

ANNUAL REPORT
OF THE
POPULATION STUDIES CENTER, THE UNIVERSITY OF MICHIGAN

JULY 1, 1973 -- JUNE 30, 1974



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HIGHLIGHTS OF THE ANNUAL REPORT
POPULATION STUDIES CENTER, THE UNIVERSITY OF MICHIGAN
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GRADUATE TRAINING

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

Five 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 the remaining thirty-two were Sociology students. Two special non-degree students and two post-doctoral students also used Center facilities.

Fourteen of the thirty-nine 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 Canada, England, India, Japan, Malaysia, Nigeria, Philippines, Taiwan, Turkey and the U.S. Under the supervision of a Center staff member, one Sociology graduate student is in Taiwan as a University Overseas Population Intern, working with Chinese social scientists at National Taiwan University and the Academia Sinica.

BASIC RESEARCH

A series of interrelated analyses of population dynamics in developing countries is being continued. Among the topics investigated during the year for Taiwan are: demographic and social correlates of trends in fertility, the factors affecting marriage and reproduction, the measurement of family composition preferences, the effects of the family planning program at the aggregate level, and the correlates of program use. Comparative analyses dealing with fertility, migration and stratification continue on Turkish and Mexican data from surveys carried out in 1966 and 1971.

An investigation of the distribution and differentiation of white and non-white population within twenty-nine metropolitan areas was continued, with emphases on the levels of black-white integration. Data showing the racial composition of student bodies and instructional staff in all public schools in metropolitan areas in 1967-72 were analyzed in a study on racial segregation in the public schools. The segregation of students of one race from teachers of the other was also assessed. Education and ability interaction and the effect of educational and other factors on career development were also investigated.

Economic-demographic interactions are being investigated in a number of settings and theoretical models, including historical studies of preindustrial England, 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 values of children in peasant societies, the relation of economic-demographic factors to household decisions, and the effects of guaranteed income on mobility in a Canadian experiment.

Studies of women's roles, work experience and earnings, and their relation to women's fertility were initiated at the Center this year.

DOCTORAL DISSERTATIONS

Eight dissertation projects, one in Economics and seven in Sociology, were brought to completion during the 1973-74 year. The topics investigated include: social consequences of residential segregation in Ankara, Turkey; patterns of alienation in the Detroit area; occupational differences in wage discrimination; income and economic mobility in Taiwan; the pattern of fertility decline in Taiwan; local residential mobility and housing adjustments; effect of sex discrimination on income.

ASSISTANCE TO POPULATION STUDIES ABROAD

Twelve foreign students participated in the apprenticeship program during 1973-74. In addition, two special status students and one postdoctoral researcher from abroad spent some months at the Center.

Faculty associates of the Center visited Bangkok, Brazil, France, Hong Kong, Hungary, Korea, Liege, London, Malaysia, Manila, Taiwan, and Vienna 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 manuscripts written by associates of the Center were published or accepted for publication during 1973-74.

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, the Governor's Commission on Higher Education in Michigan, the Urban Research Section of the Oak Ridge National Laboratory, 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, and the Manitoba Minimum Annual Income Project;

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

assistance in the editing of the American Journal of Sociology, Demography, Sociological Methodology, Sociological Review, National Science Foundation, Econometrica, Quarterly Journal of Economics, Journal of the American Statistical Association, Social Forces, Economic Development and Cultural Change, and the Journal of Human Resources.

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The Population Studies Center is completing its twelfth year, with a program focused on three major emphases: graduate training in population studies; basic research on population with a social, 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.

Associate Professor A. I. Hermalin assumed the Acting Directorship of the Center during January-June 1974, while Director D. Goldberg was on sabbatical leave from the University.

In September 1973 Karen O. Mason and William M. Mason joined the Center staff as Research Associates and the Department of Sociology as Assistant Professors. Before coming to the Center, K. Mason was at the Research Triangle Institute at Chapel Hill, North Carolina. W. Mason was at the Department of Sociology, Duke University.

Professors O. D. Duncan and B. Duncan resigned from the Center and the Department of Sociology at the University of Michigan to join the Department of Sociology at the University of Arizona in the Fall of 1973.

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-nine graduate students participated in the Center's apprenticeship program at some time during 1973-74. Fourteen were nearing completion of the doctoral program and were working on their dissertation research projects. Eight were just beginning graduate study at Michigan; two had begun their graduate study at Michigan earlier, but had not previously been associated with the Center's apprenticeship program.

Five 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 thirty-two were Sociology students. In addition, two special non-degree students were

assisted by the Center and two post-doctoral scholars were located at the Center for part of the year.

Fourteen of the thirty-nine 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, Rackham Grants, fellowship programs of the National Science Foundation, the Population Council, and a dissertation research project funded by the United States Department of Labor.

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 1973-74, 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 apprenticeship, each student spends at least 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 of the apprenticeship, the student usually is ready to devote full time to the investigation to be reported in a doctoral dissertation.

The apprentices and members of the professional staff participate in an informal weekly seminar at which a staff member or an advanced student reports on his current research activity. R. Lee and B. Moots coordinated the seminar in 1973-74. The selected titles given below illustrate the range of topics covered.

- Components of Suburban Population Growth (R. Farley)
- A Progress Report on the World Fertility Survey (R. Freedman)
- Urban Population Densities (B. Edmonston)
- Dynamics of Controlled Populations (R. Lee)
- Residential Mobility and Family Housing Adjustment-Part II (J. Goodman)
- The Clustering of Population (D. Goldberg)
- Concomitants of Rigid Systems of Stratification (B. Moots)
- Women's Labor Force Participation and Fertility (K. Mason)
- Population Growth Rates, Savings, and Long-Run Economic Growth
(A. Mason)
- Marriage Instability and Fertility: A Research Design (A. Thornton)

To extend the professional horizon of the trainees, attendance at the annual meeting 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, however, has recently been reflected in increased employment in nonacademic research positions, both in the United States and abroad.

Modern mobility complicates any attempt at a complete accounting of all students who have had training at the Center. At present about 35 former trainees currently hold academic positions at about 22 universities in the United States and at 4 universities abroad. Another 35 are engaged in research in about 18 national, 9 foreign, and 4 international organizations concerned with population issues, including:

The Department of Statistics (Malaysia)
Institute de Estadística (Costa Rica)
Central Statistical Office (Pakistan)
Taiwan Committee on Family Planning
Population División, ECAFE
East-West Population Institute
The Population Council
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
Lincorp Research, Inc.
U.S. Bureau of the Census
Ministerio de Trabajo y Comunidades (Peru)
CELADE
Sistema de Información para la Programación Económica y Social
(Mexico)

SPECIAL TRAINING PROGRAMS

Four special training programs are offered students. One is directed by Center research associates M. Coble and A. Anderson. Three non-Center complementary programs are coordinated by faculty associates of the Center, L. Kish, R. Lee, E. Mueller and P. Siegel.

