung Sun
Executive Director
Committee on Family Planning
Taiwan Provincial Health Department

James A. Sweet
Associate Professor (Sociology) and Director (Center for Demography and Ecology)
University of Wisconsin

Solomon S. P. Chu
Assistant Professor (Sociology)
State University of New York at Buffalo

David L. Featherman
Professor and Chairman (Rural Sociology) and Research Associate (Center for Demography and Ecology)
University of Wisconsin

Charles R. Kindermann
Statistician
U.S. Department of Justice

Alden Speare
Associate Professor (Sociology)
Brown University
Jay I. Stark  
Lincorp Research, Inc.  
Ann Arbor, Michigan

Arjun L. Adlakha  
Research Associate (POP LAB)  
University of North Carolina

Greer L. Fox  
Assistant Professor (Sociology)  
Bowling Green State University

Judith L. Friedman  
Associate Professor (Human Ecology)  
Cook College, Rutgers University

Samuel R. Friedman  
Assistant Professor (Sociology)  
Montclair State College

Robert Lapham  
Chief of Evaluation, MCH  
Family Planning Program  
The Population Council

Baron L. Moots  
Assistant Research Scientist  
(Population Studies Center)  
University of Michigan

Bruce L. Warren  
Associate Professor (Sociology)  
Eastern Michigan University

Gordon S. Bonham  
Survey Statistician  
Family Growth Survey Branch  
National Center for Health Statistics

Eugene P. Ericksen  
Head of Sampling Division  
Institute for Survey Research  
Temple University

Shea O. Rutstein  
SIEF Seminar Director  
CELADE  
Santiago, Chile

Fred Arnold  
Staff Researcher  
East-West Population Institute  
East-West Center, Hawaii

George K. Jarvis  
Associate Professor (Sociology)  
University of Alberta  
Edmonton, Alberta

Allan Griswold Johnson  
Assistant Professor (Sociology)  
Wesleyan University

Richard B. Anker  
Economist  
International Labor Organization  
Geneva, Switzerland

Paul M. Hirsch  
Assistant Professor (Sociology)  
University of Chicago

Howard M. Iams  
Assistant Professor (Sociology)  
Hope College

Paul K. C. Liu  
Economist  
Institute of Economics  
Academia Sinica  
Taipei, Taiwan

Maurice M. MacDonald  
Research Economist  
Institute for Research on Poverty  
University of Wisconsin

Lois B. Shaw  
Staff Economist  
Gary Income Maintenance Experiment  
Gary, Indiana

Ross Stolzenberg  
Assistant Professor (Social Relations)  
and Research Associate (Center for  
Metropolitan Planning and Research)  
Johns Hopkins University

Boone A. Turchi  
Assistant Professor (Economics)  
University of North Carolina

John Ellis Anderson  
Research Associate  
Center for Disease Control  
Atlanta, Georgia

Hsiao-Chang Chen  
International Institute of  
Rural Reconstruction  
Philippines

Hsan Zafer Dogan  
Research Associate (Population Council,  
Yozgat Project)  
Ankara, Turkey
Barry James Edmonston  
Assistant Professor (Sociology) and  
Research Associate  
Food Research Institute  
Stanford University

Mark Evers  
Assistant Professor (Sociology)  
Duke University

Elizabeth M. Fischer  
Assistant Professor (Sociology) and  
Associate Director (Social Science Data Library)  
Institute for Research in Social Science  
University of North Carolina

John Leroy Goodman  
Research Associate  
The Urban Institute  
Washington, D.C.

Lois Verbrugge  
Assistant Professor (School of Public Health)  
Johns Hopkins University

James Cramer  
Assistant Professor (Sociology)  
University of California, Davis

Arland Thornton  
Research Associate  
Survey Research Center  
University of Michigan