THE 1984 MEETING OF THE POPULATION ASSOCIATION OF AMERICA

The 53rd Annual Meeting of the Population Association of America was held in Minneapolis, Minnesota, at the Amfac Hotel, May 3-5, 1984. The program included 54 sessions of papers, 1 panel session, and approximately 27 round table luncheons. Abstracts of the papers are provided in the following pages in order of the session at which the paper was presented. Several abstracts have been revised and updated since their publication in the booklet distributed at the conference, and others are included that were not available at the conference. Addresses to which requests for copies of papers should be sent are also given. An index to authors of these papers is included at the end of this issue.

INFECUNDITY: TEMPORARY AND PERMANENT, VOLUNTARY AND INVOLUNTARY
Organized and Chaired by
Jane Menken, Princeton University

Postpartum Amenorrhea in Selected Developing Countries: Estimates from Contraceptive Prevalence Surveys
John Knodel, Population Studies Center, University of Michigan, 1225 South University Avenue, Ann Arbor, MI 48109; and Gary Lewis.

Lack of information on the period of postpartum nonsusceptibility to pregnancy has been a problem for researchers trying to quantify the impact of "proximate" variables on fertility. The authors present a methodology for indirectly estimating duration of postpartum amenorrhea from sample survey data. The methodology is applied to Contraceptive Prevalence Survey data from seven countries. The results suggest that considerable cross-national variation exists in the median and mean durations of postpartum amenorrhea and that estimates based solely on breast-feeding practices may be misleading.

Delayed Menarche and Amenorrhea of Athletes: Significance for Fertility and Reproductive Health
Rose E. Frisch, Center for Population Studies, Harvard University, 9 Bow Street, Cambridge, MA 02138.

Physical exercise before menarche is shown to delay menarche by 5 months for each year of premenarcheal training. Regular physical exercise also causes amenorrhea (absence of menstrual cycles) and irregular cycles. The mean menarcheal age (MMA) of 38 college athletes, 13.9 ± 0.3 years, is significantly later ($p < 0.001$) than that of the college controls, 12.7 ± 0.4 years. However, MMA of the 18 premenarcheally trained (Pre-MT) athletes is 15.1 ± 0.5 years, whereas the MMA of the 20 postmenarcheally trained (Post-MT) athletes is 12.8 ± 0.02 years ($p < 0.001$). Only 17 percent of the Pre-MT athletes have regular cycles, 22 percent are amenorrheic, and 61 percent are irregular. In contrast, 60 percent of the Post-MT athletes have regular cycles; 40 percent are irregular. Intense training increases menstrual dysfunction in both groups. Gonadotropin and estrogen levels are low in amenorrheic women, similar to women with weight loss. These women are infertile. The effects of exercise are reversible with reduction or cessation of training, after varying periods of time. The findings place new importance on the physical activity of women in relation to fertility and reproductive health.

Fetal Wastage: Evidence from the World Fertility Survey
Hazel Ashurst; and John Casterline, World Fertility Survey, 35-37 Grosvenor
Gardens, London SW1W OBS, England.

Levels of spontaneous and induced pregnancy loss are examined with World
Fertility Survey data from 23 developing countries. The completeness of the
reporting of losses and the quality of the dating of losses are evaluated.
Differentials in spontaneous and induced loss according to the mother's
schooling and type of place of residence are presented, controlling for age.
More detailed multivariate analysis of nine countries includes as additional
predictors the pregnancy order and the interval since the previous pregnancy
termination.   The analysis concentrates on proportions of pregnancies
terminating before a live birth, but rates of loss per woman-year of exposure
are also shown.

Sterility in a Natural Fertility Population
James Trussell, Office of Population Research, Princeton University, 21
Prospect Avenue, Princeton, NJ 08544; and Chris Wilson.

In this paper, the authors examine the age pattern of sterility in a
natural fertility population of 16 English parishes. They examine estimators
of sterility proposed by historical demographers and demonstrate through Monte
Carlo simulation of reproductive histories that the estimators proposed
earlier work well only if the ages to which the estimates pertain are
substantially modified from the original formulation. The new estimates show
a much larger positive effect of childbearing on sterility than would the
earlier ones. The authors also present estimates of the age pattern of
sterility due solely to the process of aging by eliminating secondary
sterility induced by childbearing. This curve rises slowly until age 40,
after which the proportion sterile increases rapidly with age. The analysis
provides utterly no evidence of a sharp rise in the risk of sterility in the
30s.
    Strong evidence of a decline in fecundity is found by examining age-
specific fertility rates only for those women who are known to be fecund
because they later bear children. The evidence suggests only a moderate
decline until ages 35-39 and a much steeper decline thereafter. Finally, the
danger of using a commonly employed clinical test of infertility is
illustrated. It is shown that if women are judged to be infertile because
they have not become pregnant within one year of unprotected exposure, then a
large fraction of those so judged will be falsely diagnosed. It is concluded
that the one-year period is too short.

