

ANNUAL REPORT

OF THE

POPULATION STUDIES CENTER, THE UNIVERSITY OF MICHIGAN

JULY 1, 1972 -- JUNE 30, 1973



## CONTENTS

	<u>Page</u>
Highlights	iii
Introduction	1
Graduate Training	1
Special Training Programs	3
Basic Research	4
Data Processing	13
Doctoral Dissertations	14
International Activities	19
Professional and Public Service Activities	21
Publications and Manuscripts in Press	23
Appendix A Financial Assistance to Students	
Appendix B Population Studies Center Staff	

HIGHLIGHTS OF THE ANNUAL REPORT  
POPULATION STUDIES CENTER, THE UNIVERSITY OF MICHIGAN  
July 1, 1972 - June 30, 1973

GRADUATE TRAINING

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

Seven apprentices were in the graduate program in Economics, one in the program conducted jointly by Sociology and Social Work, one from the Demography program of the London School of Economics, and the remaining thirty-five were Sociology students.

Eighteen of the forty-four 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, India, Kenya, Malaysia, Mexico, Philippines, Taiwan, Turkey and the U.S. One Center apprentice went to Mexico and another visited Taiwan to participate in ongoing research activities.

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, levels of mortality and infant mortality, the factors affecting marriage and reproduction, 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.

Data providing current readings to document social trends since the 1950's collected through the Detroit Area Study, coded and transcribed to tape last year, were the bases for intensive analyses and comparison.

An investigation of the distribution and differentiation of white and non-white population within twenty-nine metropolitan areas was initiated, 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 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.

### DOCTORAL DISSERTATIONS

Five dissertation projects, one in Economics and four in Sociology, were brought to completion during the 1972-73 year. The topics investigated include: modernization and social change as reflected in attitudes toward women's roles in Mexico City; the interactions between population change and economic growth in Taiwan; the impact of economic factors on the geographic mobility of labor in the United States, an economic analysis of the demand for children modelled after the analyses of demand for consumer durables; and the socioeconomic determinants of reproductive behavior in rural India.

### ASSISTANCE TO POPULATION STUDIES ABROAD

Ten foreign students participated in the apprenticeship program during 1972-73.

Faculty associates of the Center visited Hong Kong, India, Mexico, the Philippines and Taiwan to conduct studies, to assist investigators, and to familiarize themselves with demographic work being carried out by organizations in the respective countries.

### PROFESSIONAL ACTIVITIES OF STAFF

Some thirty manuscripts written by an associate of the Center were published or accepted for publication during 1972-73.

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

membership on the Commission on Population Growth and the American Future, on committees advisory to the Bureau of the Census, the Population Council, the U.S. National Survey of Family Growth, the World Fertility Survey, the American Statistical Association, the Taiwan Provincial Department of Civil Affairs, the Taiwan Committee on Family Planning, and the Hong Kong Family Planning Association.

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 American Journal of Sociology, Demography, Explorations in Economic History, Journal of Asian Studies, Journal of Human Ecology, Social Biology, Social Science Research, and Sociological Methodology.

## ANNUAL REPORT

### POPULATION STUDIES CENTER, THE UNIVERSITY OF MICHIGAN

July 1, 1972 - June 30, 1973

The Center is completing its eleventh full year of operation 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. The program of the Center has as 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.

#### GRADUATE TRAINING

Each year since 1964-65 the Center has provided an opportunity for about thirty graduate students to obtain on-the-job training in the conduct of demographic research. Forty-four graduate students participated in the Center's apprenticeship program at some time during 1972-73. Sixteen were nearing completion of the doctoral program and were working on their dissertation research projects. Three were just beginning graduate study at Michigan; four had begun their graduate study at Michigan earlier, but had not previously been associated with the Center's apprenticeship program.

Seven graduate student apprentices were in the program in Economics, one was in the program conducted jointly by Sociology and Social Work, one in the Demography program at the London School of Economics, and the remaining thirty-five were Sociology students. An Economics student from Taiwan who was not participating in the apprenticeship program received a supplementary award from the Center which made it possible for him to continue his graduate study. One student participated in the Committee on Institutional Cooperation (CIC) Traveling Scholar Program.

Eighteen of the forty-four apprentices received partial or full support from a source other than the Center's basic supporting grants. The sources of support included fellowship programs administered through the Department of Sociology, fellowship programs of the National Science Foundation, the Population Council, and a dissertation research project funded by the United States Department of Labor.

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 1972-73, 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 that will be reported in his or her 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. B. Moots and R. Lee coordinated the seminar in 1972-73. To illustrate the range of topics covered, selected titles are shown below:

- Population and Economy in Preindustrial England (R. Lee)
- Changes in Racial Segregation in the Public Schools: An Assessment of the Civil Rights Act of 1964 (R. Farley)
- Metropolitan Growth Differentials: 1940-1970 (A. Thornton)
- Working with the 1970 Census (A. Anderson)
- Social Change in Detroit (O.D. Duncan)
- On the Prospects of a World Stationary Population (Tomas Frejka-  
Population Council)
- Age at Marriage in the United States (P. Voss)

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.

Upon completion of their training at the Population Studies Center, the typical student accepts a position at an academic institution in the United States or overseas. A substantial group of former students has obtained employment in research positions, including:

- The Department of Statistics (Malaysia)
- Institute de Estadistica (Costa Rica)
- Central Statistical Office (Pakistan)
- Taiwan Committee on Family Planning
- Population Division, ECAFE
- East-West Population Institute
- The Population Council
- Food Research Institute
- National Center for Health Statistics

## SPECIAL TRAINING PROGRAMS

Four special training programs are offered students. One is directed by research associate M. Coble. 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 eighth 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 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 now 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. A. Hermalin participates as a lecturer. The program is for statisticians from underdeveloped countries who want to learn survey sampling methods for work in their own countries. It demands some knowledge of statistical theory with the capability to apply it to practical situations. The eight-week summer intensive 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 four 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 (NIMH) 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. Four students 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. The major research activities of the professional staff during 1972-73 are listed below.