Computer Training Program

For the ninth year, special training in the use of Michigan's electronic computer for demographic research was provided for students beginning an apprenticeship in the Center. 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 programs and their application to problems of population analysis. Such training is required of all apprentices.

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 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 five such students received training and partial support from the Center.

Quantitative Analysis of Social Organization

P. Siegel continues as director of the National Institute of Mental Health Training Program in Quantitative Analysis of Social Organization administered through the Department of Sociology. Students from the program who have interests in ecological approaches to the study of social organization receive training in the use of population data and demographic techniques by working as trainees at the Center. Their work is supervised by a Center staff member during this period, although their direct support is provided by the Departmental training grant. One student in this program received training at the Center this year.

BASIC RESEARCH

The Center has no centralized program of research. The research projects undertaken by members of the professional staff and the dissertation projects initiated by doctoral candidates reflect 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, World Bank, U.S. Agency for International Development, National Science Foundation, and National Institute of Mental Health. The major research activities of the professional staff during 1973-74 are listed below.

THE DISTRIBUTION AND DIFFERENTIATION OF POPULATION WITHIN METROPOLITAN AREAS

This investigation, conducted by R. Farley and supported by a grant from the Center for Population Research of the National Institute of Child Health and Human Development, seeks to describe patterns of population distribution within the larger metropolitan areas of the United States in 1970. Data from the Census of 1970, primarily from the Fourth Count census tapes, have been used to investigate the following topics:

1. Evidence indicates that economic variables fail to account for the residential segregation of blacks and their concentration within central cities. If blacks and whites were residentially distributed over an urbanized area according to their income or the value of the housing they occupy, there would be low levels of residential segregation. A. Hermalin and R. Farley published a paper on this topic in the American Sociological Review.
2. Trends in city-suburban differentiation based on data for 29 urbanized areas indicate that much of the increase in city-suburban socioeconomic differentiation may be attributed to changes in the racial composition of the central cities, with only modest increase in differential attributable to other factors measured. Selected findings will be reported in the January 1975 issue of the American Journal of Sociology.
3. 1970 census data have been used to test the hypothesis that socioeconomic status varies directly with the census tract's distance from the center of an urbanized area but that the within-tract variance in socioeconomic composition is inversely related to distance from the center of a city. Such socioeconomic measures as income, occupational prestige, educational attainment and a poverty index have been examined. Several other models of population distribution are being explored. Some findings were part of a dissertation by Barry Edmonston who assisted as a student trainee.
4. The extent of socioeconomic segregation within the white and black communities has been investigated for a few urbanized areas. Segregation levels appear to be of similar magnitude in the white and black communities.

RACIAL SEGREGATION IN PUBLIC ELEMENTARY SCHOOLS

Data from the National Center for Educational Statistics for 1967, 1968, 1970 and 1972 showing the racial composition of the students and staff of most United States public schools provide baseline measures of racial segregation. These are reported in a paper by R. Farley with Alma F. Taeuber in the January 1974 issue of the American Journal of Sociology.

This work has been updated and a paper on the 1967-72 changes will be presented at the 1974 meetings of the Society for the Study of Social Problems and will be published in the Winter 1975 issue of Sociological Focus. Declines in school segregation were typically much greater in southern districts than in northern districts. This appears to result from restricting the application by HEW of the 1964 Civil Rights Act to southern districts and from more extensive integration orders being issued by southern federal courts than by those in northern districts. Margaret Nielsen has assisted in this research and is writing a dissertation analyzing changes in school segregation.

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) continued her 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.

The 1973 Taiwan Survey of Fertility and Family Planning

Field work for this survey conducted by the staff of the Taiwan Provincial Committee on Family Planning in close consultation with members of the Center, was completed late in 1973. Following priority coding in December of 1973 of five decks of data for the sample of 5588 respondents, a trend report was prepared by T. H. Sun, M. C. Chang, L. C. Coombs and R. Freedman utilizing 1965-1973 data from five surveys. A paper based on these data will

appear in Studies in Family Planning, September 1974. Shanta Danaraj participated as a student trainee, and James Rogers assisted in this analysis.

Tape preparation for the remaining survey data is underway and analysis of data already available includes: tests of the relation of new number and sex preference scales to more conventional measures as well as to social and economic characteristics; study of factors influencing first use of contraception, choice of method and subsequent use patterns; analysis of relation of intergenerational and intragenerational social mobility to household composition and fertility behavior; relation of size of family of orientation to level and similarity of educational attainment of children and its significance for fertility.

Relation of Reported Attitudes about Future Childbearing to Subsequent Behavior

R. Freedman and A. Hermalin, with the cooperation of M. C. Chang of the Taiwan Committee on Family Planning, have been studying the extent to which statements on desired family size are predictive of future fertility. The initial analysis covering three years was based on 1970 reinterviews in Taiwan of women originally interviewed in 1967. It showed that only 14 percent of those who wanted no more children had a live birth in this period, compared with 78 percent of those who wanted more. This pattern compares favorably with the experience of American wives. Statements about wanting more children proved to be highly predictive of subsequent fertility for both modern and less advanced segments of the population. A paper based on this analysis has been submitted for publication. The analysis is currently being extended through 1972 by following up the fertility experience of women interviewed in 1967 in the Taiwan Household Register. The register data also provide the opportunity to compare the information from the register and the survey for completeness and accuracy of reporting births and deaths. J. Rogers and S. Etter have served as research assistants in this research, and Sou-Pen Wei has been a student trainee.

Family Composition Preferences in Taiwan

L. Coombs is analyzing the 1973 data on preference scales, relating the scale values to a variety of socioeconomic and fertility behavioral variables. Further extension to the area of cultural values, husband-wife roles, and other attitudinal measures is planned. Preliminary analysis indicates that the higher scale values for number and for sex (indicating preferences for large families and for sons) are related to greater age of wives, lower education, less urbanization, and to less use of birth control.

Models for the Analysis of Inconsistent Reports of an Event from Two Sources

A. Hermalin has been developing a model for utilizing two independent reports of an event to obtain from the observed frequencies of each source the underlying probability of the event's occurrence and the degree of accuracy of reporting of each type of respondent. This model has been successfully

applied to statements of contraceptive use by couples in Taiwan obtained in two different surveys, one using husbands as respondents and the other wives. The data on husband-wife reports of contraception came from an analysis conducted by R. Freedman. S. Etter has served as research assistant on this project.

Taichung IUD Acceptors Study

B. Moots is analyzing data from the longitudinal study of samples of IUD acceptors which continues to be augmented by yearly interviews with one-half of the original sample of acceptors. Taichung IUD studies V and VI have been carried out and the merging of the data with those of earlier studies should be completed this year. The study continues to be a rich source of data for a number of scholars interested in developing models of contraceptive-pregnancy processes. Raymond Langston and John Talbot have been student apprentices in this work.

Areal Analysis of Factors Affecting Fertility

1. The data base for utilizing the 361 administrative areas of Taiwan in studying fertility was extended by obtaining for each area data from the family planning program which provide the proportion of acceptors who were prior users of contraception, their parity, educational status, and other characteristics. These will be incorporated into new models of areal differential fertility.

