## CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highlights</td>
<td>iii</td>
</tr>
<tr>
<td>Introduction</td>
<td>1</td>
</tr>
<tr>
<td>Graduate Training</td>
<td>3</td>
</tr>
<tr>
<td>Data Processing Unit</td>
<td>6</td>
</tr>
<tr>
<td>Basic Research</td>
<td>6</td>
</tr>
<tr>
<td>Doctoral Dissertations</td>
<td>21</td>
</tr>
<tr>
<td>Professional and Public Service Activities</td>
<td>27</td>
</tr>
<tr>
<td>International Activities</td>
<td>30</td>
</tr>
<tr>
<td>Conferences, Colloquia, Papers</td>
<td>32</td>
</tr>
<tr>
<td>Publications and Manuscripts in Press</td>
<td>36</td>
</tr>
<tr>
<td>Appendix A Financial Assistance Provided for Graduate Students</td>
<td>41</td>
</tr>
<tr>
<td>Appendix B Population Studies Center Staff</td>
<td>43</td>
</tr>
<tr>
<td>Appendix C Courses in Demography</td>
<td>45</td>
</tr>
<tr>
<td>Appendix D Former Population Studies Center Trainees Who Received a Ph.D. in Sociology or Economics</td>
<td>47</td>
</tr>
</tbody>
</table>
GRADUATE TRAINING

Thirty-four graduate students participated in the Center's program at some time during the year. Nine apprentices were in the graduate program in Economics and twenty-five were Sociology students.

Eighteen of the thirty-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 Brazil, England, Malaysia, Norway, Pakistan, the Philippines, and the U.S. One Sociology graduate student from the Center spent the year in Bangladesh working with the MATLAB-USAID Contraceptive Distribution Project.

One Center student is participating in summer training and workshops held in June and July 1977 at the East-West Population Institute in Honolulu and the Family Planning Center in Seoul, Korea.

BASIC RESEARCH

Interrelated studies of population dynamics, principally in developing countries, have been carried out in a number of cultural settings over a period of years. Among the topics investigated during the past year for Taiwan are: demographic change and economic development in Taiwan; reciprocal effects of education and fertility; the measurement, correlates and roots of family composition preferences; changing patterns of birth control in a developing country; the relation of family structure and traditional values to fertility behavior; IUD use and later fecundity; effect of breastfeeding on birth intervals and on population growth; and use of areal analysis in evaluating family planning programs. Comparative analyses of Turkish and Mexican studies are continuing, with emphasis on the topic of population clustering. Comparative work histories in Yokohama and Detroit have been used for analysis of inter-generational occupation mobility. Family composition preferences have been investigated in several different cultures, both developing and developed, and the congruence of husbands' and wives' views about reproductive goals examined.
Investigation of the causes and consequences of population differentia-
tion and segregation continues with analyses of: residential segrega-
tion, trends in racial segregation in schools, race-sex specific educa-
tional differentials in the U.S., racial differences in mortality, and 
the measurement and implications of population clustering.

Economic-demographic interactions are being studied in a number of set-
tings and theoretical models, including: econometric analysis of U.S. 
fertility change; economic and demographic factors in household deci-
sions; studies of women's roles, work experience and earnings, and their 
relation to fertility in the U.S., Taiwan and Detroit; and the changing 
socioeconomic status of women and of blacks.

The focus on historical demographic studies continues with research on 
economic and demographic interactions in preindustrial Europe, histori-
cal population dynamics in German villages, urban-rural differences in 
demographic behavior in 19th century Germany, and women's work roles in 
the U.S. in the 1880s.

Emphasis on measurement issues and measurement errors has been evidenced 
in research in interviewer effects, measurement errors in reports on as-
pirations and expectations, models for developing scales for family com-
pmposition preferences, estimation of age-period-cohort models in discrete 
data, potentials for multistage-multitrait models in family planning pro-
gram analysis, response reliability in interview surveys, theoretic explo-
ration of the meaning of "don't know" responses, examination of mono-
tonicity in survey attitudinal measures, and theoretical models for meas-
uring women's commitment to work outside the home. These investigations 
utilize data from a number of countries and are potentially useful for 
demographic research in a variety of settings.

DOCTORAL DISSERTATIONS

Three dissertation projects were brought to completion during the 1976-
77 year. The topics investigated include: an economic analysis of the 
young adult's decision to form a separate household; intragenerational 
mobility in the U.S. and Japan; the interaction between female labor 
force participation and fertility in Mexico City. Proposals for thir-
teen new dissertations were approved during the year.

ASSISTANCE TO POPULATION STUDIES ABROAD

Seven foreign students participated in the apprenticeship program during 
1976-77.

Faculty associates of the Center visited Belgium, Colombia, England, 
France, Guatemala, Hong Kong, Japan, Mexico, and Taiwan to conduct stud-
ies, to assist investigators, or to familiarize themselves with demographic 
work being carried out by organizations in the respective countries.
PROFESSIONAL ACTIVITIES OF STAFF

Some 46 manuscripts written by associates of the Center were published or accepted for publication during 1976-77. About 2900 reprints of staff publications were sent by the Center in response to requests from 36 countries. In addition to filling personal reprint requests, staff members also sent special research materials to well over 100 researchers in foreign countries.

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


- service as officers or committee members of the International Union for the Scientific Study of Population, the Population Association of America, the Population Council, the American Sociological Association, World Bank, National Academy of Sciences, International Advisory Committee, East-West Population Institute;

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


FACILITIES

During the past year, the Center acquired 1900 square feet of additional office and work space, and added two new DEC-Writer terminals for communication with the University's central computer installation.
The Population Studies Center, now completing its fifteenth year of operation, has a program with three major emphases: graduate training in population studies; basic research on population within a social, social-psychological, economic, or ecological framework; and assistance to demographic studies in selected developing countries. Since its inception the Center has operated under basic supporting grants from the Ford Foundation. Since calendar 1971 a part of the basic support for Center activities also comes from a grant from the Rockefeller Foundation. A recent Center grant from the National Institute of Child Health and Development augments these funds. Specific research projects and special activities continue to be funded separately by various governmental agencies and private sources. During the current year, the facilities of the Center have been expanded by an additional 1900 square feet of office and workroom space, relieving the considerable congestion of recent years. The Center also acquired two new DEC-Writer terminals for communication with the University's central computer installation.

In January 1977 Dr. Albert I. Hermelin assumed the directorship of the Center. Dr. David Goldberg, the director since 1972, continues as an associate director of the Center. Professor Reynolds Farley was Acting Chairman of the Department of Sociology, January-May 1977.

On June 1, 1977, Helen L. Dempster, who has been the able Administrative Associate for the Center during the past fifteen years, retired. Susan Etter has now assumed this role.


A number of visiting scholars have spent time at the Center this year. Among these are:

Mr. V. T. Palan, Senior Statistician of the Sampling and Field Division, Department of Statistics, Kuala Lumpur, Malaysia, came to the Center in November, 1976, to work with Drs. Ronald Freedman and William Mason on the project community analysis of Malaysian fertility and family. His stay has been under the auspices of the World Fertility Survey and he expects to return to Malaysia at the end of July.
Mr. M. C. Chang, on leave from his position as Chief of the Research and Planning Division of the Taiwan Provincial Institute of Family Planning, spent several months at the Center working on his dissertation research, "Migration and Fertility in Taiwan," and consulting with Profs. Hermalin and Freedman. Mr. Chang is a doctoral candidate at the University of Pennsylvania.

Mr. Armindo Miranda and Mrs. Berit Tvedt, demographers and members of the research staff of the Christian Michelsen Institute in Bergen, Norway, visited the Center in April.

Dr. Winifred Weekes-Vagliani of the Organization for Economic Cooperation and Development spent several days at the Center in April consulting with a number of staff members on her project on "Improving the Status of Young Women in Developing Countries."

Mrs. Lene Mikkelsen, Centre de Demographie, Brussels, Belgium, and Mr. Farhat Yusuf, University of Sydney, Australia, both spent a brief period at the Center consulting with staff members.

Dr. J. D. Venter of the Human Sciences Research Council, Pretoria, South Africa, visited the Center in June in connection with a Study Tour to learn about social science research centers and their organization in the U.S.

Dr. H. U. H. Bekheit of the Faculty of Medicine, Assiut University, Egypt, came to the center in the spring of 1977 to discuss the research program of the Center, particularly as it relates to the developing countries.

The Center cooperated with the Center for European Studies in bringing Peter Laslett from the Cambridge Group for the Study of Population and Social Structure to the University of Michigan.

Dr. Griffith Feeney and Dr. Fred Arnold, both former Center students now at the East-West Population Institute in Hawaii, spent several days consulting with Center staff.

Under the sponsorship of the Economic Demography Training Program, four distinguished visitors presented special seminars. They were: Dr. Harvey Leibenstein, Harvard; Dr. Warren Sanderson, Stanford; Dr. Michael Greenwood, Arizona State University; and Dr. Samuel Preston, University of Washington.
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-four graduate students participated in the Center's traineeship program at some time during 1976-77. Twelve were nearing completion of the doctoral program and were working on their dissertation research projects. Of the nine students new to the Center program, five 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 traineeship program.

Nine graduate student apprentices were in the program in Economics, and twenty-five were Sociology students.

Support

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 1976-77 appears in Appendix A.

