1975–1976

ANNUAL REPORT

of the

POPULATION STUDIES CENTER

LOLOGENE C. COOMBS, Editor

The University of Michigan

Ann Arbor, Michigan 48109
## POPULATION STUDIES CENTER
### GRANTS AND CONTRACTS
#### 1976-1977

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GRADUATE TRAINING

Thirty-six graduate students participated in the Center's program at some time during the year. Eight apprentices were in the graduate program in Economics and twenty-eight were Sociology students.

Seventeen 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, Nigeria, Norway, Pakistan, the Philippines, and the U.S. One Sociology graduate student from the Center spent the year in Bangladesh working with the MATLAB-USAID Contraceptive Distribution Project.

Three Center students are participating in summer training and workshops held at the East-West Population Institute in Honolulu and the Family Planning Center in Seoul, Korea.

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: trends in the effect of education on fertility; attitudes toward abortion; the measurement, correlates and roots 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 use of areal analysis in evaluating family planning programs. Comparative analyses of Turkish and Mexican studies are 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 occupation 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, trends in racial segregation in schools, race-sex specific
educational differentials in the U.S., 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: stochastic models for analysis of time series; 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.; and the changing socio-economic status of women and of blacks.

A new focus on historical demographic studies has emerged with research on economic and demographic interactions in preindustrial Europe, historical population dynamics in German villages, urban-rural differences in demographic behavior in 19th century Germany, inheritance laws and 19th century French nuptiality, and women's work roles in the U.S. in the 1880's.

A relatively new emphasis on measurement issues and measurement errors has been evidenced in research in interviewer effects, measurement errors in reports on aspirations and expectations, models for developing scales for family composition preferences, potentials for multistage-multitechnique analysis models in family planning program analysis, response reliability in interview surveys, 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 survey 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 1975-76 year. The topics investigated include: the relation of women's labor force participation to fertility, determinants of the timing of first marriages in the U.S., religious fertility differentials in Lebanon, and the effect of household composition on lifetime income and accumulated assets.

ASSISTANCE TO POPULATION STUDIES ABROAD

Eight foreign students participated in the apprenticeship program during 1975-76.

Faculty associates of the Center visited Austria, Bangkok, China, Colombia, England, France, Hong Kong, India, Indonesia, Italy, Japan, Mexico, Poland, Switzerland, Taiwan, Thailand, and Venezuela 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 45 manuscripts written by associates of the Center were published or accepted for publication during 1975-76. About 2400 reprints of staff publications were sent by the Center in response to requests from 41 countries. In addition to filling personal reprint requests, staff members also sent special research materials to about 125 foreign researchers in 25 different countries.

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


- 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, World Bank, National Academy of Sciences;

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

The Population Studies Center, now completing its fourteenth 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. Recent Center and Training Grants from the National Institute of Child Health and Development will augment these funds in the coming year. Specific research projects and special activities continue to be funded separately by various governmental agencies and private sources.

During the past year, Professor Leslie Kish of the Institute for Social Research and the Sociology Department, and a Research Associate of the Center, was chosen for the Distinguished Faculty Award from the University of Michigan.

Professor Albert I. Hermalin was on Sabbatical Leave for the period January-May, 1976.

Dr. John Knodel joined the Center staff as a Research Associate in July 1975 and the Department of Sociology as Associate Professor in September 1975. Dr. Deborah Freedman, an Assistant Professor of Economics at the University of Michigan, also joined the Center staff as a Research Associate in September 1975.

Three Center students, J. Casterline, S. Fox, and H. Kintner, received awards from the East-West Population Institute to participate in the Seventh Summer Seminar on Population, June 14-July 16, 1976. The theme of this program is "The Demographic Transition in Asia and the Pacific." The first four weeks consist of a conference and workshop, held at the East-West Center, Honolulu; the fifth week is at the Korean Institute for Family Planning in Seoul.

Michael Levin, an anthropologist from the East-West Center, Honolulu, spent the Winter Term 1976 at the Center working on his research on population problems of Pacific atolls.

Andrei Stanoiu, a sociologist from Bucharest University, Rumania, spent the Summer 1975 at the Center as a Fulbright Scholar.
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 1975-76. Seven were nearing completion of the doctoral program and were working on their dissertation research projects. Of the sixteen students new to the Center program, nine were just beginning graduate study at Michigan; seven had begun their graduate study at Michigan earlier, but had not previously been associated with the Center's traineeship program.

Eight graduate student apprentices were in the program in Economics, and twenty-eight were Sociology students.

Seventeen 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 Nigerian Government, the Norwegian Research Council, the National Science Foundation, the National Institute of Mental Health, the Population Council, the Economic Demography Program, and special grants from the Ford and Rockefeller Foundations.

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 1975-76, 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. P. Siegel and J. Knodel coordinated the seminar in 1975-76. The selected titles given below illustrate the range of topics covered.
The Economic Status of Blacks--Have the Gains of the 1960's Disappeared in the 1970's? (R. Farley)
Trends in White-Nonwhite and Male-Female Educational Attainment Differentials (W. Mason and R. Mare)
Changes in Women's Sex Role Attitudes, 1964-1974 (K. Mason and J. Czajka)
Response Consistency in the Thai Longitudinal Study (J. Knodel)
Fertility, Income, and Age-Structure in the United States, 1947-1974 (R. Lee)
Labor Force Participation and Fertility in Mexico, D.F. (S. Smith)
Religious Differentials in Fertility, Lebanon, 1971 (J. Chamie)
Problems in the Development of Sociology and Demography in Rumania (A. Staniou)
The Measurement and Comparison of Family Composition Preferences (L. Coombs)
Rural-Urban Differentials in the Demographic Transition: The Case of Switzerland (F. van de Walle)
Homogeneity of Education of Siblings (A. Hermalin)
Observations from Indonesia and China (R. Freedman)
Inter- and Intra-firm Mobility in Socio-Economic Achievements (P. Siegel)

To extend the professional horizons 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. In recent years, however, new emphasis on the salience of demography for many areas of research and policy making has been reflected in increased employment in non-academic research positions, both in the United States and abroad. A list of the 58 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 Center Ph.D. degree recipients listed in Appendix C, many students from the U.S. and abroad have received Center training. All together about 60 former trainees currently hold academic positions at about 30 universities in the United States and at eight universities abroad. Another 49 are engaged in research in about 18 national, 13 foreign, and four international organizations concerned with population issues, including:
The Department of Statistics (Malaysia)
Taiwan Institute of Family Planning
Population Division, ESCAP (Bangkok)
East-West Population Institute (Honolulu)
The Population Council (New York)
Food Research Institute (Stanford)
National Center for Health Statistics
World Fertility Survey (London)
Center for Disease Control (Atlanta)
Department of Social Services (Lansing)
Family Planning Association of Hong Kong
U.S. Bureau of the Census
Ministerio de Trabajo y Comunidades (Peru)
Urban Neptura de Monterriea (Peru)
National Center for Labor Statistics (Mexico)
International Labor Organization (Geneva)
Ciudad de los Periodistas (Madrid)
The Urban Institute (Washington D.C.)
World Fertility Survey (Bangkok)
Seattle Public Schools
Bureau of Resources and Development (Lansing)
African Institute for Economic Development and Planning (Senegal)
Ministry of Health and Social Affairs (Korea)
Census and Statistics Department (Hong Kong)