### POPULATION DYNAMICS IN TAIWAN

Members of the Center's professional staff continued their close collaborative and consulting relationships with various agencies in Taiwan on a range of research topics. R. Freedman and A. Hermalin have been jointly responsible for the broad range of research and consulting activity in Taiwan. Lolagene Coombs and Baron Moots have been senior research associates in important aspects of this work. Jeremiah Sullivan participated during the first few months of the year, completing a postdoctoral association of several years. Eva Mueller of the Economics Department (in collaboration with Deborah 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 work by E. Mueller and D. Freedman is supported in part by The Population Council, which also provides the principal support for the Taiwan agencies.

The broad objective of this research is a continuing study on a broad 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 wide range of related subprojects, with domestic and foreign collaborators, the brief reports given below are selective.

#### Fourth Island-Wide Sample Survey of Fertility and Family Planning

Considerable staff effort this year has gone into planning this survey in collaboration with the staff of the Taiwan Committee on Family Planning. After consultation with Dr. T.H. Sun, Director of the Taiwan provincial program, the plans for sampling, questionnaire design, pretesting and coding were developed by frequent mail exchange and by visits to Taiwan by Mr. Hermalin and Mrs. Coombs in October, by Mr. Freedman and Mr. Moots in December-January, and by Mrs. Weinberger in May. This survey should provide an important benchmark series of measurements which will build on the time series



available from surveys done in 1965, 1967, and 1970 previously reported. New features in this survey include incorporation of an IUD follow-up survey, a new method of scaling preferences as to number and sex of children, more detail in contraceptive histories, and greater depth in data on extended household and kinship relations.

#### Household and Family Composition

R. Freedman and B. Moots have been working on plans for getting better data on extended familial organization and household composition. An analysis of Household Composition based on a sample of 1967 household records prepared for the Organization of Demographic Associates indicated serious deficiencies in the coding of the household data from the rich resource of the household register. An improved plan worked out in collaboration with the Population and Census Division of the Ministry of the Interior is to be tested in connection with the sample of household records drawn for 1972.

#### Fertility Trends by Educational Strata in Taiwan

R. Freedman and A. Hermalin, with the Ministry of the Interior, developed a plan for obtaining age-education specific birth rates, marital status distributions, and age-education specific marital birth rates for all of Taiwan and for broad urban-rural strata. The costs of preparing these tabulations were met by the Center. Since broadly similar data were prepared in 1966, five-year trends can be examined from this set of data, unique for the population of a developing country. The basic data are in the 1971 Demographic Factbook, available for general use. An analysis of these data is proceeding at the Center. Melinda Montilla has been a student assistant in this work.

#### Differential Fertility

A. Hermalin is undertaking a general review of empirical research on factors underlying differences in fertility in Taiwan. This review examines the extent to which the findings support the household choice models under development by a number of economists and the extent to which factors not posited by such models seem salient. The results of this review will be presented at a conference of the International Economic Association in early September.

#### Areal Analysis of Factors Affecting Fertility in Taiwan

Continued use was made by A. Hermalin during 1972-73 of data available for each of the 361 administrative areas, along the following lines:

1. A paper reviewing the potential of areal multivariate analysis for assessing the demographic impact of a family planning program was prepared for Issues in Studying the Impact on Fertility of Family Planning Programs, sponsored by The International Union for the Scientific Study of Population. Robert Johnson served as student assistant on this project.
2. The extent to which the local areas have become homogeneous or heterogeneous on a number of demographic and socioeconomic factors during the

decade of the 1960's when the country was undergoing rapid change is being studied, using a variety of measurements to test how variation within a country changes in the course of industrialization. Pat Pastor has been a student assistant on this project.

#### Reliability of Survey Data on Actual and Planned Fertility

Making use of fertility information asked of the same women in two different surveys, A. Hermalin analyzed the degree of reliability and the nature and source of inconsistent reports. A similar study under way involves a comparison of the data obtained at the time of IUD acceptance and those obtained in a follow-up survey of IUD acceptors.

#### Effect of Size of Family of Orientation on Fertility and Educational Attainment

A. Hermalin has been studying the degree of relationship between the size of family of orientation of both the husband and wife and the couple's fertility, and the relationship of the number of siblings to the level of education achieved. The objective is to compare these findings with those observed in developed countries.

#### Changes in Family Size Preferences and Use of Contraception

Using data from three island-wide interview surveys in 1965, 1967, and 1970 of married women in the childbearing ages, L. Coombs and R. Freedman analyzed recent trends in family size and practice of contraception in Taiwan. Findings indicate that changes in use of birth control and in attitudes toward future childbearing have been greater than shifts in ideal number of children or sons. Fertility declines appear more a function of reducing the number of unwanted births than of changes in family size goals, particularly among women over 30 years. Social strata differentials in desired number of children and use of contraception have narrowed somewhat because use of contraception has increased more rapidly among the less modern strata. An article on this topic was published in Studies in Family Planning. (Taiwan Working Paper No. 19)

#### Son Preference in Taiwan

Considerable evidence from various studies in Taiwan indicates a strong preference for sons, although not to the exclusion of daughters. Current sex composition and number of children are highly related to attitudes about future childbearing and to use of contraception. Examination by L. Coombs of follow-up data from 1967-1970 indicates that these attitudes have an impact on fertility in that period. The variation in son preference by social strata and by measures of modernization is under study; Shanta Danaraj has worked as a student trainee on this investigation.

#### Contamination Problems in Panel Studies

To investigate possible data contamination through reinterview effects, an independent sample was interviewed in Taiwan in 1970 for comparison with results from a third round of interviews in a panel study. Analysis by L. Coombs showed little reinterview effect on either contraceptive

attitudes or behavior. Differences in knowledge about contraception appeared, occasioned partly by reinterview effect and partly by the interview procedure of building data by adding increments at later interviews to information obtained at earlier interviews. Indications are that this is a procedure to be avoided in panel studies, particularly in regard to items such as abortion, in which there may be a time trend in willingness to report. A paper on this topic has been accepted for publication in Studies in Family Planning. (Taiwan Working Paper No. 21 has been distributed.)

#### Correlates of Infant Mortality

J. Sullivan has been analyzing the demographic and social correlates of infant mortality, which is particularly severe in the first month of life in Taiwan. Large differences are found in rates by mother's educational level, age, and parity, but little difference by urbanization level.