Eighteen of the thirty-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 and the Detroit Area Study, fellowship programs of the Norwegian Research Council, the National Science Foundation, the Department of Labor, the Agency for International Development, the Economic Demography Program, and special grants from the Ford and Rockefeller Foundations.

Training

The basic training program focuses on mastery of the techniques and substantive research literature necessary for the understanding of the social and economic causes and consequences of population size, composition, distribution and change. Particular emphasis is given to the basic demographic processes of mortality, fertility, nuptiality, and migration which determine population structure and change. The training in demography and population studies is achieved through appropriate course work (see Appendix C) and through a well developed research apprenticeship program in which students take increasing responsibility for various phases of an actual research project.
In the first two years of the traineeship, each student spends twelve hours each week working at the Center under the close supervision of a member of the professional staff. By the third or fourth year, the student usually is ready to devote full time to the investigation to be reported in a doctoral dissertation.

In a series of one-hour noncredit training sessions organized by M. Coble and A. Anderson, first year students learn basic computer techniques and are given the opportunity to familiarize themselves with the Center's library of tapes and programs and their application to problems of population analysis. Such training is required of all Center student trainees.

A part of the program in Economic Demography, supported by a National Institutes of Health training grant, is carried out at the Center in cooperation with the Department of Economics, with R. Lee as program director. Students in Economics who are interested in population aspects of economic issues receive demographic training through participating in the Center apprenticeship program and through taking appropriate courses in population.

An intensive eight-week summer program directed by L. Kish of the Survey Research Center combines two courses in sampling with a workshop in sampling procedures. While intended primarily for statisticians from developing countries, Center students also participate in parts of this program.

The students and members of the professional staff participate in an informal weekly seminar at which a staff member, an advanced student, or an occasional visitor reports on his current research activity. K. Mason coordinated the seminar in 1976-77. The selected titles given below illustrate the range of topics covered.

Can Government Policies Integrate Schools? (R. Farley)
Permanent Employment in Detroit and Yokohama (P. Siegel)
The Inverse Projection Method Applied to Norway, Denmark and Sweden, 1735-1974 (Helge Brunborg)
Husband-Wife Agreement About Family Size Goals (J. Czajka)
Trends in the Level and Distribution of Schooling for 20th Century American Man (R. Mare)
Target Fertility, Contraception, and Aggregate Rates: Toward a Formal Synthesis (R. Lee)
A Report on the World Bank's Program in Population (R. Freedman)
Household Composition Effects on Household Expenditures (R. Barnes)
Longitudinal Study of Correlates of Fertility: A Reinterview of the 1962 DAS Sample (D. Freedman)
The Effect of Lactation on Fertility in Taiwan (A. Hermalin)
The Prospects for Racial Integration in Neighborhoods (D. Colasanto)
The Determinants of Occupational Sex Composition of Female Workers (J. Madans)
To extend the professional horizons of the trainees, attendance at the annual meetings of the Population Association of America has been encouraged. During the year, a number of students gave papers at professional meetings. (See Section on Conferences.)

Former Students

Upon completion of their training at the Population Studies Center, the typical pattern in the past has been for students to accept a position at an academic institution. In recent years, however, new emphasis on the salience of demography for many areas of research and policy making has been reflected in increased employment in non-academic research positions, both in the United States and abroad. A list of the 60 Center trainees receiving the Ph.D. in Sociology or Economics since the Center's inception in 1962 is given in Appendix D. The range of institutions with which they are now affiliated gives an overview of the scope of preparation provided at the Center.

Modern mobility complicates any attempt at a complete accounting of all students who have had training at the Center. In addition to the Center Ph.D. degree recipients listed in Appendix D, many students from the U.S. and abroad have received Center training. All together about 60 former trainees currently hold academic positions at about 30 universities in the United States and at eight universities abroad. Another 49 are engaged in research in about 18 national, 13 foreign, and four international organizations concerned with population issues, including:

The Department of Statistics (Malaysia)
Taiwan Institute of Family Planning
East-West Population Institute (Honolulu)
The Population Council (New York)
Food Research Institute (Stanford)
National Center for Health Statistics
World Fertility Survey (London)
Center for Disease Control (Atlanta)
Department of Social Services (Lansing)
Family Planning Association of Hong Kong
U.S. Bureau of the Census
Ministerio de Trabajo y Comunidades (Peru)
Urban Neptura de Monterriea (Peru)
National Center for Labor Statistics (Mexico)
International Labor Organization (Geneva)
Ciudad de los Periodistas (Madrid)
The Urban Institute (Washington D.C.)
Institute of Development Studies (Bangladesh)
Seattle Public Schools
Bureau of Resources and Development (Lansing)
African Institute for Economic Development and Planning (Senegal)
Ministry of Health and Social Affairs (Korea)
Census and Statistics Department (Hong Kong)
DATA PROCESSING UNIT

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

K. Richardson continues to serve the Center as a staff programmer. R. Nylund left the staff to complete his degree in computer science, and is replaced by F. Cartford, whose previous job was with Interface, Inc.

The Center's library of data files has now expanded to more than 500 reels of magnetic tape. Several programs have been prepared to perform necessary library functions for this collection (cataloging, inspection, transcription).

The unit has acquired two new DEC-Writer terminals for communication with the University's central computer installation. It is expected that we will acquire additional terminals in the near future.

Efforts during the past year have focused on assisting Center staff with studies relating to a variety of new data files. Included among these files are Public Use Sample and Current Population Survey files from the Bureau of the Census, school enrollment files from the Office of Civil Rights, fertility and family planning data from Taiwan and Malaysia, and the General Social Surveys from NORC.

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

BASIC RESEARCH

The Center organizes no centralized program of investigation. Considerable research focuses on a number of social-demographic topics on which there is extensive staff interaction and collaboration. The research projects undertaken by members of the professional staff and the dissertation projects initiated by doctoral candidates, however, reflect their individual interests within the broad spectrum of population research.

Under basic grants from the Ford and Rockefeller Foundations, the Center has flexibility in facilitating research activities in a variety of ways, but most projects have been financed under a separate grant or contract for research. In the past year, individual research projects have been funded from a number of sources including grants or contracts from the National Institute of Child Health and Human Development, National Institutes of Health, Health Resources Administration, World Bank, National Science Foundation, the Upper Great Lakes Regional Commission, Ford-Rockefeller Population Policy Research Program, Bureau of Labor Statistics,
Statistics Canada, and the International Statistical Institute-World Fertility Survey. The major research activities of the professional staff during 1976-77 are listed below.

POPULATION DYNAMICS IN TAIWAN

Members of the Center's professional staff continued their close collaboration and consulting relationships with various agencies in Taiwan on a range of research topics. R. Freedman and A. Hermalin have been jointly responsible for the broad range of research and consulting activity in Taiwan. L. Coombs and B. Moots have been senior research associates in important aspects of this work. R. Potter of Brown University collaborates on analyses of IUD continuation patterns, and special tabulations have been made available to C. Mode of Drexel University for his work on Computer Macrosimulation in Family Planning Evaluation. Taiwan data have also been made available to A. Jain of the Population Council for a collaborative analysis of breastfeeding patterns and their effect on fertility.

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

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

Changing Patterns of Birth Control in a Developing Country

Drawing on both a longitudinal study and a detailed cross-sectional survey, A. Hermalin is tracing for Taiwan how a society moves to more effective birth control during the course of its demographic transition. The study focuses on the frequency of various types of sequences of contraceptive practices; differences in sequences and patterns among important subgroups of the population; changes in contraceptive use that occur once desired family size is reached; and in recognition of the sharp upsurge in sterilization, the prior practices and other characteristics associated with this particular step. Charles Connerly has been assisting in this research.

Family Structure and Traditional Familial Values in Taiwan

R. Freedman, B. Moots, and T. H. Sun, with the assistance of Mary Beth Weinberger, used data from the 1973 and earlier KAP studies to examine familial structure and attitudes. The findings are that the traditional Chinese stem family is still a dominant form of household structure if parents of the household are available, although there has been a modest
decrease in this phenomenon since 1965. Other important findings are:
(1) Many respondents who are living in nuclear units have parents living
with a married brother, so the filial obligation is being met in a tradi-
tional way. (2) If parents and married sons do not live together, there
is a considerable amount of visiting and of financial exchanges between
them. Thus the network of familial ties is not adequately represented by
household structure alone. (3) The joint-stem family continues to be im-
portant in farm households, while the stem family is more important in
non-farm households. One of the most important results of this investi-
gation, however, is the finding that it is possible for an LDC population
to have a high rate of use of contraception while retaining traditional
familial forms and attitudes. Desired family size is more closely rela-
ted to traditional familial values than is the practice of contraception.
A Taiwan Working Paper, No. 34, "Types of Households in Taiwan: Preva-
ience and Correlates," has been issued and a segment of it has been ac-
cepted for publication.