2. Analysis of the changing distribution over areas of various demographic socioeconomic characteristics in the course of Taiwan's economic development was continued by A. Hermalin and Patricia Pastor. Comparable data for a number of other countries are being examined to see if their patterns of homogeneity and heterogeneity are similar to those observed in Taiwan.

Competition between Spontaneous and Induced Abortion

Because of their similar timing in pregnancy, spontaneous and induced abortion may be viewed as competing outcomes. This competition has been investigated by R. Potter using a variant of the Perrin-Sheps renewal process. The presence of induced abortion lowers the apparent incidence of miscarriage while intervening miscarriages lengthen interabortion intervals, thereby increasing the efficiency of induced abortion as an averter of births. With the collaboration of B. Moots, certain expectations about this interaction have been tested on Taiwan data and a statement of results submitted for publication.

Reliability of Survey Data on Fertility and Contraception

Continuing analysis of the reliability of survey data in Taiwan has compared the fertility reports obtained in surveys with that obtained from the household register. The initial indications are that the responses in the survey are more accurate than registry data in obtaining reports of births resulting in infant deaths. In another investigation of the reliability of survey

data, A. Hermalin and Mary Beth Weinberger are comparing the reports women make at the time of acceptance of an IUD with their reports in the survey. The study will help determine whether data on the level and nature of such contraceptive use obtained in a survey are accurate.

Sampling Errors and Design Effects

As part of a larger project for determining sampling errors and design effects for surveys in five other countries, carried out under the auspices of the WFS, L. Kish is producing calculations for the Taiwan study on a large number of variables. A book on "Statistical Design of Social Research" is in progress. Under a grant from the National Science Foundation, Dr. Kish is also writing several papers on sampling errors in complex samples.

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.

Chinese Center for International Training in Family Planning, Annotated Taiwan Population Bibliography, January 1947 (115 pp.).

Committee on Family Planning, Taiwan Population Studies Summaries, November 1973. (176 pp.) 300 articles summarized and listed by topic areas.

Chang, M. C., "Change in Contraceptive Use During 1967-73 in Taiwan," Committee on Family Planning Interim Report, January 1974.

Chen, E., "Who Are Beyond the Reach of Mass Media?" Committee on Family Planning Interim Report, January 1974.

Sun, T. H., "The Impact on Fertility of Taiwan's Family Planning Program." To be published in a forthcoming IUSSP volume, Issues in Studying the Impact on Fertility of Family Planning Programmes, C. Chandrasekaran, Ed.

Taiwan Working Papers

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 1973-74.

23. "An Annotated Bibliography of Studies on the Population of Taiwan."
24. M. MacDonald and E. Mueller, "The Measurement of Income in Fertility Studies in Less Developed Countries."

25. J. E. Anderson, "The Effects of Marital Fertility, Nuptiality and Educational Attainment on Fertility Change in Taiwan."
26. A. I. Hermalin, "Empirical Research in Taiwan on Factors Underlying Differences in Fertility."
27. R. Freedman, A. I. Hermalin, and M. C. Chang, "Do Statements About Desired Family Size Predict Fertility? The Case of Taiwan, 1967-1970."
28. R. Freedman, L. C. Coombs, M. C. Chang, and T. H. Sun, "Trends in Fertility, Family Size Preferences, and Practice of Family Planning: Taiwan, 1965-1973."
29. J. M. Sullivan, K. H. Su and T. H. Liu, "The Fertility Effect of Induced Abortion in Taiwan."

ECONOMIC DEMOGRAPHIC INTERACTIONS IN PREINDUSTRIAL EUROPE

R. Lee is analyzing economic-demographic interactions in preindustrial Europe using econometric techniques, 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 500 English parishes covering the period 1538-1838. Bud Schnierle and Stanley Smith have been 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 Institute of Mental Health.

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. Bud Schnierle served as student assistant on this project. Three papers based on these data have been accepted for publication, in Journal of the American Statistical Association, and an article on a stochastic birth-marriage model is under review.

THE VALUE OF CHILDREN IN PEASANT AGRICULTURE

A number of publications suggest that the progress of family planning in rural areas of less developed countries is slow because of the high economic value of children in peasant agriculture. E. Mueller, assisted by Stanley Smith, a student apprentice, is investigating this proposition, using as a starting point a model proposed by Lorimer in 1965. Empirical data on relative consumption needs, work effort, and pay rates of males and females in

various age groups in less developed countries are examined to determine plausible ranges of values for use in the model. The purpose of this research is (a) to specify the economic and demographic conditions which make for high and low net economic contributions of children, (b) to specify what additional data should be collected to clarify this problem, (c) to identify economic policies which may affect the value of children in peasant agriculture. This research is part of a larger project on Policies Beyond Family Planning under the auspices of Resources for the Future.

DATA REQUIREMENTS FOR ECONOMIC RESEARCH ON HUMAN RESOURCES DEVELOPMENT

Household decisions on fertility, time use, employment, migration, and education are interrelated and are influenced by common economic and demographic factors. E. Mueller, in collaboration with D. Freedman, is attempting to develop a data system which would meet the research needs of economists interested in such household decisions in less developed countries. Questionnaire modules will be developed which could help meet these data requirements. The project is being sponsored jointly by AID and the World Bank. Roberta Barnes is assisting in this work.

AN ECONOMETRIC ANALYSIS OF U.S. FERTILITY CHANGE, 1940 to 1973

R. Lee is beginning an investigation of the effect of the population age distribution on the distribution of income by age, assuming that different ages of labor are imperfect substitutes in production. He will then investigate the relation of age-specific fertility to the distribution of income by age. The dynamic behavior of the model will be analyzed, and forecasts will be developed. This project is funded under a contract with National Institute of Child Health and Development.

OUTBREAKS OF THE PLAGUE, 1346 to 1860

R. Lee is collaborating with J. N. Biraben, a French medical historian, on an analysis of annual time series of recorded outbreaks of the plague for each of eleven areas in Europe, the Middle East and North Africa. The internal structure of the series and their interrelations are studied, as well as their relation to economic, meteorological and other variables.

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 research seeks to determine the consequences of errors in measures of parental status based on young people's reports, on estimates of the effects of parental status on youthful aspiration and expectations. A paper based on analysis

of information collected from Fort Wayne, Indiana youths, to be published in Schooling and Achievement in American Society (W. H. Sewell, et al., Eds.) is in progress. A second analysis applies identical measurement error models to a number of different data sets to replicate results. Robert Mare has been a student assistant in this work.

MEASUREMENT OF FAMILY PREFERENCES AND SUBSEQUENT FERTILITY

A study of the relationship of preference scales for number of children to achieved fertility after a five-year followup period was carried out by L. C. Coombs with data from a panel of Detroit white married women during the period 1962-67. The preference scales, developed from information at the first interview, were remarkably good predictors of fertility in the next five years. Consistently, women with higher scale values had more births in the followup period, even after controls were instituted for first preference for number of children, initial parity, education, income, religion, and pregnancy status at first interview. The results of this study will be published in Demography, November, 1974. James B. Rogers assisted in the analysis.