#### Theoretical Investigations of the Impact of Family Planning by Mathematical Models

When estimating births averted by contraception, it is important to be able to extrapolate continuation rates beyond limited periods of observation. As one of three on-going studies, Robert Potter is investigating the Type III-exponential distribution as a possible basis for such extrapolations. In application to the fourth round of the Taichung IUD follow-up data, featuring histories as long as 8 years, a model based on this distribution has provided a fit superior to those of two previously published procedures. A second effort has been to put the estimation and interpretation of IUD reinsertion rates on a firmer footing. Without a proper handling of the time dimension, the meaning of a reinsertion rate may be obscure, even misleading.

Third, in attempting to explain why following acceptance of IUD, participants in Taiwan's family planning program have had such low birth rates, appeal has to be made to a number of factors such as continued retention of the original device, reinsertion of new devices, shifts to other contraceptives or sterilization, and induced abortion. Going into the second year is an endeavor to formulate this complex of factors as a time process by means of the theory of Markov chains. A progress report, covering all three lines of inquiry, has been prepared, in chapter form, for the forthcoming volume, Issues in Studying the Impact on Fertility of Family Planning Programmes, being edited by C. Chandrasekaran.

#### Agricultural Development and Fertility Change

E. Mueller reviewed empirical evidence on the impact of agricultural development in less developed countries (such as the Green Revolution) on demographic characteristics of the agricultural population, particularly birth rates. The island-wide Economic Correlates of Fertility survey of 1969 was an important data source. Agricultural modernization appears to affect birth rates indirectly by lowering them through, for example, lower child mortality, investment opportunities on the farm, and consumption aspirations which raise the opportunity cost of children.

Other indirect effects may increase birth rates by, for example, weakening poverty-related constraints on fertility, reducing migration out of agriculture, and enabling children to make greater contributions to family income. Mueller concluded that we cannot rely on agricultural development or on egalitarian distribution of the gains from agricultural development to lower birth rates in these areas; other policies and programs are needed. She has prepared a chapter on this topic for a forthcoming IUSSP volume on Demographic Growth and Development in the Third World. A summary of the chapter will be discussed at the August, 1973 IUSSP meeting in Liege.

#### The Relation Between Income and Fertility in Taiwan

Economic theory assumes a positive net relation between income and fertility, and evidence for the U.S. supporting the theory has been presented by a number of scholars. No such positive relationship can be found for Taiwan. E. Mueller has been investigating the intervening variables which may modify the relation between income and fertility in Taiwan. In this she has been assisted by Richard Cohn and Roberta Barnes. Together with Maurice MacDonald she is also evaluating the accuracy of different ways of obtaining information on household income in less developed countries, using the Taiwan data.

#### Taichung IUD Acceptors Panel Study

The longitudinal study of samples of IUD acceptors has been augmented in the current year by data from a fourth study, which when merged with earlier data extends the duration of contraceptive-pregnancy histories of this sample of women. Based on these data, R. Avery reported in an article for Studies in Family Planning that the fairly high level of IUD reinsertions after prolonged periods of nonuse means that widely used conventional estimates of IUDs in place, based on "multiple decrement life tables" tend to be substantially too low. A preliminary report by B. Moots and C. Chen indicates considerable further potential, both from these materials and from the addition of new data from a fifth round of interviewing now completed and coded. R. Langsten and M.B. Weinberger have been student apprentices in this work.

#### Taiwan Working Papers

The project continues its series, Taiwan Working Papers, started during the 1969-70 year as a collaborative venture with the Taiwan Committee on Family Planning (formerly the Institute for Family Planning) in order to circulate the results of analyses as quickly as possible. R. Freedman and A. Hermalin are editors of this series. These working papers are sent to 250 scholars, researchers, and other interested persons. The following were added during the current year:

17. S.S. Chu, "The Nature of Extended Kinship and Its Socioeconomic Correlates in a Chinese Community."
18. J.M. Sullivan, "The Influence of Demographic and Socioeconomic Factors on Infant Mortality in Taiwan, 1966-68."
19. R. Freedman, L. Coombs and M.C. Chang, "Trends in Family Size Pref-

- ferences and Birth Control Practice: Taiwan, 1965-1970."
20. R.C. Avery, "A Brief Note on Patterns and Implications of Long Term IUD Usage in Taichung, Taiwan."
  21. L.C. Coombs, "Problems of Contamination in Panel Surveys: A Brief Report on an Independent Sample, Taiwan, 1970."
  22. B.L. Moots and H.C. Chen, "Preliminary Report of Taichung IUD-IV Study."

#### SOCIAL REPORTING

A project on measuring social change by replication studies was completed by O.D. Duncan and associates. A summary monograph, Social Change in Metropolitan Detroit (O.D. Duncan, H. Schuman, B. Duncan) is being published by Russell Sage Foundation, the source of support for the project. By comparing results obtained in the 1971 survey of the Detroit Area Study with those of earlier surveys, the project detected and estimated change in a variety of measures of marriage, women's roles, childrearing, social participation, religious participation, communal involvement, religious beliefs, values, political participation, attitudes toward public affairs, political orientations and racial attitudes.

Data from this project are useful for methodological studies as well. O.D. Duncan and H. Schuman completed a paper (in press) dealing with the effect of question wording on response distributions and correlates of opinions.

Two apprentices completed substantial portions of their dissertations using data from the project. Elizabeth Fischer is analyzing changes in alienation in the Detroit population, and Mark Evers is studying changes in social class identification. Smaller scale analyses were carried out in projects involving J. Carr, V. Stafford and E. Won.

#### THE DISTRIBUTION AND DIFFERENTIATION OF POPULATION WITHIN METROPOLITAN AREAS

This investigation conducted by R. Farley and supported by a grant from the Center for Public Research of Health, Education and Welfare, seeks to delineate patterns of population distribution within the larger metropolitan areas of the United States in 1970. Using data from the 1970 Census, particularly the Fourth Count census tapes, four related topics have been investigated.

1. Evidence indicates that economic variables fail to account for racial residential segregation and the concentration of blacks in central cities. If people were distributed within urbanized areas according to their income or according to the value of the dwelling units they occupy, there would be a low level of racial residential segregation.

A paper, "The Potential for Residential Integration in Cities and Suburbs: Implications for the Busing Controversy," relating these findings to trends in the racial attitudes of blacks and whites will appear in the American Sociological Review.

2. Trends in city-suburban differentiation based on data from 29 of the nation's largest urbanized areas indicate that when controls are made for differences in racial composition, only modest increases are found in most measures of city-suburban differences. Apparently, much of the increase in city-suburban socioeconomic differentiation may be attributed to changes in the racial composition of the central cities.