Preference Profiles and Fertility Behavior Among Taiwanese Wives

Utilizing data from the new number and sex preference scale methodology
incorporated in the Taiwan KAP-4 survey, L. Coombs has analyzed the rela-
tionship of underlying preference structure to life cycle stage, socio-
economic and modernization measures, and reproductive goals and behavior.
Underlying preferences for large families persist for a large segment of
the population, despite recent drops in average family size ideals, and a
preference for sons is found for over 90 percent of the wives. An inter-
esting finding is that although number preference patterns vary with mod-
erization measures in the expected direction, relatively small differen-
tials are found for son preference, which still characterizes all segments
of the society. Underlying preferences are found to be frequently at
variance with global single-valued statements, and are more predictive
of fertility behavior. This difference between stated goals and under-
lying structure may help to explain discrepancies between aspirations and
achievement in fertility, an issue which will be covered with prospective
data in the next phase of the study. "Both number and sex preference I
scale position are found to be systematically related to parity progres-
sion ratios in the past, expectations for childbearing in the future, and
present use of contraception. J. Rogers assisted in the analysis, along
with K. Gaskin, M. Koenig and C. Tan as student trainees at earlier
stages in the research. An article based on this analysis and coauthored
by T. H. Sun has been accepted for publication in Population Studies.

Demographic Change and Economic Development in Taiwan

E. Mueller completed an analysis of the impact of population growth on
the economic development of Taiwan. This research complements previous
studies which have been concerned primarily with the reverse relation,
i.e., the effect of economic development on fertility and mortality.
Although Taiwan's recent economic history does not suggest that demo-
graphic factors played a leading role in its economic success story, they
seem to have made quite a significant contribution. In particular, rapid
growth of the labor force, relatively low wages and high savings rates were consequences of the demographic situation and helped to accelerate development.

Areal Analysis of Family Planning Program Effects

More and more countries are developing the data base necessary to evaluate the effects of their family planning programs on fertility. In response to this the United Nations Population Division is preparing a manual illustrating the various techniques in use. Drawing on the experience in Taiwan with areal multivariate analysis, A. Hermalin is preparing a chapter describing this methodology.

Long-Term IUD Use Following Program Acceptance

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

Education and Family Size Over Two Generations

A. Hermalin is using a detailed set of 1973 KAP questions on education and occupation of parents, number of siblings, and educational attainment or expectations for each child to examine in depth the relation of fertility to education over two generations. Earlier cross-section analyses do not support in Taiwan the finding in the United States and other low fertility countries that coming from a large family adversely affects educational attainment. The aim of the present study is to investigate the changing reciprocal influences between fertility and education over two generations and to develop models to account for educational levels and diversity among siblings. Specific analyses include: 1) the relation of characteristics of the couple's parents to the number of their children and both of these, in turn, to the education of the husband and wife; 2) the determinants of the average level of education of the husband and his brothers and their level of homogeneity; 3) the relation of the couple's characteristics to attitudes toward cost and benefits of children and to the number of children the couple has and/or expects; and 4) the relation of the husband's and wife's education, and the size and
composition of their family of procreation to the average level and level of heterogeneity of education of their children. J. Seltzer is a student assistant in this research.

Women's Roles, Familial Values, and Family Composition Preferences

In an attempt to explore the roots of underlying preference structure, L. Coombs is investigating the relation of husband and wife roles, family decision making, dominance, wife's work and work setting, outside activities, marriage arrangements and family living patterns, and religiosity to the Coombs sex and number preference scales. A number of Guttman scales combining several indicators have been developed for the roles and values variables. Analysis to date indicates that more traditional role relationships and familial values and living patterns are positively related to underlying son and large family preference, beyond the effects that would be expected on the basis of variation in modernism as reflected in increased education, income and urbanization. Exposure to outside influences via the media, participation in non-familial activities and desire to work outside the home are found to be more important for family size preferences than are role relationships in the family. J. Rogers and C. Tan are assisting in this work.

Taiwan Household Register Data

During the past year work began on a new set of data obtained from the Ministry of Interior of Taiwan. Large samples of the household register were drawn for the years 1971, 1972 and 1973. The data contain information on the socioeconomic characteristics of all members of the sampled households (about 8,000 each year), with separate data files on the live birth histories of all ever-married women ages 20-49. To this point work has concentrated on carrying out consistency checks, correcting errors in the data when necessary, preparing the data for subsequent analysis, and running several cross-tabulations for colleagues in Taiwan. Future efforts by R. Freedman and B. Moots will be directed toward the analysis of nuptiality roles and analysis of the open and closed birth intervals contained in the data.

Fertility Behavior Implications of Perceived Cost-Benefits of Children and Household Consumption Patterns

This investigation by L. Coombs of selected economic factors as they relate to fertility goals and behavior has two main aspects. The first is concerned with the economic utility of children viewed primarily in a cost-benefit framework. The second is the relation to fertility of expenditure patterns, in particular the purchase and ownership of consumer goods and of expected expenditures for the education of children. Indexes of perceived cost and utility have been constructed, and will be supplemented by data on a number of variables, including: actual contributions being made by respondents to their own parents, relative economic situation compared to the past insofar as it appears to be affected by number of children, aspirations for education of children plus knowledge
of and preparation for the costs, expectations for future economic position, and present ownership of modern consumer durables. J. Rogers and C. Tan are assisting in this research.

The Effect of Breastfeeding on Birth Intervals

A recent analysis of the effect of breastfeeding on the duration of the birth interval in Taiwan shows that in addition to prolonging the period of postpartum amenorrhea, continued breastfeeding may reduce the probability of conception even after the resumption of menstruation. A. Hermelin is engaged in further testing this effect and tracing its implications. The effect of breastfeeding on the probability of conception will be analyzed for two successive birth intervals, the second interval allowing for control of more factors than was possible in the previous investigation. In addition, the study will measure the degree of correlation among women on breastfeeding and amenorrhea over two intervals. Another facet of the study focuses on the reduction in the incidence and duration of breastfeeding and the increased use of supplementary feeding observed in Taiwan and other developing countries. Trends and differentials in breastfeeding will be described and these data, together with information on the overlap of breastfeeding with contraceptive use, will be used to estimate what a change in breastfeeding patterns might entail for fertility levels under various conditions. This research is undertaken in collaboration with Dr. Anrudh Jain, a former Center associate now at the Population Council. Charles Connerly has been assisting.

Use of a Stochastic Process to Simulate Pregnancy-Contraceptive Histories

The histories of couples' childbearing under natural fertility conditions can be usefully approximated by means of age-dependent Markov processes. A much tougher challenge is fitting the family-building histories of birth controllers because of additional critical dependencies besides age. In connection with a final report of the Taichung IUD Medical Follow-Up Study being prepared by B. Moots, a detailed evaluation was undertaken by R. Potter to assess the possible contributions of a methodology under development by the mathematicians, C. J. Mode and C. S. Littman, who are now pursuing independent research utilizing the Taiwan data. This approach involves the linking together of age-dependent, absorbing semi-Markov processes in order to represent selected stages in the family-building careers of couples practicing contraception and induced abortion.

Reliability of Fertility Survey Responses

To assess the reliability or consistency of responses over time to survey questions, L. Coombs has examined the consistency of responses of Taiwanese wives to questions repeated on a post-enumeration survey taken with a selected number of respondents about a month following the Taiwan KAP-4 survey. Results show that while overall reliability is reasonably good, there is greater reliability for factual than for attitudinal data; but there also is variation in consistency of responses on factual
questions depending on the salience of the topic to the respondent. The level of reliability is found to vary depending on whether aggregate data or individual responses are at issue. A variety of measures have been used, sometimes with conflicting results. Estimates of reliability are shown to depend on the measure used and on the skewness of the distributions of the responses to the questionnaire items. This may be particularly important when questions relate to cultural norms. C. Tan, a student apprentice, and J. Rogers assisted in this analysis. A paper on the topic has been accepted for publication in Studies in Family Planning.

Taiwan Working Papers and Activities of Taiwan Collaborating Researchers

The project continues the Working Paper 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 1976-77.


T. H. Sun and H. S. Lin, in cooperation with R. Freedman, are updating the series of studies on Taiwan fertility trends previously published. The work, which is being done primarily in Taiwan, utilizes the fertility data collected in Taiwan in 1976 as part of the transnational Value of Children Study. The Taiwan portion of this study was under the direction of T. H. Sun.

P. Liu and T. H. Sun are supervising workshops as part of the East-West Population Institute's Eighth Summer Seminar in Population. The theme of the five-week seminar is "Demographic Analysis for Population Policy in Asia and the Pacific." T. H. Sun has prepared an invited paper, "Demographic Evaluation of Taiwan's Family Planning Program" for presentation at this conference.

DEMOGRAPHIC ANALYSIS OF RACIAL DIFFERENCES IN THE UNITED STATES

R. Farley's research concentrated on four aspects of racial differences in the United States.

Racial Differences in Socioeconomic Status

Using data from recent decennial censuses and the 1975 Current Population Survey, R. Farley sought to determine if the socioeconomic gains which blacks experienced in the 1960s were negated in the 1970s, perhaps because of the economic recession, and found that, in general, they were
not. With regard to education, occupation and income, there are clear indications that the improvements of the 1960s were maintained in the 1970s, suggesting that the progress of the last decade was not solely because of the nation's expanded economy. These findings were reported in "Trends in Racial Inequalities: Have the Gains of the 1960s Disappeared in the 1970s?," American Sociological Review, April 1977.