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

For students beginning an apprenticeship, the Center offers 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 developing 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 Program

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. D. Freedman and K. Mason are also involved in teaching in this program. 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 eight such students received training and some had 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 most projects have 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 grants or contracts from the National Institute of Child Health and Human Development, National Institutes of Health, Health Resources Administration, World Bank, U.S. Agency for International Development, National Science Foundation, Statistics Canada, the Upper Great Lakes Regional Commission, The National Institute of Education, the U.S. Census Bureau, the National Institute of Mental Health, and Rackham Research Grants. The major research activities of the professional staff during 1975-76 are listed below.
Members of the Center's professional staff continued their close collaboration 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 and D. Freedman of the Economics Department concentrate on analyses of Taiwan survey data on economic-demographic inter-connections. R. Potter of Brown University collaborates on analyses of IUD continuation patterns, and special tabulations have been made available to C. Mode of Drexel University for his work on Computer Macrosimulation in Family Planning Evaluation. Taiwan data have also been made available to A. Jain of the Population Council for a collaborative analysis of breast-feeding patterns and their effect on fertility.

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 sub-projects, 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, with the assistance of Mary Beth Weinberger, are using data from the 1973 and earlier KAP studies to examine familial structure and attitudes. The findings are that the traditional Chinese stem family is still a dominant form of household structure if parents of husband are available, although there has been a modest decrease in this phenomenon since 1965. One of the most important findings, however, is that it is possible for an LDC population to have a high rate of use of contraception while retaining traditional familial forms and attitudes. Desired family size is more closely related to traditional familial values than is the practice of contraception. Other important findings are: (1) Many respondents who are living in nuclear units have parents living with a married brother, so the filial obligation is being met in a traditional way. (2) If parents and married sons do not live together, there is a considerable amount of visiting and of financial exchanges between them. Thus the network of familial ties is not adequately represented by household structure alone. (3) The joint-stem family continues to be important in farm households, while the stem family is more important in non-farm households.
Evaluation of Family Planning Programs Through Areal Analysis

A. Hermalin has made further use of areal multivariate analysis to appraise the effect of a family planning program while taking account of socioeconomic factors. In recent work, he has shown through various models that the program in Taiwan continued to have an effect through 1972, the last year covered in his analysis. These results were presented at the Seventh Summer Seminar of the East-West Population Institute, in June 1976. A review of the advantages and limitations of this technique along with examples of its use appeared as a chapter in Measuring the Effect of Family Planning Programs on Fertility, edited by C. Chandrasekaran and A. Hermalin. Sue Etter has been assisting in this research.

Preference Profiles and Fertility Behavior Among Taiwanese Wives

Utilizing data from the new number and sex preference scale methodology incorporated in the Taiwan KAP-4 survey, L. Coombs has analyzed the relationship of underlying preference structure to life cycle stage, socioeconomic and modernization measures, and reproductive goals and behavior. Underlying preferences for large families persist for a large segment of the population, despite recent drops in average family size ideals, and preference for sons is found for over 90 percent of the wives. An interesting finding is that although number preference patterns vary with modernization measures in the expected direction, relatively small differentials are found for son preference, which still characterizes all segments of the society. Underlying preferences are found to be frequently at variance with global single-valued statements, and are more predictive of fertility behavior. Both number and sex preference I-scale position are found to be systematically related to parity progression ratios in the past, expectations for childbearing in the future, and present use of contraception. This analysis has been distributed as part of the Taiwan Working Paper series and is being submitted for publication. J. Rogers assisted in the analysis, along with M. Koenig and C. Tan as student trainees.

The Sequence of Contraceptive Methods Used in a Developing Country

Using detailed reports obtained from women in a longitudinal study, A. Hermalin has been investigating the patterns of change that take place in the methods of contraception used in Taiwan. The data will allow a determination of the length of time a couple continues with a given method and the factors that are associated with certain sequences of change. Particular attention is being paid to the characteristics of those who give up a non-program method of contraception in favor of one from the program, as well as the reverse process. S. Etter has been assisting in this research.

Attitudes Toward Abortion in Taiwan

L. Coombs has been examining the patterns of approval or disapproval of abortion, under a number of specific circumstances. Analysis of both the individual reasons for abortion and of the abortion approval scale
developed by Guttman scalogram analysis indicates fairly widespread approval, with least pro-sentiment in the case of abortion for child-spacing purposes. Little social or urbanization difference in approval was found. Because these questions generated a large number of "don't know" responses (about 15 percent), a special analysis of these responses was undertaken. Women replying "don't know" did not come from any special strata of the population, except for those responding DK on all the questions, who were primarily among the least educated. The results of this study have been presented in Taiwan Working Paper No. 32.

Recent Trends in Fertility and the Effects of Education on Fertility in Taiwan, 1961-1974

R. Freedman, with M. B. Weinberger, Tze-Hwa Fan, and Sou-Pen Wei, has worked on demographic decompositions of Taiwan's fertility decline and the results have been put out as a Taiwan Working Paper. For the period 1961-74 as a whole, about three-quarters of the decline is due to reduction in marital fertility, and about one-quarter to changes in nuptiality. Both factors worked against changes in the age structure which would otherwise have produced a rise of 1.8 in the crude birth rate. Further decomposition to assess the roles of age and education in changing fertility levels indicates that, while societal changes in educational levels have had a significant effect in lowering fertility, the major effects came from changes within age-educational strata. Fertility declined most rapidly among the poorly educated strata, which are a large, if diminishing, part of the Taiwan population.

Perceived Economic Cost and Utility for Children and Underlying Preference Structures

The linkage of individual perceptions of the economic advantages and disadvantages of children to underlying preferences for family size and composition is being explored by L. Coombs. Indexes of perceived cost and utility have been constructed, and are being supplemented by data on actual contributions being made by respondents to their own parents, relative economic situation compared to the past insofar as it appears to be affected by number of children, expectations for future economic position, and present ownership of modern consumer durables. J. Rogers and C. Tan are assisting on this project.