3. Data from the 1970 Census are being used to test the hypothesis that the socioeconomic status of the inhabitants of a census tract varies directly with the census tract's distance from the center of the urbanized area. Measures of status such as education, occupation, income, and ratio of family income to poverty level have been examined. Alternative models of population distribution are also being examined. Barry Edmonston, as a student apprentice, will investigate such models with particular reference to population distribution.

4. Data for a small number of large cities have been analyzed to ascertain the prevalence of socioeconomic segregation within either the white or black community. Socioeconomic groups appear residentially segregated from each other, but less so than whites of a given status from blacks of the same status.

#### RACIAL SEGREGATION IN PUBLIC ELEMENTARY SCHOOLS

National Center for Educational Statistics data for 1970, comparable to those for 1967; give the racial composition of students and staff in each public school in most school districts within the United States. A total of 111 large school districts were selected and the extent of racial segregation in 1967 and 1970 was investigated by R. Farley (with A.F. Taeuber). The evidence suggests that in these large school districts there has been a general trend toward lower levels of racial segregation. Declines in segregation were typically greater in the South, where the Civil Rights Act of 1964 was operative, than in the North where the Civil Rights Act was not applied. Particularly sharp declines in racial school segregation were recorded in places which operated under federal court integration orders, such as Pasadena and Charlotte. Margaret Nielsen has been a student assistant in this work and will complete a dissertation on this topic. A paper presenting these findings, with Alma F. Taeuber as the co-author, will appear in the American Journal of Sociology.

#### PATTERNS OF RACIAL SEGREGATION

Research by R. Farley and A. Hermalin has continued on the changing socioeconomic characteristics of blacks in the United States. Particular attention has been focused upon changes which have occurred since 1960. A paper entitled "The 1960's: A Decade of Progress for Blacks?" was published in Demography and another report will be included in a book edited by Professor Leon Mayhew.

## MEASUREMENT OF FAMILY COMPOSITION PREFERENCES

New measures for scaling preferred numbers and sex of children, which provide indexes of number and sex bias that are independent of each other, have been developed utilizing techniques from conjoint measurement and unfolding theory. Methodological testing of a number of models has been carried out with data from the University of Michigan and Taiwan. Field testing of the procedure and usefulness of the measures has been done with Taiwan and U.S. samples. These techniques have been incorporated into the U.S. study of the National Family Growth Survey Branch of the Division of Vital Statistics, Department of Health, Education and Welfare. An analysis and report on the pretest data for this study was done by L. Coombs. A paper by L. Coombs was presented at a conference of the IUSSP in Brussels, May 1973, and will appear as part of the conference report. An article by C.H. Coombs, G. McClelland, and L.C. Coombs is being published as Technical Report No. 73-5 in Michigan Mathematical Psychology Papers.

## PREFERENCE FOR FAMILY SIZE AND LATER FERTILITY

A test of the relationship of preference scales for number of children to achieved fertility is being done by L. Coombs with data from a panel study of Detroit white married women during the period 1962-67. Preference scales, developed from information at the first interview, appear to be remarkably good predictors of fertility differentials within the five year follow-up period. The relation of such prediction to socioeconomic characteristics is also being examined. A paper reporting results is in preparation. J. Rogers is assisting in this study.

## THE EPIDEMIOLOGY OF MULTIPLES SCLEROSIS

During the year work was initiated on the distribution and correlates of multiple sclerosis. This investigation is being conducted by D. Goldberg and Dr. B. Agranoff of the Mental Health Research Institute. Incidence rates and mortality data are being used to investigate the highly concentrated geographic distribution of the disease, using countries and states as the unit of analysis. J. Walker, an apprentice at the Center, is assisting in the work.

## SOCIAL STRUCTURE AND POPULATION DYNAMICS IN TURKEY AND MEXICO

Surveys conducted in 1966 and 1971 under the direction of D. Goldberg in Ankara, Mexico City and villages near these metropolitan areas, continued to serve as a source of data for several students and staff members. A. Johnson completed a dissertation on attitudes toward women's roles and two new dissertations were undertaken, one by H. Dogan dealing with the impact of ghetto residence in Ankara and one by A. Oral on fertility differentials in rural Turkey. Two comparative papers were presented at professional meetings, one on family structure and fertility in Mexico and Turkey (D. Goldberg) given at the meetings of the Population Association of America in April, 1973, and one on migration and income attainment in Mexico and Turkey (S. Vargas, D. Goldberg) given at the meetings of the

American Association for the Advancement of Science in June, 1973. Other comparative analyses on topics ranging from interviewer effects on demographic data, to social mobility and to measurement of fertility preferences are being undertaken by staff members Coombs, Moots, Siegel and Goldberg. Students who participated in the work on these data include S. Vargas, K. Krotki, and S. Smith. The original field work was funded by the Population Council.

#### ECONOMIC-DEMOGRAPHIC INTERACTIONS IN PREINDUSTRIAL EUROPE

R. Lee is analyzing economic-demographic interactions in preindustrial Europe using econometric techniques, with applications to England, France and Sweden. He is collaborating with E.A. Wrigley and Roger Scofield 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 1538-1800. M. Hill and A. Mason have been student assistants in this work. A paper on the findings was presented at the 1973 annual meetings of the Population Association of America. Others are in preparation, one of which will be forthcoming in a volume of collected papers, based on the seminar on Early Industrialization, Fertility and Family Structure, held at the Institute for Advanced Study, Princeton University.

#### 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. As part of their traineeships, M. Hill and A. Mason were student assistants on this project. An article on a stochastic birth-marriage model and one on "Birth Prediction in Post-Transition Populations: A Time Series Approach" have been submitted for publication. Other papers are in preparation.

#### 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. R. Leghorn and W. Gruhn were student trainees on this project.

#### ORGANIZATIONAL STRUCTURE AND SOCIAL STATUS

P. Siegel undertook a brief examination of some relations between industrial and organizational structure and the social status of individuals. At issue was the question: Can we learn anything interesting about the socioeconomic achievement of individuals by looking at the organization of



firms and industries in which their occupations are embedded? The answer was basically, "Yes - but it's not clear what." C. Conell and W. Gruhn were student assistants in this work.