Racial Residential Segregation in Cities

R. Farley's major research activity this year has concerned the analysis of the causes of racial residential segregation. The 1976 Detroit Area Study—directed by H. Schuman with R. Farley as principal investigator—was devoted to the topic of why residential neighborhoods remain highly segregated although blacks have improved their socioeconomic status and whites appear to have less prejudicial attitudes now than previously. The earlier phases of this study were supported in part by funds from the National Science Foundation. In the spring of 1976 a sample of 734 white and 400 black respondents was obtained. They were asked many questions about their socioeconomic status, their attitudes toward a variety of racial issues including school and neighborhood integration and a series of questions about their current housing and their neighborhood preferences. Preliminary findings suggest that many blacks would like and can afford to live in racially mixed areas, are knowledgeable about the Detroit area housing market, but think they would be unwelcome in most largely white areas and are reluctant to be the first family to enter a previously segregated area. Whites strongly endorse the principle of no racial discrimination but express considerable anxiety about living in a neighborhood which includes black residents. A high proportion of the white respondents said they would leave a neighborhood if it became 20 percent black and only a small minority of whites were willing to consider buying a house in a neighborhood where blacks made up as little as 10 percent of the population. In light of these facts the prospects for neighborhood integration seem bleak. Diane Colasanto, Susan Bianchi and Shirley Hatchett have assisted as student trainees in this work. Preliminary findings have been submitted for publication and will be presented at the 1977 meeting of the American Sociological Association. Another paper on the topic, "The Causes of Racial Residential Segregation: An Analysis of the Detroit Area," will appear in the Annals in 1978.

Another analysis, funded by NICHD and using Census Tract data, has been underway over a period of years and has resulted in a paper submitted for publication on "Residential Segregation in the United States Urbanized Class in 1970: An Analysis of Social Class and Racial Differences."

Racial Segregation in the Nation's Schools

R. Farley continued his study, made possible by grants from the National Institute of Education and the National Institutes of Mental Health, of white flight and racial segregation in the public schools of the nation's largest cities. Stimulated by the Civil Rights Act of 1964 there were
substantial decreases between 1968 and 1972 in school racial segregation in both cities and rural areas of the South. Desegregation in the North has proceeded more slowly but since 1971 many northern cities have come under increasing federal pressure and a few cities have implemented large-scale integration programs. White enrollment declines in most central cities school districts—about 6 percent per annum—result, in part, from the secular decline in births and because of the tendency for people to move away from central cities. At the time of integration, there is frequently an additional loss of white students. The magnitude of this additional loss depends upon the size of the school district, its racial composition, the availability of suburban schools, and the thoroughness of the integration order. These findings were reported in the paper, "Can Governmental Policies Integrate Schools?" presented at the American Sociological Association meeting in September 1976. Another paper on "Integrating Schools in the Nation's Largest Cities: What Has Been Accomplished and What is Yet to be Done" has been completed. Clarence Wurlock has been a student assistant in this work.

Racial Differences in Mortality

Since the mid-1960s there has been a sharp increase in homicide mortality in the United States. There are important racial and sexual differences. Age standardized rates suggest that black men and women are about eight to ten times as likely to die of homicide as are whites. Demographic explanations, for example decreased economic status, do not explain the homicide rate increases. Among black males, homicide is the fourth or fifth leading cause of death depending upon whether you subdivide accidental deaths. Its effect upon the life span of black males is quite substantial. Removing heart disease deaths would, at present, add about eight years to the life span of black men. Removing malignant neoplasm deaths would add about 2.2 years. Eliminating cerebrovascular diseases—which is the third leading cause of death—would add only 1.3 years to the life span. However, the elimination of homicide mortality would add 1.6 years. Thus, homicide mortality has a more adverse effect upon the life span of black men than cerebrovascular diseases and is not far behind malignant neoplasms. Findings from this analysis were presented at the conference, "Lethal Aspects of Urban Violence," held at the University of Wisconsin-Madison, May 10-11, 1977.

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

L. Coombs completed an investigation of a number of issues on the relationship of expectations and preferences for family size using the data from the 1973 U.S. National Survey of Family Growth. Under contract with the Health Resources Administration, detailed analysis included: relation of preference scale values to range responses on expectations or intentions for future childbearing; distribution of number and sex preference scale values in the U.S. population and selected geographic, demographic and socioeconomic subgroups, their relationship to measures
of first preference, and assessment of implications for future fertility behavior; variation among significant subgroups in how expectations or preferences are related to underlying preference structure; and the interrelationship of preferences for number and for sex of children and their likely relative impact on reproductive goals and performance. J. Rogers and B. Burton assisted in this research. The report is a forthcoming publication of the Department of Health, Education and Welfare.

THE DESIGN OF EMPLOYMENT SURVEYS IN DEVELOPING COUNTRIES

E. Mueller is developing survey instruments to measure employment and underemployment in developing countries, with financial support from AID and the World Bank. Presently ongoing employment surveys in developing countries are designed largely for macro or time series analysis. They have been widely criticized because they do not reflect the structure of the labor market and the differential utilization of labor that is characteristic of developing countries. The purpose of this project is to facilitate the collection of data useful for micro-analysis of household labor utilization, including utilization of women's and children's labor.

MEASUREMENT AND IMPLICATIONS OF POPULATION CLUSTERING

D. Goldberg and B. Moots continue working on the individual behavioral implications of population segregation or clustering. This work has now ranged across data sets from Ankara, Mexico City, Taichung, and Detroit. While there are variations in the effects of population clustering across a wide range of variables, the net effect of this component of the secondary environment appears to be exceptionally strong. Nancy Grassmick assisted in the analysis. This work was funded by a Ford-Rockefeller Policy Research grant.

ECONOMICS OF FERTILITY IN THE U.S.

D. Goldberg collaborated with Dr. Arland Thornton of the Institute for Social Research in collecting data on the sociology and economics of fertility from a national U.S. sample. The study provides data from each spouse on family structure and time use as well as an elaborate set of economic materials. Debra Schatz assisted in this effort. The field work was funded by NICHD and the Ford Foundation.

HISTORICAL POPULATION DYNAMICS IN GERMAN VILLAGES

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

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

J. Knodel is conducting a review of urban-rural differentials in demographic behavior including nuptiality, fertility, illegitimacy, and infant mortality in 19th century Germany. The study analyzes the extensive data tabulated separately for urban and rural sectors as well as for individual cities from 19th century and early 20th century German state censuses. The focus is particularly on the latter part of the 19th century, especially the years around 1880.

DETROIT LONGITUDINAL STUDY

D. Freedman, in cooperation with A. Thornton at the Institute for Social Research, is studying various aspects of the fertility, economic status, sex role attitudes, family structure, and labor force participation of a panel of women first interviewed in 1962, with particular emphasis on the changes which have taken place during the past fifteen years. The present interview is the fifth with this group of women during that period. Interviewing has been completed with a response rate of 95 percent. The research issues addressed include: (1) how and why are family size plans changed over the childbearing period, (2) the relationship between women's labor force participation and reproductive behavior, (3) the changes in sex role attitudes and their relationship to changes in childbearing attitudes or practices and to labor force participation, (4) the relationship of economic factors to reproductive behavior, and (5) social, economic and demographic factors in marital stability, and the effects of marital dissolution on childbearing, labor force participation and the family's economic position. Melissa Clark and Cynthia Beckham have been student assistants on this project.

HOMOGENEITY OF SIBLINGS ON EDUCATION AND OCCUPATION IN THE UNITED STATES

A. Hermalin is continuing research on the level of homogeneity of adult siblings on educational attainment and occupational status in the United States, using data from the Institute for Social Research 1960 Survey of
Income and Welfare. This study also is investigating the social, economic and family structural correlates of homogeneity on these characteristics and the relative importance of similarity as against birth order differentials. The findings to date indicate high levels of homogeneity on education across various size sibling groups and the almost complete absence of birth order effects. Aspects of this study are parallel to those on education and fertility in Taiwan, previously described, and the patterns found in these two cultures will be compared. Susan Etter has been assisting in this work.

WOMEN'S COMMITMENT TO WORK

L. Coombs has been investigating the question of women's preferred choices of work and/or children, in order to explore the possibility of developing a measure of commitment to work. Using a methodological sample, conjoint measurement analysis techniques for examination of trade-off situations have been used. Results to date in testing a variety of models indicate that there are two dimensions, one a total (child plus job) involvement level and the other a job-child orientation continuum. Using this model, two preference scales have been developed. It is planned to use these scales with larger samples. J. Rogers and M. Melendez have been assisting in this work.

IDENTIFICATION AND ESTIMATION OF AGE-PERIOD-COHORT MODELS IN THE ANALYSIS OF DISCRETE ARCHIVAL DATA

W. Mason (with S. E. Fienberg of the University of Minnesota) completed "Identification and Estimation of Age-Period-Cohort Models in the Analysis of Discrete Archival Data." The paper explains the identification problems that occur when ages and periods are evenly and equally spaced. Sampling models are indicated and the minimal sufficient statistics are given. The iterative proportional fitting and Newton-Raphson methods for maximum likelihood estimation are described for age-period-cohort specifications. Various formulations of discrete response variables are listed, and their special features explained. The paper also considers the identification problem when ages and periods are evenly spaced, with multiple age groups forming a span equal to that between successive periods. Degrees of freedom are provided for all models discussed. An extended analysis of an example concerning the educational attainment of white males in the United States illustrates the formal results of the paper. Michael Battaglia was the student assistant for this project.