Women's Roles, Familial Values, and Sex and Number of Children Preferences

In an attempt to explore the roots of underlying preference structure, L. Coombs is investigating the relation of husband and wife roles, family decision-making dominance, wife's work and work setting, outside activities, marriage arrangements and family living patterns, and religiosity to sex and number preferences. A number of Guttman scales combining several indicators have been developed for these variables. Preliminary analysis indicates that less traditional role relationships and familial values and living patterns are negatively related to underlying son and large family preference beyond the effects that would be expected on the basis of modernism as reflected in increased education, income and urbanization. J. Rogers and C. Tan are assisting in this work.
Long-term IUD Use Following Program Acceptance

B. Moots and R. Potter continue work based on the Taichung IUD Acceptance Study including the preparation of a summary report of the principal findings of earlier analyses. Many of the women who entered the program have completed, or were completing, their childbearing at the time of the last round of interviews in 1974. The role played by the IUD in their fertility experience during the study period continues to be analyzed. This data series provides the opportunity to compare, by means of prospective data, the reproductive careers of women coming under an intensive family planning program at different stages of family-building. It is hypothesized that the earlier the exposure to the program (and associated secular changes), the greater the degree of family planning success. Young women who give limiting as their motive for accepting an IUD tend to be selective of those with early marriage or small size of family desires and, on either count, face a relatively harder job of avoiding excess fertility during the entire reproductive career. Accordingly, they offer the means for a conservative test of the above hypothesis. Former Center associate, R. Avery, now at Cornell University, continues to be involved in this work both directly and in an advisory capacity.

Reliability of Attitudinal Responses

Increased attention is being paid to the reliability or consistency over time of responses to survey questions. L. Coombs is examining the consistency of responses at a post-enumeration survey taken with a selected number of respondents about a month following the Taiwan KAP-4 survey. Preliminary results show that while overall reliability is reasonably good, there is greater reliability for factual than for attitudinal data; but there also is variation in consistency of responses on factual questions depending on the salience of the topic to the respondent. While analysis to date is not conclusive, there are indications of the need for experiment and revision in the conventional questions on knowledge of contraceptive methods. C. Tan has been a student apprentice in this analysis.

Economic Development and Population Growth in Taiwan

During the past 25 years Taiwan has compiled one of the most impressive records of economic development in the world. Yet this small island is one of the most densely populated areas. Many economists and demographers believe that high population density and a high rate of population growth are impediments to the economic development of LDCs. This case study of Taiwan analyzes the effect of population growth and density on economic development. It attempts to discover how the continuing high rate of labor force and population growth and the decline in fertility since the mid-1950's may have affected the rate and character of economic growth. It thus supplements previous studies which have been concerned primarily with the reverse relation, i.e., the effect of economic development on fertility and mortality. This project is an outgrowth of a conference on "Population and Economic Development in Taiwan," which E. Mueller attended. It will integrate some of the papers presented at the Conference and other literature on Taiwanese economic development.
Taiwan Working Papers and Studies by Taiwan Collaborating Researchers

The project continues this series, started in 1969 as a collaborative venture with the Taiwan Committee on Family Planning, in order to circulate research results quickly to 250 interested persons. R. Freedman and A. Hermalin are the editors. The following papers were added during 1975-76.

30. L. C. Coombs and T. H. Sun, "Family Composition Preferences in a Developing Culture: The Case of Taiwan, 1973."


Of particular interest during the past year is a paper by T. H. Sun on "Population Policy and Family Planning in the Taiwan Area, Republic of China," which was presented at the 13th Pacific Science Congress, August 18-30, 1975 in Vancouver, Canada, and has been published in Industry of Free China, Vol. 38, No. 6, pp. 2-27, December 1975.

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 Institutes of Health's Center for Population Research, the National Science Foundation, the Rockefeller Foundation and Statistics Canada. The purpose is to measure, decompose, and detect the consequences of population differentiation and segregation.

The Distribution of Population within American Metropolises

This work by R. Farley is the continuation of a research project which sought to measure and describe the extent of social class residential segregation in American urbanized areas. The results suggest that levels of social class residential segregation are much lower than levels of racial residential segregation. J. Casterline is assisting in this research which was supported by a grant from the Center for Population Research.

One paper from this study, "Components of Suburban Population Growth," appeared this year in the volume The Changing Face of the Suburbs edited by Barry Schwartz. Another, "Trends in Racial Inequalities: Have the Gains of the 1960's Disappeared in the 1970's?" was read at the 1976 meetings of the Population Association of America and is being submitted for publication.
Intra-Generational Occupational Mobility

In collaboration with Robert Cole of the Japanese Studies Center, 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 prestige, income, education, and skill requirements in successive jobs and the extent to which successive jobs can be said to constitute a career. Debra Schatz has been a student assistant in this work.

The Social and Economic Status of Blacks in the United States

R. Farley continues to monitor trends in the relative socioeconomic status of blacks in this country. A paper discussing trends in education, unemployment, labor force participation, occupational prestige, family income and personal earnings was presented at the 1975 meetings of the American Sociological Association, and has been submitted for publication.

Trends in Racial Segregation in Public Schools

For several years, R. Farley has analyzed the extent of racial segregation in the nation's public schools. Since the late 1960's, there have been fairly sharp decreases in racial segregation in most southern school districts because federal courts in that region have ordered effective integration programs. In those few northern districts affected by federal court orders, racial segregation levels have plummeted but, in numerous other northern areas, racial segmentation in the schools has not abated. By 1973, levels of school segregation were considerably higher in the North than in the South.

Differences between the racial composition of central cities and their suburban rings makes it impossible to integrate schools in many metropolitan areas if the federal courts restrict their integration orders to specific school districts. There has been a high rate of white flight from central cities but it is not clear that school integration is the cause. A paper on this topic was presented at a Brookings Institution conference in July 1975, and later published in Social Policy. Two grants facilitate this research, one from the NIMH small grants program and the other from the National Institute of Education. Clarence Wordan is assisting as a student trainee.

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 behavior and attitudes described as cultural or ethnic 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. Karol Krotki is currently writing his dissertation on this topic and Nancy Grassmick is a student trainee working on these data.

**The Causes of Racial Residential Segregation in Detroit**

R. Farley has been principal investigator in 1975-76 for the Detroit Area Study project on racial residential segregation in Detroit. The data gathered in this research, with the assistance of a Rackham grant, form the basis of his major research concentration in the next two years. Funded by a grant from the National Science Foundation, it involves an analysis of demographic and economic data concerning blacks and whites in the Detroit area along with a wide variety of attitudinal and housing information gathered in the DAS study. Diane Colasonto is assisting in this work.

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

W. Mason continues research to characterize and explain changes in race-sex specific socioeconomic differentials. Currently under analysis are education differentials estimated from detailed tabulations for states in the decennial censuses of 1940-1970. Robert Mare is student assistant for this project.