#### METROPOLITAN GROWTH: 1940 to 1970

An analysis of variation in the growth of metropolitan areas in the United States is being carried on by Arland Thornton, a graduate student at the Center. Based on Census data, the analysis indicates that age, size and industrialization have consistent effects on growth rates, while distances and density do not. These relationships have remained relatively stable over a thirty year period. A paper on this topic was presented at the Annual Meetings of the Population Association of America, April 1973.

#### 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 computer techniques.

Considerable effort has been concentrated on producing programs of an evolving set of census tapes to be used for the retrieval and analysis of 1970 census 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 C. Lin, S. Bittner, M. Brinker and R. Nylund, Center programmers.

During the year the programming staff consulted with and provided professional service to selected researchers at the East-West Center (Hawaii), John Hopkins University, the Highway Safety Research Institute and the Tennessee State Tax Commission.

## DOCTORAL DISSERTATIONS

Five dissertation projects, one in Sociology and four in Economics, were brought to completion during 1972-73.

### Socioeconomic Determinants of Reproductive Behavior: Rural India

Richard Anker, a doctoral candidate in Economics, completed his study of reproductive behavior in rural India. Results of a sample survey of couples from two castes in a rapidly developing rural area of India were analyzed. Reproductive behavior was related to sociological, economic and demographic variables, and the perceived economic benefit from children was found to be an important explanatory variable. Mr. Anker did his work under the direction of George Simmons of the Economics Department and Population Planning Center as chairman, and R. Lee and E. Mueller as members of his committee.

### Modernization and Social Change: Attitudes Towards Women's Roles in Mexico City

Allan Johnson, a doctoral candidate in Sociology, and now a faculty member at Wesleyan University, completed his dissertation on the correlates of selected attitudes toward work, marriage and fertility. He finds strong relationships between stratification variables such as education, income, or occupation within and between generations but only modest relationships between these items and attitudes about women's roles. There is some evidence that suggests that modern attitudes emerge after two generations of urban experience. Mr. Johnson conducted his study under the direction of D. Goldberg.

### Interactions Between Population Change and Economic Growth in Taiwan

Paul K.C. Liu completed his dissertation for the Ph.D. in Economics at Michigan State University, under a rather unusual arrangement. R. Freedman and R. Lee of the University of Michigan were members of the Michigan State Committee under the Chairmanship of Professor Warren Samuels of Michigan State University. The fellowship stipend for the support of his work was from the Population Studies Center and most of the work was done at the Center because of the resources here of Taiwan data and demographic expertise. The dissertation involved developing a model to show the interactions between economic growth and population changes in Taiwan between 1951 and 1970. The chain of reasoning was that as the level and pattern of aggregate demand change, the extent and structure of economic activities will adjust according to these changes. These responses in turn affect the social and economic characteristics of the population which in turn affect the growth and distribution of population, which again affect the level and pattern demand. A point of particular interest was that the successful Taiwan land reform program which initially had the beneficial effect of increasing agricultural adoption of innovation and of productivity has in more recent years probably served to retard the movement of labor off the

farm with more efficient and less labor intensive inputs and therefore, the continued small landholdings may be retarding the reduction of the birth rate. Dr. Liu has taken a position at the Institute of Economics, Academia Sinica, Taiwan.

#### Geographic Mobility of Labor in the United States

Lois Shaw, a doctoral candidate in Economics, completed her dissertation on mobility of labor. The study concerns the geographic mobility of male labor-force participants in the period 1955-60, with major emphasis on the importance of economic factors in explaining migration rates to different cities. This study was done under the direction of E. Mueller.

#### The Demand for Children: An Economic Analysis

Boone Turchi, a doctoral candidate in Economics and now at the University of North Carolina, completed his dissertation which involved specifying a model for a theory of choice that is applicable to fertility decisions. The model was then tested with various data sets involving the construction of measures of income and price elasticity of demand for children in a manner analogous to that used in the analysis of the demand for consumer durables. George Simmons of the Center for Population Planning and the Economic Department was chairman, and R. Freedman and R. Lee were committee members.

Five dissertations, approved in an earlier year, are in progress:

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

Charles H.D. 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 being made under the direction of A. Hermalin.

#### Urban Renewal and Community Characteristics

Ann Mooney Hudson, a doctoral candidate in Sociology and a faculty member at the University of Delaware, is investigating urban renewal efforts in 458 cities between 1950 and 1965. The independent variables include several structural components of communities, population composition variables, "immediate need" factors, and measures of political organization. The dissertation has been completed and the final examination will take place in August, 1973. The study was conducted under the direction of D. Goldberg and P. Siegel.

### The Correlates of Family Structure in Taiwan

Robert Klein is conducting a study that: will examine correlates of family structure, will attempt to develop a multivariate model of demographic and socioeconomic determinants of family structure, and will examine changes in family structure at two points in time. Mr. Klein is conducting this study under the direction of R. Freedman.

### The Determinants of Family Income in Taiwan

Maurice MacDonald, a doctoral candidate in Economics, is studying 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 (ECF) survey conducted by E. Mueller and D. Freedman in 1969. An additional goal of this work is to illuminate the relationships between demographic factors and level of family income. Mr. MacDonald is joining the staff at the Poverty Center, University of Wisconsin, in the fall.

### The Occupational Structure of Race Differences in Hourly Wage Returns to Educational Attainment of Men, 1960

Ross M. Stolzenberg, a doctoral candidate in Sociology, is studying race differences in wage returns. His problem concerns the causal explanation of differences between occupations in the amount by which hourly wages paid to whites and blacks differ. Differences in educational attainment and work experience of workers, and in their industrial affiliations are avenues being explored. A major contribution will consist of novel formulations of the relationships between these characteristics and wages. This work is being done under the supervision of P. Siegel. Mr. Stolzenberg has been on the faculty at Harvard University this past year and is joining the Sociology Department at John Hopkins University in the fall.

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

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

John Anderson, a doctoral candidate in Sociology, is studying the pattern of fertility decline in Taiwan, as an areal process, using geographical subdivisions as the units of analysis. The study seeks to test a number of hypotheses related to demographic transition theory and examine whether the spatial patterns support a diffusion or adjustment view of fertility change. This study is being conducted under the direction of A. Hermalin.

### A Study of the Prevalence and Correlates of Abortions in Taiwan

Helen Koo Bilsborrow, a doctoral candidate in the School of Public Health, is investigating the correlates of abortion in Taiwan. Various patterns of combined use of abortion, contraception and sterilization are described, and the relationship of these patterns to socioeconomic and demographic

characteristics of couples are analyzed. Yazuro Takeshita, of the Population Planning Center, is chairman, and A. Hermalin a member of her committee.