DEVELOPMENT OF MEASURES FOR SCALING FAMILY PREFERENCES

L. C. Coombs, working with C. H. Coombs and G. McClelland of the Psychology Department, completed the development of new measures for scaling preferred numbers and sex of children. Utilizing techniques from conjoint measurement and unfolding theory, these measures reflect the individual's utility for children and provide indexes of number and sex bias that are independent of each other. The measures have been tested in Taiwan and at the University of Michigan and are currently being used in Hungary, the Philippines, Malaysia and Korea as part of an IUSSP comparative fertility project. A complete analysis of the technical aspects of this development is published in Michigan Mathematical Psychology Papers, Technical Report No. 73-5, 1973.

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

Research which seeks to establish whether the effects of ability on occupational attainment and earnings are the same for different amounts of schooling is being done by W. Mason. Conflicting results in this area of research appear to be due largely to the nature of the samples used. A paper applying a common analytic regime to the various bodies of data will be published in Schooling and Achievement in American Society, (Ed. W. H. Sewell, D. L. Featherman and R. H. Hauser). Robert Mare has been a student assistant for this study.

TEMPORAL VARIATION IN POLITICAL ALIENATION IN AMERICA, 1952-1968

It has been argued that different demographically defined segments of the population of the United States have differing degrees of alienation from the American political system. In research using a model based on replicated surveys for the period 1952-1968, W. Mason finds no support for this hypothesis. Instead, rising political alienation in the past decade has cut across all commonly identified demographic groupings. Robert Mare has assisted in this work as a student apprentice. A paper summarizing these findings was presented at the 1973 annual meeting of the American Sociological Association.

FACTORS IN MIGRATION

L. Stone has developed the analysis design for a new study on the composition of migration streams in Canada using 1971 Census data, and for a Province of Manitoba experiment on the effects of guaranteed annual income on mobility. Both developments required adaptation and extension of some aspects of newly developed techniques for multivariate analysis of contingency tables.

SECONDARY ANALYSIS OF SEX ROLES DATA

In a study supported by a grant from the National Institute of Mental Health, K. Mason is seeking to assess whether there is recent change in women's sex-role attitudes consistent with the publicized activities of the women's movement in the U.S. Better understanding of the meaning of particular attitude items is sought by analyzing intercorrelations among items and correlations with personal characteristics. To increase the potential value of the analysis to researchers interested in monitoring change in sex roles and sex-role attitudes, a handbook compiling previously-used indicators is planned. Anita Schacht has assisted in this work and John Czajka and Sara Arber have been student trainees.

WOMEN'S LABOR-FORCE PARTICIPATION AND FERTILITY

K. Mason is analyzing the nature of linkages between women's economic and personal motives for labor-force participation and their fertility behavior. Using retrospective survey data for a small sample of North Carolina women first married in 1962-64, the analysis is especially concerned with assessing the influence of couples' accumulated and concurrent economic and social experiences on their fertility behavior at particular points in time. As part of the project, work continues on integrating microeconomic theories of fertility with ideas deriving primarily from sociology and psychology.

COMPARATIVE WORK HISTORIES

P. Siegel is analyzing the work histories of males in Detroit and Yokohama under a grant from the National Science Foundation. Interest focuses on the relations between the prestige, income, and educational and skill requirements in successive jobs and the extent to which successive jobs can be said to constitute a career. Differences between the Japanese and U.S. experience will be drawn upon to illuminate the reasonableness of the models induced. Rex Leghorn and David Thompson are student trainees on this project.

WOMEN'S WORK EXPERIENCE AND EARNINGS

As coprinciple investigators of the 1974 Detroit Area Study, a student training program associated with the Sociology Department and the Survey Research Center, K. Mason and W. Mason are collecting work histories from a sample of 500 Detroit women, currently or recently in the labor force. The analysis of these data will attempt to learn why women with greater numbers of years of past labor-force experience tend to have higher earnings (found in several past studies); in particular, it will assess how distinct aspects of total labor-force experience (such as within-firm tenure versus total years employed) contribute to current differentials in the wages of women workers.

ORGANIZATIONAL STRUCTURE AND SOCIAL STATUS

This inquiry by P. Siegel addresses the question of the relationship of the organization of firms and industries to the socioeconomic achievement of individuals in given occupations. Results to date suggest over and above the properties of occupations and of the individuals in them (occupational prestige, average salaries and wages, educational attainment of employees), industries and perhaps firms have social status that is related to factors such as the average size of firm and the extent to which an industry is dominated by a few large firms. Carol Conell and David Thompson have been student assistants in this work.

POPULATION CLUSTERING IN DEVELOPING COUNTRIES

This research by D. Goldberg in collaboration with B. Moots attempts to trace the behavioral implications of residential location, independent of personal characteristics. It is based on data collected in Ankara, Mexico City and Taichung; the analysis is funded by a Rockefeller Population Policy Research Grant.

DIET AND MULTIPLE SCLEROSIS

This epidemiological research, done jointly by D. Goldberg and Professor Bernard Agranoff of the School of Medicine and the Mental Health Research Institute, attempts to account for the known correlation between multiple sclerosis and latitude by examining the net impact of dietary differences in fat consumption, with particular emphasis on dairy products. Articles are under review by appropriate medical journals.

COLLEGE ENROLLMENT AND POLICIES AFFECTING COLLEGE ENROLLMENT

This research attempts to explain the current decline in college enrollment rates by reference to changes in fertility and childspacing resulting in differences in the "sibling squeeze" encountered by families. Work for the state of Michigan has been completed and national data, derived from Public Use tapes, are being examined. D. Goldberg and A. Anderson are collaborating in the research.

DATA PROCESSING UNIT

M. Coble and A. Anderson are responsible for coordinating the unit's work and for the instruction of Center apprentices in data processing and computing techniques.

Efforts continue toward the development of a set of programs to handle data retrieval from Census tape files and for the subsequent analysis of these data. This effort has continued to provide programming assistance during the past year to several projects located at the Center.

Other programming and data processing support was carried out by S. Bittner and R. Nylund, Center programmers.

During the year the programming staff consulted with and provided professional service to researchers from several institutions, including the assembling of special tabulations for the Governor's Commission on Higher Education (Michigan).

DOCTORAL DISSERTATIONS

Eight dissertation projects, two in Economics, and six in Sociology were brought to completion during 1973-74.

The Pattern of Fertility Decline in Taiwan, 1950-1970: An Areal Analysis

John Anderson, a doctoral candidate in Sociology, studied the pattern of fertility decline in Taiwan, as an areal process, using geographical sub-

divisions as the units of analysis. The study tests a number of hypotheses related to demographic transition theory and examines whether the spatial patterns support a diffusion or adjustment view of fertility change. This study was conducted under the direction of A. Hermalin. Mr. Anderson is now at the Center for Disease Control, Atlanta, Georgia.