**Variations in Migration Streams**

L. Stone is continuing his work on the modification of techniques for multivariate analysis of contingency tables for application to the study of variations in composition among migration streams. An analysis of variations in occupational and educational composition among regional migration streams within Canada was completed.

**Trends in White-Nonwhite and Male-Female Education Differentials**

W. Mason is studying race-sex specific education differentials in the United States. This research uses multiple measurements for cohort educational attainment available from decennial censuses to obtain improved estimates of cohort educational attainment. Robert Mare is student assistant for this project.

**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 to fertility behavior of U.S. expectations and preferences for family size
and composition. Using the data from the 1973 U.S. National Survey of Family Growth under a contract with the Health Resources Administration, earlier exploratory work is being followed by detailed analysis 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 the 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 B. Burton have been assisting in this research.

REGIONAL VARIATION IN DEMOGRAPHIC MEASURES IN THE COURSE OF TRANSITION

A. Hermalin has been exploring the changes that take place in the degree of variation among regions of a country on a number of demographic measures during the process of overall change in levels of fertility and other characteristics. Patterns of variation over time for the recent history of several Asian countries have been compared with those of 19th century Europe. Francis Osagie has served as student assistant on this project.

COMPARATIVE INTERPRETATIONS OF STATEMENTS OF DESIRED FAMILY SIZE

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

WOMEN'S LABOR-FORCE PARTICIPATION AND FERTILITY

K. Mason in 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.

CULTURAL VARIATION IN INTER-CHILD DISTANCES

Variations in psychological distances between birth orders in selected cultural settings and in significant subgroups within cultures are being investigated by L. Coombs and D. Goldberg. Using J scale analysis based on unfolding theory, early work by D. Goldberg and C. H. Coombs with Detroit 1962 data indicated, for example, that the distance between the
third and the fourth child varied considerably depending on the parity of the respondent. Computerized techniques for determining Dominant J-Scales and Stochastic J-Scales are being developed by C. H. Coombs and J. Lingoes, to permit wider use of these methods. Comparative analyses will be made with data from Detroit, the U.S., Ankara, Mexico City, and Morocco. J. Rogers is assisting in this work.

DEVELOPMENT OF SURVEY INSTRUMENTS TO PROVIDE DATA FOR ECONOMIC DEMOGRAPHIC ANALYSIS

E. Mueller and D. Freedman have been developing a "standard package" of economic-demographic modules designed to enhance the usefulness of data available from household surveys for testing theories regarding household decision-making. A pretest has just been completed in Botswana, with additional field trials planned for Bangladesh and Guatemala. The work is being financed by AID and the World Bank, who hope to use the survey instrument package in field work which they support. An additional survey instrument that develops new approaches to the measurement of employment and underemployment is nearing completion. Roberta Barnes and Carol Clark have been assisting 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.

AGE PATTERNS OF FERTILITY AND FERTILITY DECLINE

Age patterns of fertility prior to and during the fertility transition in historical Europe and contemporary Asia were compared by J. Knodel. Predecline fertility in both areas was compared to the age structure of natural fertility. An index of fertility control developed recently by Coale was used to study the age patterns of fertility decline.

CONGRUENCE OF HUSBAND-WIFE ATTITUDES TOWARD FAMILY COMPOSITION IN MALAYSIA

L. Coombs is investigating the extent to which husbands and wives are in agreement in their attitudes toward the number and sex of the children they would like to have. The analysis utilizes I-scale data on underlying preference structure collected in the state of Selangor, Malaysia. Congruence of attitudes is being related to level of preference, to husband and wife communication, and to a number of social and demographic factors. M. Koenig assisted as a student trainee on this study.
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 and Toni Richards have been the student assistants in this work. A book with Wrigley and Schofield is in preparation. This work is now funded by a grant from the National Institutes of Health.

URBAN-RURAL DIFFERENCES IN DEMOGRAPHIC BEHAVIOR IN 19th CENTURY GERMANY

J. Knodel is analyzing urban and rural differences in demographic behavior in Germany during the period of rapid industrialization. Similar to an earlier study on illegitimacy, a study of urban-rural differentials in nuptiality was undertaken. This study analyzed the extensive data tabulated separately for urban and rural sectors as well as for individual cities from 19th century and early 20th century German state censuses. Results have indicated that the nature of urban-rural demographic differentials are considerably different than those often assumed by social historians. M. J. Maynes, a graduate student in history, has collaborated in this effort.

WOMEN'S WORK IN 1880, USA

K. Mason is doing a state-level analysis of the correlates of women's gainful employment in the United States in 1880. Katherine Gaskin is assisting as a student trainee.

HISTORICAL POPULATION DYNAMICS IN GERMAN VILLAGES

J. Knodel is analyzing German village genealogies from the perspective of historical demography. This unique data source contains reconstituted family histories for all persons living in a village from preindustrial times to the present. The analysis, funded by the National Institutes of Health, is giving special attention to temporal change. One focus is on the inter-relationship of child mortality and fertility. The influence of birth interval length, family size, and parity on mortality risks of offspring will also be examined. Another focus will be natural fertility and family limitation with special attention to evidence of control prior to the fertility decline and the transformation from preindustrial to modern childbearing patterns. The data permit an individual level analysis not possible with the aggregate data used in previous studies of the demographic transition. Other foci include illegitimacy, bridal pregnancy and nuptiality, and the correlates and consequences of generational links in illegitimacy. Hallie Kintner has been assisting in the project.
REINTERVIEW OF DETROIT PANEL

D. Freedman and A. Thornton (a former Center trainee now at the Survey Research Center) completed a pilot study reinterviewing a sample of the respondents from the 1962-66 Detroit longitudinal fertility study. The pilot project was supported by a special Ford grant. Funding permitting, a reinterview survey will be conducted in 1977. Research issues will include the inter-relation with fertility behavior of marital stability, women's labor force participation, sex-role attitudes, and economic status. Susan Vrbsky assisted on the project as a student trainee.

CROSS-CULTURAL STUDIES OF 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. Comparative analyses carried out by L. Coombs, with the assistance of J. Rogers, form the basis for a 1976 IUSSP publication on the theoretical model testing, field feasibility, and analytic usefulness of the scales.

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 Taiwan and it is anticipated that U.S. national sample data will be obtained through the facilities of the Institute for Social Research. B. Moots and A. Thornton are working with D. Goldberg on these materials.

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.

TARGET FERTILITY, CONTRACEPTION AND AGGREGATE RATES

R. Lee is attempting to integrate fertility survey concepts with the formal demographic analysis of aggregate rates. The central parameters are the fertility rate of nonterminators and the additional desired fertility of nonterminators. The research shows that actual aggregate
U.S. fertility has been consistent with the fertility expectations data, when reviewed in a stock adjustment context. The pattern of duration-specific marital fertility, and the way it is altered by changes in contraceptive failure rates, is derived from the model.