#### 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 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 (James Morgan, principal investigator). R. Freedman is chairman of the dissertation committee.

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

Barry Edmonston, a doctoral candidate in Sociology, is measuring 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 are examined temporally and cross-sectionally. The research attempts to analyze systematically the major factors causally related to the degree of population concentration in the major metropolitan areas of the United States. This work is being done under the direction of O.D. Duncan and R. Farley.

#### 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 various socioeconomic and attitudinal characteristics of these people. The data are taken from Detroit Area Studies in 1953, 1956, 1957 and 1971. Mr. Evers will join the Department of Sociology at Duke University this fall. His dissertation is being done under the direction of O.D. Duncan.

#### Change in Subjective Alienation in the Detroit Area from 1950's to 1971

Elizabeth Fischer, a doctoral candidate in Sociology is doing her dissertation under the direction of O.D. Duncan and H. Schuman. The study is an analysis of change in patterns of subjective alienation in the Detroit area, using data collected by the Detroit Area Study. In the fall she will be working on the staffs of the Institute of Policy Sciences at Duke University and the Learning Institute of North Carolina, Durham, North Carolina.

#### Local Residential Mobility and Family Housing Adjustments

Jack Goodman, a doctoral candidate in Economics, is studying local geo-

graphic 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 is being 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.

#### The Effect of Sex Discrimination on Income

Howard Marshall Iams, a doctoral candidate in Sociology on leave of absence from Hope College, is analyzing the topic of sex discrimination in earnings. Using 1960 Census data, regression models are being calculated for the sample, subclassified by sex, race, age cohort, class of worker and the marital status of white women. Multiple classification analysis and standardization are used to assess the effect of sex on hourly wages. Based on this analysis, a paper on discrimination in the public and private sectors of the economy was presented at the 1973 annual meeting of the North Central Sociological Association. Future work will compare the data in 1970 to that analyzed in 1960. This study is being made under the direction of R. Farley.

#### A Study of Premarital Reproduction and its Social and Demographic Correlates in Taiwan

D. N. Namboothiri, a doctoral candidate in Sociology, is investigating the correlates of premarital reproduction in Taiwan. The study is based on the Knowledge and Attitude Survey (1971) of young married women (ages 18-29) in Taiwan. It indicates that about one-third of these women had premarital sexual intercourse with their husbands and that about one-fifth of them were pregnant at the time of marriage. One objective of the study is to examine the trend in premarital sexual union and premarital pregnancies and to identify the sociodemographic correlates of these phenomena. Previous studies have shown a steady increase in marital fertility at younger age-groups and a decrease in first birth interval in recent years. The second objective of the study is to assess the contribution of premarital pregnancies to these recent shifts in early reproductive process. R. Freedman and A. Hermalin are directing this study.

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

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

R. Farley. Mr. Voss presented a paper on trends in marriage age at the 1973 meetings of the Population Association of America.

#### 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. An important aspect of the dissertation is the attempt to study this problem on a cohort basis. R. Freedman is chairman of her committee.

The following dissertation, while not part of the Center's formal program, is being assisted through Center facilities:

#### Fertility Differentials in Rural Turkey

Mrs. Aysu Oral (Turkey) came to The Population Studies Center in late June to prepare a dissertation on fertility differentials in the village population of Turkey. The data sources include survey materials collected by D. Goldberg and areal data published by several Turkish sources. When completed, the dissertation will be submitted to the London School of Economics, where Mrs. Oral received an M.A. in demography.

### 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 for students from Canada, India, Kenya, Malaysia, Mexico, Philippines, Taiwan and Turkey.

J. Sullivan, a Research Associate at the Center during 1970-72, is now serving in Indonesia as a representative of The Population Council. P. Liu, who completed his Ph.D. in spring, 1973, is now at the Institute of Economics, Academia Sinica, Taiwan. Sergio Vargas Galindo who finished an M.A. in Statistics and an M.A. in Sociology in December, 1972, is currently employed by the Mexican government agency Sistema de Informacion Economica y Social, where he is a research analyst.

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 assisted investigators in several overseas areas where facilities for population research are less

fully developed than in the United States. A list of such activities occurring in 1972-73 follows.

#### Hong Kong

R. Freedman visited Hong Kong in December, 1972 to consult about demographic work being carried out in the Hong Kong Family Planning Association, The Hong Kong Census and Statistics Department and the Social Research Center of Hong Kong University. L. Coombs and A. Hermalin visited the Chinese University of Hong Kong to discuss results of a large-scale survey on fertility and family planning there, and the Hong Kong Family Planning Association to observe developments in their program.

#### India

E. Mueller was in India as a consultant to the National Council of Applied Economic Research, New Delhi, India, during the period May - August 1972.

#### Mexico

D. Goldberg consulted with members of the staff of the Sistema de Informacion Economica y Social, a government organization that provides substantive and methodological suggestions to data gathering agencies of the country. The utilization of demographic data normally collected in Mexico as well as the data collected in Goldberg's 1971 study and the potential development of a cooperative arrangement between the Center and government agencies were discussed.

#### Organization of Demographic Associates

The Center is associated with this organization of groups doing demographic work in East Asia. In December, R. Freedman and B. Moots attended the annual meeting of the ODA in Manila, presenting there a paper on household composition in Taiwan.

#### Taiwan

L. Coombs and A. Hermalin visited Taiwan in October, 1972 to develop plans for the fourth island-wide KAP survey scheduled for execution in 1973. They also conferred with groups at National Taiwan University and at the Ministry of Interior. L. Coombs participated in the training of field staff and the implementation of a special pretest on new family preference scale measure. In December, R. Freedman and B. Moots visited Taiwan for further conferences on the KAP-IV survey, and discussions with officials in the Ministry of the Interior, with Dr. C.H. Yen, Director of the National Health Administration, and with officials of the Academia Sinica interested in population work. In June, M.B. Weinberger, a Center graduate student, assisted in Taiwan in developing codes for the KAP survey then in the field.