Social Consequences of Residential Segregation in Ankara, Turkey

In this dissertation Hasan Dogan deals empirically with the natural area concept used by some of the ecologists of the 1930's and 1940's. Specifically, it asks whether there are differences in family structure, net of personal background differences, among persons residing in the squatter and non-squatter areas of Ankara, Turkey. Residence in these areas produces large differences which cannot be attributed to background, interaction (characteristics of best friends), or exposure (media consumption). A propinquity-access model seems to serve as an effective transmission device in helping to explain the more traditional behavior of squatter residents. This research was done under the supervision of D. Goldberg.

Urban Population Densities: The Spatial Distribution of Population in Metropolitan Areas

Barry Edmonston, a doctoral candidate in Sociology, measured population density gradients by the use of the negative exponential function for approximately 150 urbanized areas of the United States in 1950, 1960 and 1970. As a measure of population concentration, variation in the population density gradients for metropolitan areas were examined temporally and cross-sectionally. The research examined the major factors causally related to the degree of population concentration in the major metropolitan areas of the United States. This study was done under the direction of O. D. Duncan and R. Farley. Dr. Edmonston is now at the Food Research Institute, Stanford, California.

Anomie in Detroit from the 1950's to 1971

Elizabeth Fischer, a doctoral candidate in Sociology, completed her dissertation under the direction of O. D. Duncan, H. Schuman, and P. Converse. The study is an analysis of change in patterns of subjective alienation in the Detroit area, using data collected by the Detroit Area Study. She is now employed at the University of North Carolina.

Local Residential Mobility and Family Housing Adjustments

John Goodman, a doctoral candidate in Economics, completed his study of local geographic mobility in the U.S. in the late 1960's, using data from a national household survey conducted by the University of Michigan's Institute for Social Research. Residential mobility is analyzed as a

mechanism families employ in order to adjust their housing to their changing housing requirements and financial capabilities. This study was done under the supervision of George Simmons of the Economics Department and the Center for Population Planning, with R. Farley and E. Mueller on his committee. Mr. Goodman will be employed at the Urban Institute, Washington, D.C., this fall.

The Effect of Sex Discrimination on Income

Howard M. Iams, a doctoral candidate in Sociology now teaching at Hope College, investigated the topic of sex discrimination in earnings. Using 1960 Census data, regression models were calculated for the sample, sub-classified by sex, race, age cohorts, class of worker and the marital status of white women. Multiple classification analysis and standardization used to assess the effect of sex on hourly wages indicated that white women received lower wages than white men of similar educational and occupational background. The relatively lower wages of black women were associated with more limited background characteristics. This study was under the direction of R. Farley.

Income Distribution and Economic Mobility in Taiwan

Maurice MacDonald, a doctoral candidate in Economics, investigated income distribution and economic mobility in Taiwan under the direction of E. Mueller. The data source for this study is the Economic Correlates of Fertility survey conducted by E. Mueller and D. Freedman in 1969 with the cooperation of the Taiwan Committee on Family Planning. An additional goal of this work is to illuminate the relationships between demographic factors and level of family income. Mr. MacDonald is on the staff at the Poverty Center, University of Wisconsin.

Occupational Differences in Wage Discrimination Against Black Men: The Structure of Racial Differences in Men's Wage>Returns to Schooling, 1960

Ross M. Stolzenberg, a doctoral candidate in Sociology, completed his study of race differences in wage returns. The central focus of this dissertation, supported by the United States Department of Labor, is on differences in racial discrepancies among occupations in the amounts by which an additional year of schooling increases hourly pay. The dissertation offers a novel and quite plausible model of the way in which education and experience relate to hourly pay, and asserts that while racial discrepancies in returns to schooling do exist, they are not large. The difference between racial distributions over specific occupations lies at the heart of the income differences which have heretofore been attributed to discrimination. Mr. Stolzenberg is now an assistant professor in the Sociology Department at Johns Hopkins University.

Four dissertations approved in an earlier year are in progress:

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

Charles H. C. Chen, a doctoral candidate in Sociology, is analyzing 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, and years of service, as well as their activities in different areas. 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 is under the direction of A. Hermalin. Some of the material from this study was presented as part of a separate paper given by L. P. Chow (coauthors, I. H. Su and C. Chen), "The Island-Wide Family Planning Program in Taiwan - Past Accomplishment and Future Program Strategies," at the April 1974 meeting of the Population Association of America.

Income and Expected Family Size in the United States

James Cramer, a doctoral candidate in Sociology, is studying the relation of various measures of economic status and fertility, attempting to use a wider range of measures of economic variables in relation to an economic model of fertility involving choices constrained by resources, costs, tastes and norms. The data are drawn from the Panel Study of Income Dynamics at the Survey Research Center, The University of Michigan (James Morgan, principal investigator). R. Freedman is 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, is studying the changing distribution of class identification among Detroit area residents, as it relates to their socioeconomic and attitudinal characteristics. The data are taken from Detroit Area Studies in 1953, 1956, 1957 and 1971. Mr. Evers joined the Department of Sociology at Duke University last fall, during his fourth graduate year. His dissertation is being done under the direction of W. Mason.

Labor Force Participation and Fertility

Linda Waite, a doctoral candidate in Sociology, is analyzing the relation 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 came from a longitudinal study of Detroit Family Growth. An important aspect of the dissertation is the attempt to study this problem on a cohort basis. R. Freedman is chairman of her committee.

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

Differential Impact of Education on Occupational Achievement: A Study of Intragenerational Mobility in the United States and Japan

In this study, Rex Y. Leghorn is investigating the differential impact of education (both formal and informal) on occupational achievement in varying structural contexts. The data come from Siegel/Cole work histories from sample surveys in Detroit and Yokohama. P. Siegel and R. Cole are cochairmen of this dissertation.

Racial Segregation in Urban School Districts: 1967, 1970, and 1972

This research of Margaret Nielsen, a candidate in Sociology, 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. This work is under the supervision of R. Farley.

Marital Instability and Fertility

This research by Arland Thornton, a candidate in Sociology, will examine the relationship between marital stability and fertility from two points of view. The first phase of the analysis will seek to determine the extent to which childbearing patterns may influence the likelihood of divorce. The second phase will focus on the effect of instability on fertility, seeking to determine how much of the difference in fertility between women in stable and dissolved marriages is due to difference in the time spent in sexual unions and how much is due to differential fertility within unions. The data sources for this study, done under the supervision of A. Hermalin, are the 1965 and 1970 U.S. National Fertility Studies.

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.

Differential Fertility in the Turkish Village Population

Under a special cooperative arrangement with the London School of Economics, Aysu Oral is preparing a dissertation on fertility differentials in the village population of Turkey. Under the official chairmanship of David Glass, the prospectus equivalent was approved by LSE, where Mrs. Oral will be granted a Ph.D. after the dissertation is approved. The research is being done at the Center, under the direction of D. Goldberg. The data sources include survey materials collected by D. Goldberg and areal data published by several Turkish sources.