BREASTFEEDING PATTERNS AND THE BIOMETRIC ANALYSIS OF INFANT MORTALITY

Using a combination of data from studies that compare mortality risks by age during the first year of life according to the type of feeding (breast versus artificial feeding) and historical data for populations
with different breast feeding customs, J. Knodel is testing the assumption underlying the biometric analysis of infant mortality that the age structure of infant deaths after the first month of life is virtually constant across time and culture. Consistent differences in the age structure of infant mortality are revealed for the two infant feeding groups and between populations with different breastfeeding customs. This has implications for interpreting the results yielded by the biometric analysis of infant mortality. Hallie Kintner is assisting on this project.

BREASTFEEDING AND POPULATION GROWTH

J. Knodel is assessing the potential demographic impact of a massive shift from the breast to the bottle as the primary infant feeding practice in populations where the practice of birth control is far from universal. Most discussions in the past have focused on the fertility enhancing effects of the abandonment of breastfeeding. By taking into consideration the impact that such a shift in feeding practices would have on infant mortality as well, very different results emerge.

WOMEN’S WORK IN 1880, USA

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

AN ECONOMETRIC ANALYSIS OF U.S. FERTILITY CHANGE, 1947 TO 1974

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

VARIATIONS IN THE MEANING OF STATEMENTS ABOUT DESIRED FAMILY SIZE

The hypothesis that similar statements about desired number of children have different meanings for persons with different cultural, social, or economic backgrounds has been examined by L. Coombs with preference scale data from Detroit, Morocco, Ankara, Mexico City and the U.S. Examination of the underlying preferences of women who give identical statements about family size desires shows that there are not only cultural differences in the meaning attached to such statements but also strata differences within a culture. This analysis should throw further light on differential use of contraception and the frequently observed
discrepancy between family size desires and achieved fertility, and has implications for family planning programs. A paper based on this research has been accepted for publication by Perspectives.

A STUDY OF TIME USE IN RURAL BOTSWANA

E. Mueller helped to design a survey of rural income distribution, time use and fertility in Botswana under the auspices of the World Bank. The data are now ready for analysis. She intends to explore the validity of the time use data and their utility in explaining income distribution. A related subject of interest is the value of women and children's time, as this may affect fertility and schooling decisions. This is a cooperative project with the World Bank and the Government of Botswana.

ECONOMIC-DEMOGRAPHIC INTERACTIONS IN PREINDUSTRIAL EUROPE

Using econometric techniques, R. Lee is analyzing economic-demographic interactions in preindustrial Europe, with applications to England. He is collaborating with E. A. Wrigley and Roger Schofield of the Cambridge Group for the History of Population and Social Structure on the analysis of aggregate time series from a sample of 404 English parishes covering the period 1538-1838. Tom Fraker and Toni Richards have been the student assistants in this work, which is funded by a grant from the National Institutes of Health.

HUSBAND-WIFE AGREEMENT ABOUT REPRODUCTIVE GOALS

L. Coombs investigated the extent to which husbands and wives are in agreement in their attitudes toward the number and sex of the children they would like to have. The analysis utilizes I-scale data on underlying preference structure as well as more conventional measures collected in the state of Selangor, Malaysia. Congruence of attitudes was examined in relation to level of preference, to husband and wife communication, and to a number of social and demographic factors. The amount of agreement is found to vary with the focus of analysis. Aggregate agreement among men and women is very high in general, but varies with background characteristics. Particularly among some ethnic groups, the views of men on the importance of sons are stronger than those of women. Intra-couple agreement is much lower than aggregate agreement. The views of neither spouse could be said to reflect accurately that of the other and it would be hazardous to assume that one partner "speaks for the family." M. Koenig assisted as a student trainee on this study, and J. Rogers assisted in the computer analysis. A paper based on this research has been submitted for publication.

-19-
WOMEN'S LABOR-FORCE PARTICIPATION AND FERTILITY

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

TARGET FERTILITY, CONTRACEPTION AND AGGREGATE RATES

R. Lee is attempting to integrate fertility survey concepts with the formal demographic analysis of aggregate rates. The central parameters are the fertility rate and the additional desired fertility of nonterminators. The research shows that actual aggregate U.S. fertility has been consistent with the fertility expectations data, when reviewed in a stock adjustment context. The pattern of duration-specific marital fertility, and the way it is altered by changes in contraceptive failure rates, is derived from the model. The results of this research were presented at the April 1977 meetings of the Population Association of America.

COMMUNITY-LEVEL FACTORS IN MALAYSIAN FERTILITY

W. Mason, in collaboration with V. T. Palan of the Malaysian Bureau of Statistics, is analyzing the 1974 Malaysian Fertility and Family Survey to determine and interpret the relevance of community-level factors for knowledge, attitudes and practices regarding fertility related phenomena. This study, being done for the World Fertility Survey, will present procedures and findings in such a way as to guide subsequent analyses of the link between community and individual-level factors in other WFS countries which have the requisite data. Vasantha Kandiah is the student assistant for this project.

GEOGRAPHIC MOBILITY OF CANADIANS

L. Stone has completed a revised Census monograph on the geographic mobility of Canadians. The work will appear in two separate volumes, one dealing with the explanation of the frequency distribution of mobility and the other treating the occupational composition of migration streams among Canadian regions. In the course of this work a special class of models has been developed for the analysis of population composition through the application of techniques for the multivariate analysis of contingency tables.
DOCTORAL DISSERTATIONS

Three dissertation projects were brought to completion during 1976-1977:

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

Martha Hill, a candidate in Economics now working at the Institute for Social Research of the University of Michigan, investigated decision making by young adults about separate household formation. Using the University of Michigan Survey Research Center Panel Study of Income Dynamics she analyzed the "split decision" of young adults by simultaneously analyzing four basic decisions facing them--the schooling decision, the decision to work full-time, the decision to marry, and the decision to form a household separate from the parental household. R. Lee supervised this research.

Intragenerational Mobility in the United States and Japan

Using comparable sample survey data on work histories in Yokohama and Detroit, Rex Y. Leghorn, a doctoral candidate in Sociology, studied the rate of job changing in the two cities and the impact of institutional, organizational, industrial, and educational characteristics on the probability that individuals will change employers at different ages. Although workers in Detroit are twice as likely to move as their counterparts in Yokohama, there is no intercity difference in the marginal impact of experience on the probability of mobility. The proportionate decline in the likelihood of mobility associated with each additional year of experience remains essentially constant across workers in different industries, firm size groups, and cities. P. Siegel and R. Cole were co-chairman of this research. In the fall, Mr. Leghorn will be an Assistant Professor of Sociology at Emory University, Atlanta.

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

Stanley Smith, a doctoral candidate in Economics now an Assistant Professor of Economics at the University of Florida, formulated a model for studying the relation between women's work patterns and fertility in Mexico City. The findings are consistent with the model which postulates that female labor force participation (FLFP) and fertility are jointly determined by a common set of independent variables rather than directly affecting one another. When FLFP is defined simply as any type of work, no significant relationship emerges between FLFP and fertility. However, working women in jobs incompatible with childcare have considerably lower fertility levels than non workers, while workers in compatible jobs have about the same fertility as non workers, or even higher.
It was also found that fertility has a significant positive association with part-time work in the traditional sector. Since this type of work involves little conflict with childcare, it would appear that excess fertility forces some women to work in order to supplement family income, and that the work they choose is the type most compatible with childcare. E. Mueller supervised this research.

Three dissertations approved in an earlier year are in progress:

The Correlates of Family Structure in Taiwan

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

Residential Distribution of Ethnic Groups

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

Effects of Community Residence on Fertility

Patricia Pastor's research involves an analysis of the additive and non-additive effects of community level variables on the fertility of Taiwanese women. Of particular interest is an assessment of the contribution which the inclusion of community characteristics makes to the explanation of the fertility attitudes and behavior of individual couples. The data for the study are three KAP surveys of married women in Taiwan, information about local areas from Taiwan's household register, and measures of the activities of the national family planning program in various local communities. This research is under the supervision of A. Hermalin. Ms. Pastor, a doctoral candidate in Sociology, is on the staff of the Fertility and Family Planning Studies Section of the Population Division, the United Nations, New York.
Proposals were formally approved and considerable progress made during the current year on the following thirteen dissertations:

**Human Capital in Production: An Analysis of the Demand for Labor by Education and Experience**

Michael Arthur, a doctoral candidate in Economics, is investigating questions regarding the demand for various types of labor as productive factors, "types" being determined by their accumulated stock of human capital. The data for the study come from the disaggregated production account for the U.S. developed by Gollop and Sorgenson. In this analysis, labor is differentiated by acquired formal education and experience, and interest is focused on the relationship between the monetary returns to schooling and age and the relative size of each education-experience group. The aims of the research are 1) to analyze the market experience of recent college graduates relative to those with less education and of different ages, 2) using a translog production function, to test the separability restrictions implied by an aggregate labor input and estimate the elasticities of substitution between different education-experience groups, and 3) to develop a comprehensive human-capital-oriented supply and demand model of the labor market as a framework for analyzing the prospects of recent and future college graduates. J. Kmenta of the Economics Department is chairman and R. Lee is a member of this dissertation committee. M. Arthur will be at The Urban Institute, Washington, D.C., beginning in the fall, 1977.