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

R. Freedman serves as chairman and L. Coombs as coordinator of the work of this Subcommittee. Scholars from seventeen countries or cities in Asia, Europe and North America are cooperating in this project. D. Goldberg is participating with data from Mexico and Turkey. The project involves comparative analyses which serve as vehicles of substantive interest to assist in clarifying problems encountered in collecting and analyzing comparative data. During the past year the work of this Committee resulted in the production of sets of comparative tables, substantive reports and country profiles on two issues: preference and the use of contraception by women wanting no more children. James Rogers assisted in this project. The investigators met to discuss issues raised by these materials at a conference in Brussels, May 7-9, 1973. A full report to the IUSSP has been submitted; the substantive documents are being prepared for publication. L. Coombs gave a paper on part of these materials at the 1973 meetings of the Population Association of America, and will present a report at the August 1973 IUSSP meetings in Liege.

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 a 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  
Editorial Consultant, Demography

Beverly Duncan

Member, Panel on Welfare Reform Evaluation of the Committee on Federal Agency Evaluation Research, Division of Behavioral Sciences of the National Research Council  
Participant, Russell Sage Foundation Conference on Social Indicator Models

Otis Dudley Duncan

Member, Citizen's Committee on Population and the American Future; Census Advisory Committee on Population Statistics; Editorial Boards, Sociological Methodology and Journal of Human Ecology  
Chairman, Committee on Social Indicators, Social Science Research Council  
Elected member, National Academy of Sciences; American Philosophical Society

Reynolds Farley

Member, Population Research Advisory Committee, Center for Population Research, National Institutes of Child Health and Human Development; Subcommittee on Birth and Fetal Death Certificates, Public Health Service; Board of Directors, and Committee on Population Statistics of the Population Association of America; Advisory Group, The Urban Institute, Advisory Group for 1970 Census Volume II Special Reports, U.S. Bureau of the Census; Panel on Welfare Reform Evaluation, National Research Council; authored report "Demographic Variables and Family Stability"  
Associate Editor, American Sociological Review

Ronald Freedman

Member, Commission on Natural Resources, National Academy of Sciences; Governing Council, Committee on Comparative Fertility Studies and Chairman of the Subcommittee on Comparative Fertility Analysis of the International Union for the Scientific Study of Population; Advisory Committee, Project on KAP Data Bank, Roper Public Opinion Research Center  
Consultant, Ford Foundation, Population Council, Hong Kong Family Planning Association, Taiwan Committee on Family Planning, Academia Sinica, Taiwan  
Technical Advisor, World Fertility Survey  
Reader, Demography, Studies in Family Planning, Science

David Goldberg

Member, Board of Directors, Population Association of America  
Consultant, Michigan Housing Development Authority  
Participant, National Institutes of Health Conference on Economic Variables and Fertility; International Union for the Scientific Study of Population Conference of the Subcommittee on Comparative Fertility Analysis

Albert Hermelin

Consultant, Michigan State Housing Development Authority; Institute of Life Insurance, on research program in family financial behavior  
Advisor and Consultant, Taiwan Committee on Family Planning  
Advisor, Department of Population, Ministry of Interior, Taiwan  
Editorial Consultant, Demography

Leslie Kish

Member, Technical Advisory Committee, World Fertility Survey; Nominating Committee, American Statistical Association  
Chairman, Social Statistics Section, American Statistical Association (1972)  
Vice-president, American Statistical Association  
Elected Fellow, International Statistical Institute  
Lectured and consulted at: Central Statistical Office and University of Stockholm, University of Oslo; Institute of Social Studies, the Hague; World Health Organization

Ronald Lee

Member, History Advisory Committee, Mathematics in the Social Sciences Board

Seminars given at University of Illinois, University of Pennsylvania; consulted with E.A. Wrigley and R. Schofield, Cambridge, England on History of Population and Social Structure

Referee, Journal of the American Statistical Association

Robert Potter

Participant, Symposium on Population Dynamics, University of Wisconsin; Second Asian Population Conference, Tokyo, Japan

Paul Siegel

Participant, National Science Foundation, Mathematical Social Science Board Conference on Quantitative Social Theory and the Study of Formal Organizations; American Sociological Association and National Institute of Mental Health Conference on Policy Research and Graduate Training in the Social Sciences

Editorial Board Member, American Journal of Sociology

Editorial Reader, American Sociological Review, Demography

PUBLICATIONS AND MANUSCRIPTS IN PRESS

This listing includes manuscripts written by a member of the Center staff or a student apprentice (as author or co-author) 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 1972 and the spring of 1973 to about 950 individuals and agencies working in the population field or indicating an interest in demographic research.

R. Avery. Patterns and Implications of Long Term IUD Usage in Taichung, Taiwan, Studies in Family Planning, (in press).

\_\_\_\_\_. (with J.Y. Peng, L.P. Chow, and Silvia Pedraza). Postinsertion Medical Symptoms and Removal of the IUD in Taiwan IUD Follow-up Study, Studies in Family Planning, Volume 4, No. 1, (January 1973), 16-22.

L.C. Coombs. Problems of Contamination in Panel Surveys: A Brief Report on an Independent Sample, Taiwan, 1970, Studies in Family Planning, (in press).

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

- O.D. Duncan. Some Linear Models for Two-Wave, Two-Variable Panel Analysis, with One-Way Causation and Measurement Error, Quality and Quantity, and in H.M. Blalock, Jr. et al. (Eds.), Mathematics and Sociology, (forthcoming).
- \_\_\_\_\_. Federal Statistics, Non-Federal Statisticians, Proceedings of the Social Statistics Section, American Statistical Association, (1972).
- \_\_\_\_\_. Measuring Social Change via Replication of Surveys, in K.C. Land and S. Spilerman (Eds.), Social Indicator Models, (New York: Russell Sage Foundation, in press).
- \_\_\_\_\_. (with B. Duncan and H. Schuman). Social Change in Metropolitan Detroit: The 1950's to 1971, (New York: Russell Sage Foundation, in press).
- \_\_\_\_\_. (with A.S. Goldberger). Structural Equation Models in the Social Sciences: Proceedings of a Conference, (New York, Seminar Press, in press, May 1973).
- \_\_\_\_\_. (with D.L. Featherman and B. Duncan). Socioeconomic Background and Achievement, (New York: Seminar Press, 1972).
- B: Duncan. Comments on Inequality, Harvard Educational Review, 43 (Feb. 1973), 122-128.
- \_\_\_\_\_. and M. Evers. Measuring Change in Attitudes Toward Women's Work, in K. Land and S. Spilerman (Eds.), Social Indicator Models, (New York: Russell Sage Foundation, forthcoming).
- R: Farley. The 1960's: A Decade of Progress for Blacks? Demography, 9, 3 (August 1972), 353-370.
- \_\_\_\_\_. Fertility and Mortality Trends Among Blacks in the United States, U.S. Commission on Population Growth and the American Future, Demographic and Social Aspects of Population Growth, Charles F. Westoff and Robert Parke, Jr. (Eds.), Vol. 1 of Commission research reports, (Washington, D.C., GPO, 1972), 111-138.
- \_\_\_\_\_. Demographic Changes Among Blacks: 1940 to 1970, in L. Mayhew (Ed.), Sociology and Social Problems (Glenview: Scott, Foresman, forthcoming).
- \_\_\_\_\_. (with Alma F. Taeuber). Racial Segregation in the Public Schools, American Journal of Sociology, (forthcoming).
- \_\_\_\_\_. and A. Hermalin. The Potential for Residential Integration in Cities and Suburbs: Implications for the Busing Controversy, American Sociological Review, (forthcoming).