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 has been investigated from a psychological measurement point of view by L. Coombs and C. H. Coombs, with the assistance of J. Rogers, using Taiwan data on attitude toward abortion as an example. Using proximity analysis and scalogram analysis, the research shows that when non-homogeneous scale items have been eliminated, the "don't know" responses on the remaining items are largely of a transitional character and can be utilized appropriately in the scale. The findings have import for the handling of such responses in a wide variety of measures and studies. A joint publication on the topic has been issued as a MMPP Technical Report, and will be published in the Public Opinion Quarterly.

STOCHASTIC CUMULATIVE SCALES

The increased use of attitudinal variables in fertility research has raised a number of measurement issues, particularly those of appropriate scales versus ad hoc measures and the determination of whether variables belong to the domain being measured. The problem of constructing monotonic cumulative scales increases in difficulty with the amount of data and the amount of error. L. Coombs, C. H. Coombs and J. Lingoes have developed and computerized a new method for constructing stochastic cumulative scales of a Guttman type in the presence of massive and noisy data, such as is generated in large scale surveys. Utilizing data from Taiwan and the Philippines, scales of modern consumer durables have been developed. These and other scales on parent-child decision-making, husband-wife roles, and child responsibility to parents have been computed by the SCS and the Guttman deterministic methods for comparison, with almost identical results. The methodology, which has been published in the MMPP Series, No. 76-2, April 1976 is applicable to many survey analyses. C. Tan and J. Rogers assisted in this work.

RESPONSE RELIABILITY IN A LONGITUDINAL SURVEY IN THAILAND

In collaboration with Sauvaluck Piampiti and the Institute of Population Studies, Chulalongkorn University, Bangkok, J. Knodel compared for consistency the responses given in the two survey rounds of the Longitudinal Study of Social, Economic and Demographic Change, for both a rural and an urban panel of respondents. The results are useful for comparing the
extent of reliability found in a developing country with the level of reliability characteristic of surveys in Western countries. Bud Wurdock assisted in processing the data.

COHORT ANALYSIS OF DISCRETE ARCHIVAL DATA

W. Mason, in collaboration with S. E. Fienberg (Department of Applied Statistics, University of Minnesota), is conducting research on models for the analysis of synthetic cohorts. The goal of the research is to show how various specifications embracing age, period, and cohort effects can be handled in the discrete context. Michael Battaglia is student assistant for this project.

BREAST FEEDING AND ADULT STATURE

Areal level data from the German states of Baden and Bavaria in the 19th and early 20th century on the extent of breast feeding and the height of military recruits were used by J. Knodel to test an hypothesis developed by the late anthropologist John Whiting linking early infantile stress to adult stature. Hallie Kintner collaborated in this research.

THE HOMOGENEITY OF SIBLINGS ON EDUCATION AND OCCUPATION

A. Hermalin is engaged in a project to study the degree of homogeneity of adult siblings on educational attainment and occupational status, the social and economic correlates of homogeneity on these characteristics, and the relative importance of similarity as against birth order differences. The degree of similarity among siblings reflects a dimension of family influence not measurable by the more traditional methods of family research and one which is important for understanding the stable elements of the domestic environment. Data on actual siblings are also required to measure birth order effects properly. Information from a 1960 survey conducted by the Institute for Social Research, which inquired about the status of all children whether or not still at home, has been recoded to generate the necessary data base. This will provide for the first time estimates of similarity among siblings for a representative sample in the United States. Sue Etter has been assisting in this research.

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 and Mark Browning are assisting as student trainees in this work.
DOCTORAL DISSERTATIONS

Four dissertation projects were brought to completion during 1975-76:

Religious Fertility Differentials in Lebanon

Joseph Chamie, a doctoral candidate in Sociology, completed his dissertation on 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 principal hypothesis investigated was that religious differentials in fertility are dependent on the interaction of the socioeconomic characteristics of the members of the religious groups and their religion's local orientation toward fertility and fertility control. Fertility was expected to be high and undifferentiated for those with either low or high development characteristics, with maximum differentials in the intermediate stages. This interaction hypothesis, as applied to Lebanon, was largely supported by the regression analyses carried out. Dr. Chamie is doing additional work on the Lebanon data under a grant from the Rockefeller-Ford program for population policy studies. R. Freedman and A. Hermalin were co-chairmen of the dissertation committee.

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 was under the direction of W. H. L. Anderson of the Economics Department; R. Lee and K. Mason served on the committee. Mr. Mason is now a Research Associate at the East-West Center Population Institute and Assistant Professor of Economics at the University of Hawaii.

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 now an Assistant Professor in the Department of Sociology and on the staff of The Roper Public Opinion Research Center, Williams College, investigated the social-psychological aspects of the nuptial process. The research utilized 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 investigator). Models which quantify the effects of social-structural and attitudinal factors on the timing of marriage are analyzed. The study was done under the direction of R. Farley.
Labor Force Participation and Fertility

Linda Waite Stolzenberg, a doctoral candidate in Sociology now at the Population Division, U.S. Bureau of the Census, analyzed the relationship between labor force participation of women and their 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 was chairman of her committee.

Five dissertations approved in an earlier year are in progress:

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

Martha Hill, a candidate in Economics now working at the Institute for Social Research of the University of Michigan, 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 decision 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 Intermarriage and Friendship in Detroit and in the U.S.: Patterns and Trends Since the 1950's

This investigation by Robert Johnson, a doctoral candidate in Sociology, is using the Detroit Area Study archives of the University of Michigan and NORC and SRC national survey data, to formulate and assess models of mate selection and friendship among religious-ethnic groups and changes in these patterns from the 1950's to the 1970's. The research utilizes the loglinear model and related measures and tests, and is under the supervision of W. Mason.

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.
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. Ms. Pastor, a doctoral candidate in Sociology, is on the staff of the Fertility and Family Planning Studies Section of the Population Division, the United Nations, New York.

The Interaction Between Female Labor Force Participation and Fertility in Mexico City

Stanley Smith, a doctoral candidate in Economics, is formulating a model 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, which is funded by the NIH Economic Demography grant, 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.

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

Residential Distribution of Ethnic Groups

Karol Krotki, Jr., a doctoral candidate in Sociology, is attempting to measure changes in population clustering among several ethnic groups using a wide range of segregation indexes. The research is based on 1970 and earlier Census Data for a sample of metropolitan areas. L. Kish and D. Goldberg are co-chairmen of the dissertation committee.