**Household Composition Effects on Household Expenditure Patterns**

Roberta Barnes is analyzing the effects of differential age/sex composition among households on household spending for a number of budget items. Also of interest are nonlinearities in the income-consumption relationship, an interaction between income and age/sex composition, and economics of scale in consumption. Data gathered in rural India, covering approximately 4,000 households, are used to estimate the empirical model. R. Lee is chairman of this dissertation committee. In the fall of 1977 Ms. Barnes joins the staff of the Bureau of Labor Statistics, Washington, D.C.

**Effect of Economic and Demographic Factors on Household Decisions Regarding Education of Children in Guatemala**

Carol Clark, a doctoral candidate in Economics, is using household survey data collected in Guatemala to study the demand for education in a developing country. The objectives of her research, which is funded by the NIH Economic Demography grant, is to learn: a) how family size and spacing affect children's schooling, b) how the opportunity cost of children's time is affected by family composition and economic circumstances of the household, c) how the opportunity cost of children's time,
together with other factors, affects demand for schooling, and d) whether in developing countries, where children can participate in income producing activities, there is induced a trade-off between child quantity and child quality as human resource models postulate. E. Mueller is chairman of her dissertation committee. Ms. Clark will spend next year in Guatemala working on the data.

**The Prospects for Racial Integration in Neighborhoods: An Analysis of Residential Preferences in the Detroit Metropolitan Area**

Diane Colasanto is examining the factors associated with acceptance of or desire for racially mixed neighborhoods by Detroit area residents. The data were gathered in the 1976 Detroit Area Study, which was supported in part by the Population Studies Center. The analysis will attempt to identify sets of characteristics for blacks and whites leading to favorable attitudes toward residential integration. Characteristics considered are: beliefs about the housing market, general racial attitudes, contact with other race, housing needs and personal characteristics. The analysis will also consider some likely future trends in racial integration, based on current levels of acceptance and current demographic characteristics of the Detroit population. R. Farley and H. Schuman are supervising this research. Ms. Colosanto will be an Assistant Professor of Sociology at the University of Wisconsin-Madison in the fall.

**Husband-Wife Agreement on Desired Family Size**

John Czajka, a doctoral candidate in Sociology, is studying the determinants of husband-wife agreement about family size desires, using data from the 1975 U.S. "Attitudes About Children" survey, collected by Lois Hoffman as part of the transnational Value of Children study, and data from the first wave of the Princeton Study. Consensus between marital partners is hypothesized to arise from three sources: selection, shared experiences and statuses, and interpersonal influence within the marital dyad. The analysis also considers the ability of husbands and wives to predict each other's family size desires and will estimate the possible distortions arising from reliance upon single spouse models and data sources. K. Mason is supervising this research. Mr. Czajka joins the staff at the University of California, Berkeley, as a Lecturer in Sociology in the fall.

**The Labor Supply of Married Women: An Analysis of the Allocation of Time to Market and Nonmarket Activities**

Barbara Devaney, an Economics doctoral candidate, is using data from the ninth wave of the University of Michigan Panel Study of Income Dynamics (1968-1972) to extend a model developed by James Heckman (Econometrica, 1974). Briefly, the model maintains that a woman works if the wage she can receive in the market sector exceeds the value of her time in the
home. Assuming flexible work hours, a working woman will adjust her hours of work so as to equate the market and home wages. By estimating the labor supply (or hours of work) and wage equations, Ms. Devaney will obtain estimates of the parameters underlying the market wage, home wage, and labor supply functions. The effects of children by age on the value of time at home, on the market wage, and the extent of labor force participation are discussed. R. Lee is supervising this research. Ms. Devaney will be employed at Mathematica Policy Research, Washington, D.C., in the fall.

Community Structural Factors in Individual Fertility in Peninsular Malaysia

Chee Kim Loy, a doctoral candidate in Sociology, is examining the effects of community structural factors on individual fertility in Peninsular Malaysia. He is using the 1970 Malaysia Census Post Enumeration Survey, and is augmenting that data set with aggregate level data from an unpublished Malaysian data bank. The dissertation seeks to separate the effects of structural variables from those at the individual level. An additional goal of the research is to assess the impact on fertility of organized family planning efforts in Malaysia. This research is under the supervision of W. Mason.

Occupational Segregation by Sex: An Analysis of the Determinants of the Sex Composition of the Occupations of Female Workers

Jennifer Madans, a doctoral student in Sociology, is investigating the issue of whether commonly held beliefs about the causes of occupational segregation by sex can explain the distribution of female workers across occupations scaled according to sex composition. The theoretical framework incorporates aspects of the status attainment model, human capital theory, and socialization theory, but the central theme concerns the importance of traditional sex norms in determining the nature and extent of women's labor force participation. Two data sets are used in the analysis—the 1973 Detroit Area Study and the 30-44 year old female cohort of the National Longitudinal Survey. The analysis focuses on changes in occupational sex composition over the employment history, using work histories from both data sets. Ms. Madans will join the Department of Epidemiology, Yale University School of Medicine in the fall. Her research is under the supervision of W. Mason.

Growth and Distribution of Schooling in Twentieth Century United States

Robert Mare, a doctoral candidate in Sociology, is using two recent large-scale surveys of the civilian male United States population to investigate two problems, under a grant from NSF. First, he is attempting to account for the U.S. secular increase in grades of school completed and school continuation ratios by simultaneously examining the
individual level effects of family socioeconomic background and the global effects of macroeconomic, demographic, and organizational changes. Second, he is examining the time series of cohort specific effects of family socioeconomic background on school continuation probabilities and grades of school completed for cohorts born in the 20th century. The models examine the impact of global economic, political, and organizational factors on the relationship between family socioeconomic background and educational attainment. W. Mason is chairman of the committee. In the fall Mr. Mare will be an Assistant Professor of Sociology at the University of Wisconsin-Madison.

The Birth of the Business Cycle

The dissertation of Philip Mirowski, a doctoral candidate in Economics, develops a new theory of the business cycle in the context of Britain before the industrial revolution. The theory is tested on data series for wages, prices and interest rates for the period. Input-output coefficients for a multisectoral description of the preindustrial economy are also derived, and play a central role in the explanation of the cycles. Demographic variables will be related to the economic fluctuations. Some of the data series are being assembled from original sources in England. G. Wright is chairman and R. Lee is a member of the committee.

Labor Force Participation of Women and Fertility in Japan

Makoto Nohara, a doctoral candidate in Sociology, is working on the interrelations between the labor force participation of women and their reproductive behavior in Japan. He is using the data from the Japanese version of the World Fertility Survey. R. Freedman is supervisor of this research. Mr. Nohara is currently at the Institute of Population Problems, Ministry of Health and Welfare, Tokyo.

Initiation of Contraception in Taiwan

M. Khalid Siddiqui, a doctoral student in Sociology, is studying the demographic and social factors which are related to the birth interval in which contraception is begun in Taiwan. Using data from the 1973 KAP survey of married women, he is also investigating the factors related to the use of contraception for spacing births. R. Freedman and A. Hermalin are supervisors of this project.
PROFESSIONAL AND PUBLIC SERVICE ACTIVITIES

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

Lolagene C. Coombs

Member, Review Panel for the Ford-Rockefeller Population Policy Research Program
Consultant, World Bank, Population and Human Resources Division
Editorial Reader: Demography; Social Biology; Canadian Studies in Population

Reynolds Farley

Member, Publications Committee of the Population Association of America; Arnold Rose Monograph Series Committee; Census Advisory Committee on Population Statistics
Program Chairman, 1977 meetings of the Population Association of America
Acting Chairman, Department of Sociology, January-May, 1977
Editorial Board, Urban Affairs Quarterly
Editorial Reader: American Sociological Review; American Journal of Sociology; Sociological Focus; Rural Sociology; The American Sociologist; Urban Affairs Quarterly

Deborah Freedman

Member, Board of the Population Association of America; Advisory Committee of the Contract Division of the Center for Population Research, NICHD
Editorial Reader: Demography; Social Forces

Ronald Freedman

Member, National Academy of Sciences, Steering Committee on World Food and Nutrition Study, Committees on Population and Demography, and on Scholarly Communication with the People's Republic of China; Committee on Comparative Analysis of Fertility, International Union for the Scientific Study of Population; National Council, Alan...
Ronald Freedman (continued)

Guttmacher Institute; Technical Advisory Committee, World Fertility Survey; External Advisory Panel on Population, World Bank
Chairman, International Advisory Committee, East-West Population Institute of the East-West Center, Hawaii
Consultant, Academia Sinica; Taiwan Provincial Institute of Family Planning; Taiwan Ministry of the Interior; Taiwan Joint Commission for Rural Reconstruction

David Goldberg

Member, Review Panel, Ford-Rockefeller Population Policy Research Program

Albert Hermalin

Secretary, Committee on Demographic Aspects of Family Planning Programs, International Union for the Scientific Study of Population (IUSSP)
Organizer, session on Technical Advances in Evaluating Family Planning Programs, IUSSP General Conference, Mexico City, August 1977
Consultant, on Manual of Methods for Measuring the Impact of Family Planning Programs on Fertility, United Nations Population Division
Reviewer, National Science Foundation; Canada Council
Editorial Reader: Demography; American Sociological Review; Studies in Family Planning

Leslie Kish

Member, Committee on Demography and Fertility of the National Academy of Science
President, American Statistical Association