PROFESSIONAL AND PUBLIC SERVICE ACTIVITIES

Some 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, Committee on Comparative Fertility Studies, and 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
Technical Consultant, Panel on Statistical Data Systems for Foundation
of National Population Policies, U.S. National Committee on Vital and
Health Statistics, Washington, D.C.
Editorial Consultant, Demography

Reynolds Farley

Member, Board of Directors, Population Association of America; Committee
on Population Statistics of the Population Association of America; Com-
mittee consulting with the Bureau of the Census concerning reports on
Childspacing and Current Fertility; The Urban Institute's Project
Advisory Committee on Households headed by women
Consultant, The Urban Research Section of the Oak Ridge National Laboratory
Associate Editor, American Sociological Review
Editorial Consultant, Demography

Ronald Freedman

Member, Committee on Comparative Fertility Studies, and Chairman, Subcommittee on Comparative Fertility Analysis of the International Union for the Scientific Study of Population
Consultant, World Fertility Survey; Population Council; Academia Sinica; Taiwan Committee on Family Planning; Hong Kong Family Planning Association; National Advisory Council of the Center for Family Planning Program Development
Editorial Consultant, Demography, American Journal of Sociology, National Science Foundation

David Goldberg

Member, Board of Directors, Population Association of America; Fellowship Committee, Population Council
Consultant, World Fertility Survey; Governor's Commission on Higher Education (prepared a monograph on enrollment projections for Michigan); Michigan Housing Authority

Albert Hermalin

Advisor and consultant to Taiwan Committee on Family Planning on program activities, and on design, sampling and analysis of studies
Editorial Consultant, Journal of the American Statistical Association; Studies in Family Planning; Forthcoming IUSSP volume, Issues in Studying the Impact on Fertility of Family Planning Programs

Leslie Kish

Member, Technical Advisory Committee, World Fertility Survey
Vice-President, American Statistical Association

Ronald Lee

Member, History Advisory Committee of the Mathematical Social Sciences Board
Co-organizer of the Mathematical Social Sciences Board sponsored conference, "Behavioral Models in Historical Demography," to be held in October 1974
Editorial Consultant, Journal of the American Statistical Association; Demography; Economica; Explorations in Economic History; Quarterly Journal of Economics, Princeton University Press

Karen Mason

Member, U.S. Department of Health, Education and Welfare Advisory Committee on Population Affairs; Committee on the Rights of Non-Academic Sociologists of the American Sociological Association
Consultant, National Institute of Mental Health; National Science Foundation
Editorial Consultant, American Sociological Review

William Mason

Advisory Editor, Sociological Methodology
Editorial Consultant, American Journal of Sociology; Demography;
Econometrica; Journal of Business; Journal of Human Resources;
Journal of Political Economy; Social Forces; Social Science Research;
Sociological Methodology

Eva Mueller

Member, Council of the American Statistical Association
Consultant, National Institute of Health
Editorial Consultant, Demography, Economic Development and Cultural
Change

Paul Siegel

Editorial Board, American Journal of Sociology
Editorial Reader, American Sociological Review

Leroy Stone

Member, Board of Directors of Population Association of America;
Advisory Committee to the Center for Coordination of Research on
Social Indicators
Consultant, Manitoba Minimum Annual Income Project

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 Canada, England, India, Japan, Malaysia, Mexico, Nigeria, Philippines, Taiwan and Turkey.

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 to 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 1973-74 follows.

ECAFE

R. Freedman participated in an ECAFE (Economic Commission for Asia and the Far East) seminar on Research and Administrative Problems of Family Planning Programs in January, 1974. L. Coombs presented a paper and participated in an ECAFE Expert Group Meeting on Social and Psychological Aspects of Fertility Behavior in Bangkok in June, 1974. R. Potter participated in an ECAFE/U.S. Census Training Course on Computer Applications to Component Projection in December, 1973.

France

A. Hermalin presented an invited paper and participated in The International Economic Association Conference, "The Economic Aspects of Population Growth," Valescure, France, September 1973.

Hong Kong

R. Freedman visited Hong Kong in February, 1974 to consult about the work of the Hong Kong Family Planning Association and to review the most recent statistical work at the Hong Kong Census and Statistics Department. L. Coombs and C. H. Coombs visited the Chinese University of Hong Kong to consult about fertility research there.

Hungary

L. Coombs visited Hungary in April 1974 to consult with members of the Hungarian Statistical Office regarding a longitudinal fertility survey to be initiated there in July 1974.

IUSSP (International Union for the Scientific Study of Population) Comparative Fertility Analysis Subcommittee

R. Freedman served as chairman and L. Coombs as coordinator of this Subcommittee. A program of comparative analyses previously reported culminated with publication of Cross-Cultural Comparisons: Data on Two Factors in Fertility Research as an occasional paper by the Population Council. D. Goldberg contributed data for this publication as did the Taiwan research project. Following a meeting of the Subcommittee at the Liege meetings of the IUSSP (August 1973), a small subgroup was organized to do comparative tests of the Coombs number and sex preference scales and consider other problems in this field. During 1974 plans were developed for participation of investigators in Taiwan, Korea, Philippines, Hungary, Thailand and Malaysia. The Value of Children international comparative study organized through the East-West Center also is pretesting the scales. L. Coombs has consulted on this work.

Korea

R. Freedman consulted in January with Professor Hae Young Lee, Director of Population and Development Studies Center of Seoul National University, about the use of the Coombs number and sex preference scales in a Korean community population study. L. Coombs and C. H. Coombs visited Dr. Lee and Dr. Kwon in Korea in June to discuss field work and measurement problems on this project. They also consulted on a pretest of the scales by the World Fertility Survey in Korea.

Liege

A number of Center staff members attended the International Population Conference of the International Union for the Scientific Study of Population, Liege, Belgium, August 1973. R. Freedman chaired a session and papers were presented by L. Coombs, R. Farley, D. Goldberg, and E. Mueller.

Malaysia

L. Coombs and C. H. Coombs consulted in Kuala Lumpur with members of the Department of Statistics about research on scales for measuring preferences for number and sex of children, to be done in Salangor State in connection with the IUSSP project.

Organization of Demographic Associates

The Center is associated with this organization of groups doing demographic work in East and Southeast Asia. In January, 1974, R. Freedman attended the annual ODA meeting in Manila, participating in the seminar on Family and Household composition.

Taiwan

R. Freedman visited Taiwan in February and March. He consulted with Dr. T. H. Sun and other members of the staff of the Taiwan Provincial Committee on Family Planning about the 1973 Taiwan fertility survey, the continuing follow-up of the Taichung IUD study and other projects of mutual interest. R. Freedman and D. Freedman gave seminars for National Taiwan University and the Academia Sinica. R. Freedman consulted with officials in charge of the population register at the Ministry of the Interior and with Dr. C. H. Yen, then Director of the National Health Administration. Richard Barrett, graduate student in Sociology, is in Taiwan for two years as a University Overseas Population Intern, working with Chinese social scientists at National Taiwan University and the Academia Sinica. R. Freedman, his supervisor, visited Mr. Barrett in February in Taipei. Dr. T. H. Sun, Dr. K. K. Chang, and Dr. P. K. C. Liu of Taiwan visited the Population Studies Center in April and May 1974.