Growth and Distribution of Schooling in Twentieth Century United States

Robert Mare, a doctoral candidate in Sociology, is using two recent large-scale surveys of the civilian male United States population to investigate two problems. First, he is attempting to account for the U.S. secular increase in grades of school completed and school continuation ratios by simultaneously examining the individual level effects of
family socioeconomic background and the global effects of macro-economic, demographic, and organizational changes. Second, he is examining the time series of cohort-specific effects of family socioeconomic background on school continuation probabilities and grades of school completed for cohorts born in the 20th century. The models examine the impact of global economic, political, and organizational factors on the relationship between family socioeconomic background and educational attainment. W. Mason is chairman of his 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 Panel on "The Consequences of Adolescent Pregnancy and Childbearing," Center for Population Research, National Institute of Child Health and Human Development.
Coordinator, Subcommittee on Comparative Fertility Analysis, International Union for the Scientific Study of Population
Editorial Consultant, Demography; Studies in Family Planning; Human Ecology

Reynolds Farley

Member, Publications Committee of the Population Association of America; Advisory Committee of the Census Bureau; National Institute of Mental Health panel to review grant proposals
Organizer, 1977 Population Association of America Program
Reviewer, Demography; Social Focus; American Sociological Review; American Journal of Sociology

Deborah Freedman

Consultant, World Bank

Ronald Freedman

Member, National Academy of Sciences; President's Study on World Food and Nutrition of the National Academy of Sciences; Committee on Comparative Fertility Analyses of the International Union for the Scientific Study of Population; National Advisory Council of the Center for Family Planning Program Development; U.S. Committee on Scholarly Communication with the People's Republic of China
Ronald Freedman (continued)

Chairman, International Advisory Committee of the East-West Population Institute of the East-West Center, Hawaii
Consultant, Population Council; Ford Foundation; Academia Sinica; Taiwan Provincial Institute of Family Planning; Family Planning Association of Hong Kong; National Center for Health Statistics; International Bank for Reconstruction and Development (Advisory Panel on Population); The World Fertility Survey (Technical Advisory Committee); Ministry of the Interior and the Joint Commission for Rural Reconstruction, Taiwan, Republic of China

Albert Hermalin

Secretary, Committee on Demographic Aspects of Family Planning Programs, International Union for the Scientific Study of Population (IUSSP)
Organizer, Informal Session on Technical Advances in Evaluating Family Planning Programs, IUSSP General Conference, August 1977, Mexico City
Consultant, United Nations Population Division on Methods of Measuring the Impact of Family Planning Programs on Fertility
Editorial Reader, Demography, Studies in Family Planning

Leslie Kish

Member, Council of International Association of Survey Statisticians
President-elect, American Statistical Association

John Knodel

Editorial Consultant, American Sociological Review; The American Sociologist; Demography; The Journal of Family History; and Comparative Studies in Society and History

Ronald Lee

Consultant, National Science Foundation; National Institute of Child Health and Human Development; Mathematical Social Sciences Board

Karen Mason

Member, Secretary's Advisory Committee on Population Affairs, Department of Health, Education and Welfare
Consulting Editor, American Journal of Sociology
Associate Editor, Sociological Methods and Research
Reviewer, National Science Foundation; National Institute of Mental Health; Demography; American Sociological Review

William Mason

Member, Advisory and Planning Committee of the Social Science Research Council's Center for Coordination of Research on Social Indicators
Chairman, SSRC advisory subcommittee on Current Population Surveys
Advisory Editor, Sociological Methodology
Reviewer, American Sociological Review; Social Forces; American Journal of Sociology; Demography
Eva Mueller
Consultant, World Bank; World Fertility Survey
Reviewer, National Science Foundation
Editorial Reader, Economic Development and Cultural Change

Robert Potter
Member, Subcommittee on Nutrition and Fertility, Committee on International Nutrition Programs, National Research Council; International Union for the Scientific Study of Population Committee on Demographic Aspects of Family Planning Programs
Consultant, ESCAP Project, "Multi-national Study in Methodologies for Setting Family Planning Targets in the ESCAP Region"

Leroy Stone
Member, and director of first policy project, Canadian Institute for Research on Public Policy

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 foreign students from Bangladesh, Canada, England, Japan, Nigeria, Norway, Pakistan, and the Philippines.

Members of the Center's professional staff have participated in international conferences, visited other countries to learn of demographic work being done, and assisted investigators on population research in several overseas areas. A list of such activities occurring in 1975-76 follows.

Austria
R. Freedman participated in the Salzburg Seminar in American Studies on Population and Food. The Fellows participating were from many countries of Europe and from Third World countries.

Canada
J. Knodel participated in the International Colloquium on Historical Demography, Montreal International Activities, Montreal, October 1975.

China
R. Freedman visited the People's Republic of China as a member of a University of Michigan delegation. He was particularly concerned with observation of the birth planning program in its social context.
Colombia

L. Coombs spent a week in Bogota in June 1976, where she consulted with persons in the Corporation Centro Regional de Poblacion and Pro Familia about population research and the operation of the family planning programs in Colombia.

England

L. Kish attended a meeting of the Technical Advisory Committee of the World Fertility Survey, September 1975.

D. Freedman spent a week at World Fertility Survey working on tabulation plans for integrating economic data into the First Country Report for Thailand, and discussing a project involving a prototype analysis of an economic module in one of the WFS countries for publication by WFS.

R. Freedman spent a week in London for a meeting of the World Bank External Advisory Panel on Population, and also for consultation on research plans for the World Fertility Survey. He also attended a meeting of the Technical Advisory Committee of the World Fertility Survey.

France

A. Hermalin was chairman of a meeting convened by Development Center, Organization for Economic Cooperation and Development, Paris, January 1976, on ways to improve communication about technical aspects of family planning program evaluation to program policy makers and administrators.

Indonesia

As part of his work with the External Advisory Panel on Population for the World Bank, R. Freedman visited Indonesia for three weeks to observe the current status of the family planning program and population trends there, with special reference to projects supported by the World Bank.

Italy

A. Hermalin attended a meeting of committee on Comparative Analysis of Fertility, IUSSP, Florence, August 1975.


Japan

R. Freedman attended a conference on the Demographic Transition in East Asia and served as summary speaker for the Conference. He also visited the Ministry of Welfare to consult about research on fertility,
Japan (continued)

with special reference to the Japanese version of the World Fertility Survey and the participation of former Center student, Mr. M. Nohara, in analysis of those data.

Mexico

E. Mueller participated in a seminar on "Population Growth and Agrarian Change" sponsored by IUSSP Committee on Economics and Demography, Mexico City, December 1975.