John Knodel

Editorial Reader: The American Sociologist; Demography; The Journal of Family History; Comparative Studies in Society and History; Studies in Family Planning; The American Journal of Sociology; and the East-West Population Paper Series

Ronald Lee

Member, Ad Hoc Group of Experts on Demographic Projections of the United Nations
Organizer of session for the August 1978 International Union for the Scientific Study of Population conference on Economic Demography to be held in Helsinki
Reviewer, National Science Foundation; National Institutes of Health; Social Security Administration
Ronald Lee (continued)

Editorial Reader: Princeton University Press; Journal of the American Statistical Association; Demography; Journal of Economic History; Explorations in Economic History

Karen Mason

Member, Board of Directors, Population Association of America
Consulting Editor, American Journal of Sociology
Associate Editor, Sociological Methods and Research
Reviewer, National Science Foundation; National Institute of Mental Health
Editorial Reader: Demography; American Sociological Review

William Mason

Member, Advisory and Planning Committee, Social Science Research Council Center for Coordination of Research on Social Indicators
Associate Editor, American Sociological Review; Journal of the American Statistical Association

Baron Moots

Editorial Reader: Demography

Eva Mueller

Consultant, World Bank
Reviewer, National Science Foundation

Robert Potter

Member, Subcommittee on Nutrition and Fertility, Committee on International Nutrition Programs, National Research Council; Committee on Demographic Aspects of Family Planning Programs, International Union for the Scientific Study of Population

Leroy Stone

Member and chairperson, Publications Committee, Canadian Population Society

-29-
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 students to function effectively in the training program. Training opportunities were provided this year for foreign students from Brazil, England, Malaysia, Norway, Pakistan, and the Philippines.

Members of the Center's professional staff have participated in international conferences, visited other countries to learn of demographic work being done, and assisted investigators on population research in several overseas areas. A list of such activities occurring in 1976-77 follows.

Belgium

A. Hermalin served as rapporteur for the seminar, "Patterns of Response to Family Planning Programs," arranged by the International Union for the Scientific Study of Population (IUSSP) committee on Demographic Aspects of Family Programs in Liege, April 1977.

He also gave a colloquium on lactation and natural fertility to the Interuniversity Programme in Demography at the Vrije Universiteit, Brussels, April 1977.

Columbia

J. Knodel visited Bogata in August 1976 and conferred with several persons involved in demographic research about possible collaborative projects.

England


J. Knodel went to Cambridge, England in September 1976 to work with the Cambridge Group for the History of Population and Social Structure on analysis of data from German village genealogies.


France


R. Freedman was a discussant in a seminar on Natural Fertility, sponsored by the Institut National d'Etudes Demographiques and the Committee on Comparative Fertility Studies of the IUSSP, in Paris, March 1977. R. Potter was a participant in the seminar. J. Knodel also participated and presented a brief paper on "Tables and Comments on Preindustrial Fertility in Six German Villages."

A. Hermalin was coauthor with A. Jain of a paper, "Lactation and Natural Fertility" presented at the Paris seminar on Natural Fertility.

Guatemala

Eva Mueller and Carol Clark, in cooperation with the Instituto De Nutricion De Centro America Y Panama (INCAP), tested household survey instruments in Guatemala in August 1976.

Hong Kong

R. Freedman spent time in Hong Kong discussing population statistics and the family planning program in Hong Kong with members of the Department of Health, the Census and Statistics Department and the Family Planning Association, during March 1977.

Japan

In March 1977 R. Freedman visited the Ministry of Health and Welfare in Tokyo to consult about research on fertility. He also discussed with Mr. M. Nohara, a former Center student, his analysis of WFS data.

Mexico

E. Mueller participated in a seminar on "Household Models of Economic-Demographic Decision-Making in Developing Countries," sponsored by the IUSSP Committee on Economic Demography, in Mexico, November 1976.

Taiwan

R. Freedman visited Taiwan in March 1977 to confer with a number of agencies that are collaborating on research with the Population Studies Center.
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 1976-1977 is given below.

**Lolagene C. Coombs**


Leader for luncheon session on "Sex Preference: How and Why Should We Measure It?", Population Association of America, St. Louis, April 21, 1977.

**Reynolds Farley**

Participant, Conference on Public Use Files (possible tape files of samples from the 1940 and 1950 census), University of Wisconsin-Madison, June 27-30, 1976.


Presented a paper on "Trends in Racial Inequality: How Much Affirmative Action Do We Need at this Time?" at the conference, "Inequality and Public Policy: The Ethics of Affirmative Action," Michigan State University, December 6, 1976. This has been reprinted in a publication bearing the same name as the title of the conference.


Was a discussant at the conference on "Lethal Aspects of Urban Violence," sponsored by the University of Wisconsin-Milwaukee, May 11-12, 1977.
Deborah Freedman

Gave a talk at the Center for Demography and Ecology, University of Wisconsin, April 1977, on the Longitudinal Study of Correlates of Family Growth.


Gave a colloquium jointly with E. Mueller in March, 1977, at the World Bank on "The Standard Package of Economic and Demographic Questions" for use in less developed countries.

Presented a paper in February 1977, at the East-West Center in Hawaii on "The Economic Correlates of Family Growth."

Ronald Freedman

Spoke to colloquia at the East-West Center, Hawaii, in February 1977 and at the Center for Demography and Ecology at the University of Wisconsin in April 1977.


Was a discussant at the session on Population Education at the Annual Meeting of the Population Association of America, April 1977.

Participated in a session of the newly organized Committee on Population and Demography of the National Academy of Sciences, Washington D.C., June 1977.

David Goldberg

Gave a colloquium on "The Segregation of Behavior and Attitude in Turkey and Mexico" at Stanford University, February 1977.

Albert Hermelin

Attended a workshop on the fertility impact of family planning programs in the United States, sponsored by the Center for Population Research, NICHD, in Bethesda, Maryland, February 1977.

John Knodel


Gave a guest lecture on Family Limitation and Fertility Transition at the University of Utah Department of Sociology, December 1976.
Ronald Lee

Presented the paper, "Target Fertility, Contraception and Aggregate Rates" at the Population Council in July, 1976; at the University of California, Berkeley, in October, 1976; and at the PAA meetings in St. Louis, April 1977.

Presented the paper, "An Historical Perspective on the Population Explosion" at a National Bureau of Economic Research (NBER) Conference on Demographic and Economic Change in Developing Countries held in Philadelphia in September 1976; and at the University of California at Berkeley in October 1976.

Presented a seminar on "Economic-Demographic Waves in the Twentieth Century U.S." to an economic history faculty colloquium at Stanford University, October 1976.

Gave a seminar on "The Recent Decline in U.S. Fertility" at the Population Center of the University of North Carolina, November 1976.

Presented the paper, "Fertility, Age Structure and Income in the U.S., 1947 to 1974" to the Economics Department at Johns Hopkins University, November 1976.


Karen Mason


William Mason

Gave the following papers:

"Robustness and Identification of Age, Period and Cohort Effects in the Analysis of Discrete Archival Data" (with S. E. Fienberg), American Statistical Association Annual Meeting, Boston, August 1976.


"Identification and Estimation of Age-Period-Cohort Models in the Analysis of Discrete Archival Data" (with S. E. Fienberg), at the Department of Sociology, University of Washington, March 1977.


Eva Mueller

Eva Mueller (continued)

Organized a session on "The Measurement of Employment and Unemployment in Developing Nations" at the Annual Meeting of the Population Association of America, St. Louis, April 1977. Also presented a paper on "Design of In-Depth Employment Surveys for Human Resources Analysis."


Robert Potter


Paul Siegel


Leroy Stone

Presented seminars on "Canadian Population Trends and Related Public Policy Issues" and on "Multivariate Analysis of Contingency Tables" at Queen University, University of Toronto, University of Saskatchewan, and York University, Canada, and at Brown University, Providence.

Students also participate in conferences and present papers at meetings. In addition to Center seminars given by a number of students, some of which are listed in an earlier section of this report, the following students have participated in these professional activities:


Robert Mare presented a paper on "A Short Course in the Theory and Applications of Joreskog's LISREL, ACOVS, and SIFASP" (with W. Mason and Ronald Schoenberg), to the American Sociological Association Methodology Section, New York, August 29, 1976. He also presented a paper on "Social Background and School Continuation Decisions" at the Annual Meeting of the Population Association of America, St. Louis, April 22, 1977.
Toni Richards presented a paper on "Fertility Decline in Germany: An Econometric Appraisal" at the Annual Meeting of the Population Association of America, April 1977.

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 1976 to about 585 individuals, libraries, and agencies working in the population field or indicating an interest in demographic research and requesting inclusion on the Center's mailing list. The Center filled about 2900 requests for specific publications from people in the U.S. and in 35 foreign countries.

In addition to requests for reprints, members of the Center staff received many inquiries about research materials that may be useful to researchers in other countries. In the past year staff members responded to well over 100 such requests.