Thailand

R. Freedman consulted with the Department of Statistics and the Population Institute at Chulalongkorn University about their participation in the World Fertility Survey, about Thai participation in the IUSSP project on measuring number and sex preferences, and other matters of common interest. L. Coombs consulted with researchers at Chulalongkorn University about work on the IUSSP comparative fertility project in June 1974.

Vienna

At the Vienna 1973 meeting of the International Statistical Institute, L. Kish helped to found the International Association of Survey Statisticians.

World Bank

As consultant for the World Bank, E. Mueller helped the Government of Botswana to design and initiate a survey of Rural Income Distribution and Work Patterns, October 1973. She also visited Brazil for the World Bank to investigate the feasibility of a pilot survey to collect human resources data in rural Northeast Brazil.

World Fertility Survey

Members and associates of the Center staff have been active in development plans for the World Fertility Survey. L. Kish is a member of the Technical Advisory Committee. R. Freedman and D. Freedman are consultants to the WFS, spent May-August 1973 and June of 1974 in London working with the WFS central staff, and represented the WFS in Thailand and Malaysia in the winter of 1974. E. Mueller, D. Freedman, R. Freedman, and D. Goldberg have prepared question modules and monographs for the WFS. L. Stone represented Canada at a regional meeting on WFS at Geneva in February 1974.

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 1973-74 is given below.

Lolagene C. Coombs

Participated in an ECAFE Expert Group Meeting on Social and Psychological Aspects of Fertility Behavior in Bangkok, June 1974, and presented a paper on "The Measurement of Family Composition Preferences."

Presented a paper on "Measuring Conjoint Preferences for Family Composition" (C. H. Coombs, coauthor) at the April 1974 meetings of the Population Association of America, New York.

Presented a paper on "Sex Preferences for Children: A Cross-Cultural Analysis" at the 1973 meetings of the International Union for the Scientific Study of Population, Liege, Belgium.

Gave a colloquium on "Preference Scales for Number and Sex of Children" at the Johns Hopkins University, Department of Population Dynamics, February 1974.

Reynolds Farley

Presented a paper, "Demographic Aspects of Racial and Ethnic Minorities in the United States," at the 1973 meetings of the International Union for the Scientific Study of Population, Liege, Belgium.

Presented a paper, "Migration Trends among Blacks" at the 1973 annual meetings of the Southern Regional Demographic Group, Atlanta, October 1973.

Presented a paper, "Components of Suburban Population Growth" at a conference on The Changing Face of the Suburbs sponsored by the University of Chicago's Center for Policy Study, Chicago, June 1974.

Ronald Freedman

Participated in an ECAFE seminar on Research and Administrative Problems of Family Planning Programs in Bangkok, January 1974.

Participated in the seminar on Family and Household Composition, at the meeting of the Organization of Demographic Associates in Manila, January 1974.

Gave seminars for National Taiwan University and the Academia Sinica, February 1974.

David Goldberg

Presented a paper (with B. Agranoff), "Diet and the Geography of Multiple Sclerosis," at the Meetings of the American Society for Neurochemistry, New Orleans, March 1974.

Presented a Taft Lecture, "Urbanism Really is a Way of Life," at the University of Cincinnati, November 1973.

Presented a paper (with H. Dogan), "Rural Migrants in Urban Ghettoes," at the International Union for the Scientific Study of Population meetings, Liege, August 1974.

Albert Hermalin

Presented an invited paper and participated in The International Economic Association Conference on The Economic Aspects of Population Growth, Valescure, France, September 1973.

Leslie Kish

Presented a paper on "Sampling Errors in a Family Planning Survey (Malaysia)" (Y. Takeshita, coauthor) at the annual meetings of the Population Association of America, New York, April 1974.

Karen Mason

Participated in the Center for Population Research, National Institute of Child Health and Development, conferences on "Women's Roles and Fertility," December 1974 and on "Fertility Related Decision-Making," June 1974.

William Mason

Presented a colloquium at Indiana University on "Recent Trends in the Socioeconomic Position of Blacks and Women in the U.S.," and one on "Measurement Errors in the Socioeconomic Attainment Process," March 1974.

Presented a paper on "Political Alienation in America - 1952-1968" (J. S. House, coauthor) at the annual meetings of the American Sociological Association, New York, August 1973.

Baron Moots

Presented a paper, "Stratification and Development: Some Speculations and Data" (D. Goldberg, coauthor), at the annual meetings of the American Sociological Association, New York, August 1973.

Eva Mueller

Participated in an International Labor Office Conference on Employment Statistics in November 1973.

Presented a paper on "The Impact of Agricultural Change on Demographic Development in the Third World", at the 1973 meetings of the International Union for the Scientific Study of Population, Liege, Belgium.

Robert Potter

Participated in an ECAFE/U.S. Census Training Course on Computer Applications to Component Projection, Bangkok, December 1973.

Participated in a National Institute of Child Health and Development Workshop on Use-Effectiveness of Contraception, New York, 1973.

Leroy Stone

Represented Canada at a regional meeting of the World Fertility Study at Geneva in February 1974.

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 1973 and the spring of 1974 to about 950 individuals and agencies working in the population field or indicating an interest in demographic research.

H. C. Chen (with L. P. Chow). Strategies for the Introduction of Contraceptive Methods: The Taiwan Experience, in Fertility Control Methods, G. W. Duncan et al. (Eds.), Academic Press, New York, July 1973, 141-156.

L. C. Coombs. The Measurement of Family Size Preference and Subsequent Fertility (forthcoming in Demography, November 1974).

_____. Problems of Contamination in Panel Surveys, Studies in Family Planning, 4, 1973, 257-261.

_____. (with C. H. Coombs and G. McClelland), The Measurement and Analysis of Family Composition Preferences, Michigan Mathematical Psychology Papers, Technical Report No. 73-5, 1973.

R. Farley. Changing Levels of Racial Segregation in Public Schools; 1967 to 1972 (forthcoming in Sociological Focus, Winter 1975).

_____. Components of Suburban Population Growth (forthcoming in American Journal of Sociology, January 1975).

_____. Migration Trends among Blacks, Southern Regional Demographic Group Newsletter, No. 17, June 1974.

_____. (with A. Taeuber). Racial Segregation in Public Schools, American Journal of Sociology, 79, 4, January 1974, 888-905.

R. Freedman. A Comment on 'Social and Economic Factors in Hong Kong's Fertility Decline' by Sui Ying Wat and R. W. Hodge, Population Studies, 27, 3, November 1973, 589-595.

_____. Community-Level Data in Fertility Surveys, an Occasional Paper of the World Fertility Survey, The Hague, 1974.

_____. Review of Bo Mo Chung et al., Psychological Perspectives: Family Planning in Korea, Population Studies, 28, 1, March 1974; 171-172.