Poland

L. Kish participated in several sessions of the International Statistical Institute in Warsaw, September 1975.

Switzerland

A. Hermalin was chairman of the Expert Group Meeting on Methods of Measuring the Impact of Family Planning Programs on Fertility, United Nations, Geneva, April 1976. He prepared a background paper on the potential use of the multitrait-multimethod technique for testing independence of techniques for evaluating family planning programs.


Taiwan

E. Mueller attended a conference in Taipei on "Population and Economic Development in Taiwan" and acted as discussant, December 1975.

Thailand

R. Potter attended a Study Directors' Meeting of the Multinational Study in Methodologies for Setting Family Planning Targets in the ESCAP Region, Bangkok, September 1975 and prepared a background paper entitled "The ESCAP Target-Setting System: Rationale, Strengths, and Limitations."

E. Mueller spent a week in January 1976 in Bangkok as a consultant to the World Fertility Survey to help with plans for the economic analysis of Thai data from the World Fertility Survey.
Venezuela

L. Coombs visited Caracas in May 1976, consulting with various demographers and government officials on population issues and research and the family planning program in Venezuela.

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 1975-76 is given below.

Lolagene C. Coombs

Participated in a conference on Adolescent Pregnancy and Childbearing held in Washington, D.C., October 29-30, 1975 under the auspices of NICHD and the Alan Guttmacher Institute.

Gave a lecture on Demographic Applications of Conjoint Measurement Models at the Universidaad Centraal of Caracas, Venezuela, May 1976.

Reynolds Farley


Participated in the conference "Public Use Files" sponsored by the Center for Demography and Ecology of the University of Wisconsin, Madison, June 28-30, 1976.


Deborah Freedman

Participated in a conference on Research in Progress relating to the Easterlin Hypothesis, sponsored by the Center for Population Research, NICHD, Belmont, Fall 1975.

Participated in a University Panel Discussion on the economic issues in broadening the availability of higher education to women.

Presented a talk on "The Relation of Modern Consumption to Fertility in Taiwan" at the Population Center, George Washington University in the Spring, 1976.
Deborah Freedman (continued)

Organized and chaired a panel on the Easterlin Hypothesis at the Population meetings in Montreal, April 1976.

Ronald Freedman

Acted as discussant of a paper, "Impact of Family Planning Programs on Fertility in Developing Countries," at the Annual Meetings of the Population Association of America in Montreal, April 1976.

David Goldberg

Gave colloquia at the following universities:

"New Approaches to Population Clustering," University of Texas, Austin, August 1975.


Albert Hermalin

Participated in the Seventh Summer Seminar in Population of the East-West Population Institute, June 14-18, 1976, on "Demographic Transition in Asia and the Pacific" and presented a paper entitled "Spatial Analysis of Family Planning Program Effects in Taiwan."

Leslie Kish

Participated as President-elect in sessions of the American Statistical Institute, Atlanta, August 1975.

John Knodel

Participated in an exploratory meeting on Comparative Demographic Histories sponsored by the Social Science Research Council, New York, November 1975.

Participated in a panel discussion on European Demographic Transition Since the French Revolution: The New Evidence, held at the Population Association of America meetings in Montreal, April 1976.

Presented a paper on age patterns of fertility and fertility decline at the Seventh Summer Seminar, The Demographic Transition in Asia and the Pacific, held at the East-West Center, Honolulu, June 1976.

Presented a talk on Historical Demography and Urban Role Differentials and Illegitimacy in 19th Century Germany, Pennsylvania State University, February 1976.

Ronald Lee

Ronald Lee (continued)


Gave a paper on "Demographic Forecasting and the Easterlin Hypothesis" at the April 1976 meetings of the Population Association of America in Montreal.

Karen Mason

Presented a paper on "Women's Participation in the Labor Force and Fertility" at the Science Writers' Seminar on Fertility and Women's Changing Roles, National Institute of Child Health and Human Development, Bethesda, Maryland, October 1975.

Presented a paper co-authored by J. Hodgdon, entitled "Career versus Economic Factors in the Timing of Married Women's First Births," at the annual meetings of the Population Association of America, Montreal, April 1976.


William Mason


Robert Potter


Leroy Stone

Organized and chaired three seminars attended by experts from a number of academic disciplines in Montreal, April 1976. The seminars were concerned with an identification of policy issues related to Canadian demographic trends.

Students also participate in conferences and present papers at meetings. In addition to Center seminars given by a number of students, some of which are listed in an earlier section of this Report, the following students have participated in these professional activities:
P. Mirowski presented a paper on "Plague and the Penny Loaf" at the 1976 Cliometrics Conference in Madison, Wisconsin, April 1976.


J. Chamie gave a paper on "Religious Differentials in Fertility: Lebanon, 1971" at the meetings of the Population Association of America in Montreal, April 1976.

**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 1975 to about 750 individuals and agencies working in the population field or indicating an interest in demographic research. The Center filled about 2400 requests for specific publications from people in the U.S. and in 40 foreign countries.

In addition to requests for reprints, members of the Center staff received many inquiries about research materials that may be useful to researchers in other countries. In the past year staff members responded to about 125 such requests from persons in 25 foreign countries.


(_____) (with C. H. Coombs). Item Ambiguity and Response Uncertainty as Sources of the Don't Know Response, *Michigan Mathematical Psychology Program*, MMPP 75-7, University of Michigan, December 1975. (A somewhat briefer version has been accepted for publication by the *Public Opinion Quarterly.*

L. Coombs 

R. Farley 


D. Freedman 

Mass Media and Modern Consumption Goods: Their Suitability for Policy Interventions to Decrease Fertility (forthcoming in Population and Development: The Search for Selective Interventions, R. Ridker, ed.).

R. Freedman 

D. Goldberg 
Socioeconomic Theory and Fertility: The Case of the L.D.C.s, Social Forces, Vol. 54, No. 1, September 1975, pp. 84-106.


A. Hermalin 

Includes chapters on:


L. Kish

L. Kish

Representation, Randomization, and Control, Chapter 7 in Quantitative Sociology, ed. by Blalock, Borodkin, Boudon, Capecchi, 1975, Academic Press.


J. Knodel


(with S. Hochstadt). Illegitimacy in Imperial Germany: A Study of Urban-Rural Differentials, issued in June 1975 as a Discussion Paper in Western European Studies by the Center for Western European Studies, University of Michigan (also scheduled for 1977 publication in a volume edited by P. Laslett and K. Oosterveen on the comparative history of illegitimacy.


(with E. Shorter). The Reliability of Family Reconstruction Data on German Village Genealogies (Ortssippenbucher), (forthcoming in Annales de Demographie Historique).


R. Lee


Includes the following chapters by R. Lee:
"Introduction"
"Methods and Models for Analyzing Historical Series of Births, Deaths and Marriages."