- R. Freedman, L.C. Coombs and M.C. Chang. Trends in Family Size Preferences and Practice of Family Planning: Taiwan, 1965-1970, Studies in Family Planning 3, 12 (December 1972), 281-296.
- \_\_\_\_\_ and B. Moots. Household Size and Composition in Taiwan: 1967, Organization of Demographic Associates Working Paper, (forthcoming).
- \_\_\_\_\_. Response to S.Y. Wat and R.W. Hodge, Social and Economic Factors in Hong Kong's Fertility Decline, Population Studies 26, 3 (November 1972) 455-465; (forthcoming in Population Studies).
- A. Hermalin. Assessment of Programme Effect Through Areal Multivariate Analysis, Issues in Studying the Impact on Fertility of Family Planning Programmes, C. Chandrasekaran (Ed.), (forthcoming).
- \_\_\_\_\_. Review of H.S. Shryock et al., The Methods and Materials of Demography, American Journal of Sociology, (forthcoming).
- L. Kish. Inference from Complex Samples, Journal of the Royal Statistical Society B, (forthcoming).
- \_\_\_\_\_. Optima and Proxima in Linear Sample Designs, Journal of the Royal Statistical Society A, (forthcoming).
- \_\_\_\_\_. Statistical Aspects of Research Design, in H.M. Blalock, Jr. et al., (Eds.), Mathematics and Sociology, (forthcoming).
- \_\_\_\_\_ (with M. Frankel and N. van Eck). SEPP: Sampling Error Program Package, (Ann Arbor: Institute for Social Research, 1972).
- R. Lee. Spectral Implications of a Stochastic Birth-Marriage Model, with Various Implications, Journal of the American Statistical Association, (forthcoming).
- E. Mueller. Economic Motives for Family Limitation, Population Studies, 26, 3 (November 1972), 383-403.
- \_\_\_\_\_. Generating Micro Data in Less Developed Countries Through Surveys: Some Experience in Asia, in E.B. Ayal (Ed.), Micro Aspects of Development, (Praeger, 1973), 101-118.
- \_\_\_\_\_. The Impact of Agricultural Change on Demographic Development in the Third World, in Demographic Growth and Development in the Third World, to be published by IUSSP.

## FINANCIAL ASSISTANCE PROVIDED FOR GRADUATE STUDENTS, 1972-1973

Stage of Apprenticeship and Academic Term	Type of Assistance				
	Any Form <sup>a</sup>	Tuition	Stipend	Wages <sup>b</sup>	Other <sup>c</sup>
	<u>All Students</u>				
Total, 1972-73	36	25	27	20	14
Summer half term	21	11	16	10	1
University year	31	21	24	17	14
Spring half term	19	9	16	5	0
First Year Students <sup>d</sup>	10	5	5	8	2
Continuing Students	26	20	22	12	12
	<u>Foreign Students</u>				
Total, 1972-73	9	8	8	7	4
Summer half term	5	3	4	3	1
University year	9	8	8	6	4
Spring half term	5	4	5	1	0
First Year Students <sup>d</sup>	2	2	2	2	1
Continuing Students	7	6	6	5	3
	<u>American Students</u>				
Total, 1972-73	27	17	19	13	10
Summer half term	16	8	12	7	0
University year	22	13	16	11	10
Spring half term	14	5	11	4	0
First Year Students <sup>d</sup>	8	3	3	6	1
Continuing Students	19	14	16	7	9

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

<sup>b</sup>Hourly payments for supervised work on Center projects.

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

<sup>d</sup>Students who were not associated with the Center before Summer 1972.

## POPULATION STUDIES CENTER STAFF

1972 - 1973

Director

\*David Goldberg, Professor of Sociology

Associate Directors

\*Otis Dudley Duncan, Professor of Sociology  
\*Reynolds Farley, Associate Professor of Sociology  
\*Ronald Freedman, Professor of Sociology

Research Associates

Albert Anderson, Research Associate  
Roger Avery, Research Associate  
J. Michael Coble, Research Associate  
Lolagene C. Coombs, Research Associate  
\*Beverly Duncan, Professor of Sociology  
\*Albert I. Hermalin, Associate Professor of Sociology  
\*Leslie Kish, Professor of Sociology, and Program Directory, Survey Research Center  
\*Ronald D. Lee, Assistant Professor of Economics  
Baron Moots, Research Associate  
\*Eva L. Mueller, Professor of Economics  
Robert G. Potter, Visiting Research Associate (Professor, Brown University)  
\*Paul M. Siegel, Associate Professor of Sociology  
Jeremiah M. Sullivan, Research Associate

Supporting Staff

Helen L. Dempster, Administrative Associate  
Mary P. Scott, Administrative Assistant  
Susan Bittner, Programmer  
Mary Brinker, Programmer  
Richard Nylund, Programmer  
Richard Cohn, Assistant in Research  
Jacqueline Lelong, Research Assistant  
James Rogers, Research Assistant  
Carolyn P. Copley, Secretary  
Ann Gladwin, Secretary  
Noreen Maresca, Secretary  
Jane R. Gleason, Secretary - Librarian  
Lois Groesbeck, Receptionist - Secretary  
Charlotte Smart, Receptionist - Clerk

---

\* University of Michigan teaching staff