- _____ (with L. C. Coombs). Cross-Cultural Comparisons: Data on Two Factors in Fertility Research, Occasional Paper of the Population Council, in press. (Prepared for the Subcommittee on Comparative Fertility Studies of the International Union for the Scientific Study of Population.)
- _____ (with L. C. Coombs, M. C. Chang, and T. H. Sun). Trends in Family Size Preference and Practice of Family Planning: Taiwan: 1955-1973, (forthcoming in Studies in Family Planning, September 1974).
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- D. Goldberg. A Modernism Module, an Occasional Paper of the World Fertility Survey, The Hague, 1974 (in press).
- _____ (with A. Anderson). Projections of Population and College Enrollment in Michigan, 1970-2000, Governor's Commission on Higher Education, Lansing, 1974, (in press).
- A. Hermalin. Assessment of Programme Effect through Areal Multivariate Analysis. (To be published by the International Union for the Scientific Study of Population in Issues in Studying the Impact on Fertility of Family Planning Programmes, C. Chandrasekaran, Ed.)
- _____ Empirical Research in Taiwan on Factors Underlying Differences in Fertility (forthcoming in Studies in Family Planning).
- _____ Review of H. S. Shryock et al., The Methods and Materials of Demography, American Journal of Sociology, 79, 2, September 1973, 497-500.
- _____ Taiwan: Appraising the Effect of a Family Planning Program Through an Areal Analysis, Population Papers, Institute of Economics, Academia Sinica, Taipei, 1973, 73-112.
- _____ (with R. Farley). The Potential for Residential Integration in Cities and Suburbs: Implications for the Busing Controversy, American Sociological Review, 38, 5, October 1973, 595-610.
- Martha Hill. Modes of Travel to Work. Chapter 4, Vol. II (107-119) in Five Thousand American Families: Patterns of Economic Progress, James Morgan, et al., Ann Arbor: Institute for Social Research, 2, 4, 1974.
- L. Kish. Optima and Proxima in Linear Sample Designs, (forthcoming in Journal of the Royal Statistical Society A, 1975).
- _____ Representation, Randomization, and Control, Quantitative Sociology, Blalock, et al. (Eds.), 1974. (forthcoming).
- _____ (with M. R. Frankel). Inference from Complex Samples, Journal of the Royal Statistical Society B, May 1974.

- R. Lee. Estimating Series of Vital Rates and Age Structures from Baptisms and Burials: A New Technique, with Applications to Preindustrial England, (forthcoming in Population Studies, November 1974).
- _____. Forecasting Births in Post-Transition Populations: Stochastic Renewal with Serially Correlated Fertility, (forthcoming in Journal of the American Statistical Association, 69, 347, September 1974).
- _____. The Formal Dynamics of Controlled Populations and The Echo, the Boom and the Bust, (forthcoming in Demography, 11, 4, November 1974).
- _____. Models of Preindustrial Population Dynamics, with Applications to England, Historical Studies of Changing Fertility, Princeton, N.J., Princeton University Press, (forthcoming 1975).
- _____. Population in Preindustrial England: An Econometric Analysis, Quarterly Journal of Economics, 87, 4, November 1973, 581-607.
- K. Mason. Studying Change in Sex-Role Definitions Via Attitude Data, American Statistical Association, Proceedings of the Social Statistics Section, 1973, 138-141.
- E. Mueller (with M. MacDonald). The Measurement of Income in Fertility Surveys in Less Developed Countries, (forthcoming in Studies in Family Planning).
- R. Potter (with R. C. Avery). Models for Studying Use Effectiveness of Contraception, Issues in Studying the Impact on Fertility of Family Planning Programmes, C. Chandrasekaran (Ed.), (forthcoming).
- L. Stone. Canadian Population Growth and the Impact of Immigration, in Background Papers, Immigration and Population Study, Department of Manpower and Immigration, 1974, (forthcoming).
- _____. On the Interaction of Mobility Dimensions in Theory on Migration Decisions, Canadian Review of Sociology and Anthropology, 1974, (forthcoming).
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FINANCIAL ASSISTANCE PROVIDED FOR GRADUATE STUDENTS, 1973-1974

Stage of Apprenticeship and Academic Term	Number of Students Receiving Assistance				
	Any Form ^a	Tuition	Stipend	Wages ^b	Other ^c
	<u>All Students</u>				
Total, 1973-74	37	22	32	17	13
Summer half-term	21	7	17	6	1
University year	27	19	23	13	11
Spring half-term	12	6	6	9	0
First Year Students ^d	12	9	10	8	6
Continuing Students	25	13	22	9	7
	<u>Foreign Students</u>				
Total, 1973-74	12	10	11	5	6
Summer half-term	5	3	5	0	1
University half-term	10	10	9	4	4
Spring half-term	5	2	2	3	0
First Year Students ^d	6	4	5	2	3
Continuing Students	6	6	6	3	3
	<u>American Students</u>				
Total, 1973-74	25	12	21	12	7
Summer half-term	16	4	12	6	0
University year	17	9	14	9	7
Spring half-term	7	4	4	6	0
First Year Students ^d	6	5	5	6	3
Continuing Students	19	7	16	6	4

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

^bHourly payments for supervised work on Center projects.

^cDirect expenditures for individual students, including travel funds for three foreign students. Excludes consultation, provision of space, and use of general facilities.

^dStudents who were not associated with the Center before Summer, 1973.

POPULATION STUDIES CENTER STAFF

1973 - 1974

Director

David Goldberg, Professor of Sociology (Sabbatical Leave - January-June, 1974)

Acting Director - January-June, 1974

Albert I. Hermalin, Associate Professor of Sociology

Associate Directors

Reynolds Farley, Associate Professor of Sociology and Chairman, Sociology Department, 1973-74

Ronald Freedman, Professor of Sociology

Albert I. Hermalin, Associate Professor of Sociology

Paul M. Siegel, Associate Professor of Sociology

Research Associates

Albert Anderson, Research Associate

J. Michael Coble, Research Associate

Lolagene C. Coombs, Research Associate

Leslie Kish, Professor of Sociology, and Program Director, Survey Research Center

Ronald D. Lee, Assistant Professor of Economics

Karen O. Mason, Assistant Professor of Sociology

William M. Mason, Assistant Professor of Sociology

Baron Moots, Research Associate

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

Susan Bittner, Programmer Analyst

Richard Nylund, Programmer

Susan Etter, Research Assistant

Jacqueline Lelong, Research Assistant (Resigned November 1973)

James Rogers, Research Assistant

Lois Groesbeck, Secretary - Librarian

Billie Jo Burton, Secretary (Half-time)

Carolyn P. Copley, Secretary

Carol Crawford, Secretary (Half-time)

Beth Dvoskin, Secretary (Resigned April 1974)

Dorothy Strand, Secretary (Half-time)

Claudia Canale, Receptionist - Clerk (Half-time)

Charlotte Smart, Receptionist - Clerk (Half-time)