Migration, Community of Origin, and Status Attainment: A Comparison of Two Metropolitan Communities in Developing Societies, Social Forces, Vol. 54, No. 4, June 1976.


R. Potter


L. Stone


## APPENDIX A

### CENTER FINANCIAL ASSISTANCE PROVIDED FOR GRADUATE STUDENTS, 1975-1976

<table>
<thead>
<tr>
<th>Stage of Apprenticeship and Academic Term</th>
<th>Number of Students Receiving Center Funding</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Any Form</td>
</tr>
<tr>
<td>Total, 1975-1976</td>
<td>30</td>
</tr>
<tr>
<td>Summer half-term</td>
<td>4</td>
</tr>
<tr>
<td>University year</td>
<td>28</td>
</tr>
<tr>
<td>Spring half-term</td>
<td>12</td>
</tr>
<tr>
<td>First Year Students&lt;sup&gt;c&lt;/sup&gt;</td>
<td>12</td>
</tr>
<tr>
<td>Continuing Students</td>
<td>18</td>
</tr>
<tr>
<td>Total, 1975-1976</td>
<td>7</td>
</tr>
<tr>
<td>Summer half-term</td>
<td>0</td>
</tr>
<tr>
<td>University year</td>
<td>5</td>
</tr>
<tr>
<td>Spring half-term</td>
<td>6</td>
</tr>
<tr>
<td>First Year Students&lt;sup&gt;c&lt;/sup&gt;</td>
<td>3</td>
</tr>
<tr>
<td>Continuing Students</td>
<td>4</td>
</tr>
<tr>
<td>Total, 1975-1976</td>
<td>23</td>
</tr>
<tr>
<td>Summer half-term</td>
<td>4</td>
</tr>
<tr>
<td>University year</td>
<td>23</td>
</tr>
<tr>
<td>Spring half-term</td>
<td>6</td>
</tr>
<tr>
<td>First Year Students&lt;sup&gt;c&lt;/sup&gt;</td>
<td>9</td>
</tr>
<tr>
<td>Continuing Students</td>
<td>14</td>
</tr>
</tbody>
</table>

<sup>a</sup> 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. Six Center students were wholly supported by funds outside the Center.

<sup>b</sup> Direct expenditures for individual students, including travel funds for three foreign students. Excludes consultation, provision of space, and use of general facilities.

<sup>c</sup> Students who were not associated with the Center before Summer, 1975.
APPENDIX B

POPULATION STUDIES CENTER STAFF
1975 - 1976

Director
David Goldberg, Professor of Sociology

Associate Directors
Reynolds Farley, 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, Associate Professor of Sociology
Baron Moots, Assistant Research Scientist
Eva L. Mueller, Professor of Economics and Associate Dean for Academic Appointments
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
Janice Banisafar, Secretary
Billie Jo Burton, Secretary
Carolyn P. Copley, Secretary
Carol Crawford, Secretary
Dorothy Strand, Secretary
Claudia Canale, Receptionist - Clerk
Charlotte Smart, Receptionist - Clerk
COURSES IN DEMOGRAPHY

The Departmental faculty members and research associates of the Population Studies Center are responsible for student supervision in the apprenticeship program at the Population Studies Center. The close one-to-one research training involved in participation in on-going research projects supplements the more formal training given in regular course work.

Formal graduate courses given by the Population Studies Center staff members include:

Sociology 530 - Population Problems. An intensive analysis of the basic demographic processes and their causes. How variations in mortality, fertility, nuptiality and migration arise and how they affect society. Illustrations are drawn from the United States and a variety of developed and underdeveloped countries.

Sociology 531 - Regional Population Problems. This course focuses on the population aspects of social problems—food, energy, pollution, etc.—the role of population variables in the problems of social development, and social policies that are concerned with the population aspects of these problems. It considers these issues in the context of specific countries representing a range of demographic situations.

Sociology 535 - The Urban Community. A descriptive study of the form and development of the urban community with respect to demographic structure, spatial and temporal patterns, and functional organization, with attention to the sources of data and techniques of analysis appropriate to the study of population distribution.

Sociology 536 - Human Ecology. Deals with the forms and modes of change of social structure as affected by interactions with the environment and population.

Sociology 630 - Research Methods in Population and Human Ecology. An examination of the nature and structure of a large number of demographic techniques useful for studying population composition or analyzing population dynamics. Involves both review of literature and computations using the techniques.

Sociology 631, 632 - Advanced Population Methods. These courses focus on the formal development of models to study the growth, distribution, change movement of human population with emphasis on mathematical models which lead to empirically verifiable theory. Topics include models for studying stable populations, the reproduction processes, and the translation of period to cohort rates. Attention is also given to data sources and statistical techniques used in studying the interrelationships of population distribution, division of labor, and community structure.

Sociology 633 - Proseminar in Historical Demography. A survey of the data sources and the methods of data organization and analysis peculiar to historical demographic research along with selected substantive topics.
Sociology 830, 831 - Seminar in Population and Human Ecology. A variety of substantive and methodological topics are taken up in a seminar format.

Economics 466 - Economics of Population. Analysis of the causes and effects of population changes from the standpoint of economic theory. (For upper-class undergraduates and as an introduction for graduates.)

Economics 667 - The Economics of Population Growth. Examines the economic determinants of demographic behavior, with a focus on the economics of fertility, as well as the consequences of demographic change in both developed and less developed countries and the economic aspects of population policy and family planning programs.

Economics 867, 868 - Seminar in the Economics of Population. A seminar covering a variety of topics in the form of (1) a detailed discussion of an important recent article or series of articles; (2) presentation of research plans or findings by trainees or faculty members; (3) presentation of research by a visitor.
APPENDIX C

FORMER POPULATION STUDIES CENTER TRAINEES WHO RECEIVED A PH.D. IN SOCIOLOGY OR ECONOMICS

(Chronologically listed - 1962 to 1976)

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 (deceased 1976)
Staff Associate (Population Division)
ECAFE, Sala Santitham, Bangkok

Kodaganallur Srikantan
Staff Associate
ESCAP, Bangkok

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
Taiwan Provincial Institute of Family Planning

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  
Chairman, Assistant Professor  
(Sociology)  
University of Vermont

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  
Overseas Staff Associate  
Urban Neptuna de Monterrica  
Lima, Peru

Fred Arnold  
Demographic Advisor, World  
Fertility Survey  
Bangkok, Thailand

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

Andrew Mason
Research Associate, Population Institute
East-West Center, Honolulu and Assistant Professor (Economics)
University of Hawaii

Paul Ronald Voss
Assistant Professor (Sociology)
Williams College

Joseph Chamie
Post-Doctoral Scholar
Population Policy Research Program
Rockefeller Foundation

Linda Stolzenberg
Demographer, Population Division
U.S. Bureau of the Census