J. Chamie


M. Clark


L. Coombs


L. Coombs  

R. Farley  

D. Freedman  

R. Freedman  
D. Goldberg  

A. Hermalin  


L. Kish  


J. Knodel  


-38-
J. Knodel


R. Lee


W. Mason


B. Moots


E. Mueller


## APPENDIX A

### CENTER FINANCIAL ASSISTANCE PROVIDED FOR GRADUATE STUDENTS, 1976-1977

<table>
<thead>
<tr>
<th>Stage of Apprenticeship and Academic Term</th>
<th>Number of Students Receiving Center Funding</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Any Form&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td><strong>All Students</strong></td>
<td></td>
</tr>
<tr>
<td>Total, 1976-1977</td>
<td>30</td>
</tr>
<tr>
<td>Summer half-term</td>
<td>4</td>
</tr>
<tr>
<td>University year</td>
<td>24</td>
</tr>
<tr>
<td>Spring half-term</td>
<td>12</td>
</tr>
<tr>
<td>First Year Students&lt;sup&gt;c&lt;/sup&gt;</td>
<td>6</td>
</tr>
<tr>
<td>Continuing Students</td>
<td>24</td>
</tr>
<tr>
<td><strong>Foreign Students</strong></td>
<td></td>
</tr>
<tr>
<td>Total, 1976-1977</td>
<td>5</td>
</tr>
<tr>
<td>Summer half-term</td>
<td>0</td>
</tr>
<tr>
<td>University year</td>
<td>5</td>
</tr>
<tr>
<td>Spring half-term</td>
<td>4</td>
</tr>
<tr>
<td>First Year Students&lt;sup&gt;c&lt;/sup&gt;</td>
<td>1</td>
</tr>
<tr>
<td>Continuing Students</td>
<td>4</td>
</tr>
<tr>
<td><strong>United States Students</strong></td>
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</tr>
<tr>
<td>Total, 1976-1977</td>
<td>25</td>
</tr>
<tr>
<td>Summer half-term</td>
<td>4</td>
</tr>
<tr>
<td>University year</td>
<td>19</td>
</tr>
<tr>
<td>Spring half-term</td>
<td>8</td>
</tr>
<tr>
<td>First Year Students&lt;sup&gt;c&lt;/sup&gt;</td>
<td>5</td>
</tr>
<tr>
<td>Continuing Students</td>
<td>20</td>
</tr>
</tbody>
</table>

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

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

<sup>c</sup>Students who were not associated with the Center before summer, 1976.
APPENDIX B

POPULATION STUDIES CENTER STAFF
1976 - 1977

**Director**

Albert I. Hermelin, Associate Professor of Sociology

**Associate Directors**

Reynolds Farley, Professor of Sociology
Ronald Freedman, Professor of Sociology
David Goldberg, Professor of Sociology
Paul M. Siegel, Associate Professor of Sociology

**Research Associates**

Albert Anderson, Assistant Research Scientist
J. Michael Coble, Assistant Research Scientist
Lolagene C. Coombs, Assistant Research Scientist
Deborah Freedman, Assistant Professor of Economics
Leslie Kish, Professor of Sociology, and Program Director, Survey Research Center
John Knodel, Associate Professor of Sociology
Ronald D. Lee, Professor of Economics
Karen O. Mason, Assistant Professor of Sociology
William M. Mason, Associate Professor of Sociology
Eva L. Mueller, Professor of Economics, and Associate Dean for Academic Appointments, LSA
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, July 1976-May 1977
Susan Etter, Administrative Associate, June 1977-
Mary P. Scott, Administrative Assistant
Fran Cartford, Programmer
Karlin Richardson, Programmer
James Rogers, Research Assistant
Lois Groesbeck, Secretary - Librarian
Carol Crawford, Secretary
Margie Melendez, Secretary
Judy Sayles, Secretary
Dorothy Strand, Secretary
Pamela Crawford, Receptionist - Clerk
Charlotte Smart, Receptionist - Clerk
APPENDIX C
COURSES IN DEMOGRAPHY

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

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

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

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

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

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

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

Sociology 631, 632 - Advanced Population Methods. These courses focus on the formal development of models to study the growth, distribution, change, and movement of human population with emphasis on mathematical models which lead to empirically verifiable theory. Topics include models for studying stable populations, the reproduction processes, and the translation of period to cohort rates. Attention is also given to data sources and statistical techniques used in studying the interrelationships of population distribution, division of labor, and community structure.
Sociology 633 - Proseminar in Historical Demography. A survey of the data sources and the methods of data organization and analysis peculiar to historical demographic research along with selected substantive topics.

Sociology 830, 831 - Seminar in Population and Human Ecology. A variety of substantive and methodological topics are taken up in a seminar format.

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

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

Economics 867, 868 - Seminar in the Economics of Population. A seminar covering a variety of topics in the form of (1) a detailed discussion of an important recent article or series of articles; (2) presentation of research plans or findings by trainees or faculty members; (3) presentation of research by a visitor.
<table>
<thead>
<tr>
<th>Name</th>
<th>Position and Affiliation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Krishnan Namboodiri</td>
<td>Professor and Chairman (Sociology), Editor, Demography, University of North Carolina</td>
</tr>
<tr>
<td>Tattamangalam R. Balakrishnan</td>
<td>Professor (Sociology), University of Western Ontario</td>
</tr>
<tr>
<td>Allan G. Feldt</td>
<td>Professor (Urban and Regional Planning, Natural Resources), University of Michigan</td>
</tr>
<tr>
<td>William Smit</td>
<td>Professor (Sociology), Calvin College</td>
</tr>
<tr>
<td>William F. Pratt</td>
<td>Chief, Family Growth Survey Branch, National Center for Health Statistics</td>
</tr>
<tr>
<td>Partha S. Mohapatra</td>
<td>Deceased 1976</td>
</tr>
<tr>
<td>Kodaganallur Srikantan</td>
<td>Staff Associate, The Population Council</td>
</tr>
<tr>
<td>Roy C. Treadway</td>
<td>Associate Professor (Sociology), Department of Sociology, Anthropology and Social Work, Illinois State University</td>
</tr>
<tr>
<td>Fred Campbell</td>
<td>Associate Professor (Sociology), University of Washington</td>
</tr>
<tr>
<td>Larry L. Bumpass</td>
<td>Professor (Sociology) and Associate Director for Training (Center for Demography and Ecology), University of Wisconsin</td>
</tr>
<tr>
<td>Patricia R. Ferman</td>
<td>Associate Professor (Sociology), Eastern Michigan University</td>
</tr>
<tr>
<td>Robert M. Hauser</td>
<td>Professor (Sociology) and Director (Training Program in Social Methods), University of Wisconsin</td>
</tr>
<tr>
<td>Anrudh K. Jain</td>
<td>Associate (International Programs), The Population Council</td>
</tr>
<tr>
<td>Albert M. Marckwardt</td>
<td>Demographer, World Fertility Survey (International Statistical Institute), London</td>
</tr>
<tr>
<td>William S. Pooler</td>
<td>Associate Professor (Sociology), Syracuse University</td>
</tr>
<tr>
<td>Allan Schnaiberg</td>
<td>Associate Professor (Sociology), Northwestern University</td>
</tr>
<tr>
<td>Te-Hsiung Sun</td>
<td>Executive Director, Taiwan Provincial Institute of Family Planning</td>
</tr>
<tr>
<td>James A. Sweet</td>
<td>Associate Professor (Sociology) and Director (Center for Demography and Ecology), University of Wisconsin</td>
</tr>
<tr>
<td>Solomon S. P. Chu</td>
<td>Assistant Professor (Sociology), State University of New York at Buffalo</td>
</tr>
</tbody>
</table>
David L. Featherman  
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and Research Associate (Center for  
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University of Wisconsin

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U.S. Department of Justice  
Law Enforcement Assistance Agency

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Ann Arbor, Michigan

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and Research Associate (POP LAB)  
University of North Carolina

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University of Vermont

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Cook College, Rutgers University

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Montclair State College

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Washington, D.C.

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Eastern Michigan University

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Survey Statistician  
Family Growth Survey Branch  
National Center for Health Statistics

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Institute for Survey Research  
Temple University

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East-West Population Institute  
East-West Center  
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University of Alberta

Allan Griswold Johnson  
Assistant Professor (Sociology)  
Wesleyan University

Richard B. Anker  
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International Labor Organization  
Geneva, Switzerland

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University of Chicago

Howard M. Iams  
Statistician (Social Science)  
Office of Special Initiatives  
U.S. Department of Health,  
Education and Welfare

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

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Gary Income Maintenance Experiment  
Gary, Indiana

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University of Illinois-Urbana

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

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Atlanta, Georgia

Hsiao-Chang Chen  
International Institute of Rural Reconstruction  
Philippines

Hsan Zafer Dogan  
Research Associate (The Population Council, Yozgat Project)  
Ankara, Turkey

Barry James Edmonston  
Assistant Professor (Sociology)  
Cornell University

Mark Evers  
Assistant Professor (Sociology)  
Duke University

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

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

Lois Verbrugge  
Assistant Professor (Biostatistics)  
University of Michigan

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

Arland Thornton  
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Survey Research Center  
University of Michigan

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East-West Center, Honolulu, and  
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University of Hawaii

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University of Wisconsin

Joseph Chamie  
Population Division  
UN Economic Commission for West Asia  
Beirut, Lebanon

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University of Illinois-Urbana

Stanley Smith  
Assistant Professor (Economics)  
University of Florida

Martha Hill  
Institute for Social Research  
University of Michigan

Rex Y. Leghorn  
Assistant Professor (Sociology)  
Emory University