The Determinants and Consequences of Female Contraceptive Sterilization: The
Case of Puerto Rico
Charles W. Warren, U.S. Centers for Disease Control. Mailing address: 3966
Cynthia Way, Lilburn, GA 30247; Joan M. Herold; Roger W. Rochat; and Jack C.
Smith.

No abstract received.

APPLIED MULTISTATE MATHEMATICAL DEMOGRAPHY
Organized and Chaired by
Andrei Rogers, University of Colorado

Parametrized Multistate Population Projections
Andrei Rogers, Population Program, Institute of Behavioral Sciences,
University of Colorado, Boulder, CO 80309.

    It has been argued that the population projection process should be
formulated as one of model selection rather than of demographic accounting.

In this paper, the author reports on progress in the development of such a projection process. He describes methods for generating transparent multiregional/multistate population projections that rely on parametrized model schedules and simple techniques that extrapolate the recent trends exhibited by the parameters of such schedules. The parametrized schedules condense the amount of information to be specified as assumptions, simplifying and making more transparent what is being modeled; they express this condensed information in a language and variables that are readily understood by the users of the projections; they permit a more concise specification of the expected temporal patterns of variation among these variables; and they allow a finer disaggregation of demographic change than would otherwise be feasible.

Internal and External Consistency in Multidimensional Population Projection Models
Nico Keilman, Netherlands Interuniversity Demographic Institute, P.O. Box 955, 2270 AZ Voorburg, Netherlands.

This paper deals with the impact of consistency requirements upon the formulation of multidimensional population projection models. Internal consistency arises when certain output variables of the model have to be consistent with one another, as in models containing marital status (the two-sex problem). External consistency applies to cases where certain output variables have to satisfy externally specified restrictions. For instance, regional population projections may have to add up to national projection population totals. The paper includes both internal and external consistency algorithms, which control for stock and flow variables. Two methods are discussed: a simple proportional adjustment for each relevant demographic component and an approach that minimizes deviations in age patterns of the input rates. Illustrations are given using data for the Netherlands. The first pertains to the age-, sex-, and marital-status-specific model of the official 1980 national population forecasts. The second deals with the multiregional projection model that is currently being constructed for the Netherlands´ regional population forecasts.

New Developments in Multistate Working Life Tables
Shirley J. Smith, U.S. Bureau of Labor Statistics, 441 G Street NW, Room 2486, Washington, DC 20212; and Francis W. Horvath.

The authors present preliminary multistate working life tables for U.S. workers for the period 1979-1980. For the first time these Bureau of Labor Statistics estimates include detail by race and by educational attainment. They are based on information collected in the monthly Current Population Survey. The authors estimate that over a lifetime white men work 5.3 years longer, and white women 2.4 years longer, than do their minority counterparts. The completion of 15 or more years of schooling extends male working life by about 6.5 years and that of females by 12.5 years over that of high school dropouts.

Updating Children´s Life Course
Sandra Hofferth, U.S. National Institute of Child Health and Human Development. Mailing address: 7910 Woodmont Avenue, 7C25, Bethesda, MD 20205.

Dramatic changes have occurred in children´s family experiences in the United States, and these changes are even more dramatic when actual living arrangements, not just parental marital statuses, are considered. According to data from the Panel Study of Income Dynamics, by age 17, 19 percent of white children born in 1950-1954 had lived with only one parent. By age 17, 70 percent of white children born in 1980 are projected to have spent at least some time with only one parent before they reach age 18. The proportion was 48 percent for black children born in 1950-1954 and is projected to be 94 percent for black children born in 1980. Of course, these figures do not indicate the actual proportion of their lives children spend in various family

types. White children born in 1950-1954 could expect to spend 8 percent of their childhood with only one parent, black children 22 percent. Of those children born in 1980, white children can be expected to spend 31 percent of their childhood years with one parent, black children 59 percent. Children's experience depends on family type at birth. Sixty-four percent of white children born in 1980 into a first-marriage family could expect to live at some point in a one-parent family by age 17; they could expect to spend 25 percent of their childhood in such a family. The comparable figures are 89 and 44 percent for black children born in the same year.

The Interaction between Marital Status and Childbearing: A Multistate Life Model Approach
El-Sayed Nour, University of North Carolina, Rosenau Hall 201H, Chapel Hill, NC 27514; and C. M. Suchindran.

In this paper, the multistate model approach to the analysis of interacting population processes is outlined. The methods are applied to the study of the relationship between marital status and childbearing using retrospective data collected as part of the U.S. Current Population Survey. The states of the model are determined by the interaction of marital status and parity for women in the study. The authors examine functions such as the average number of births by marital status, the average number of marriages (or divorces) by parity, the proportion of marriages (or divorces) ending in a divorce (or marriage) by parity, the average duration of a marriage (or a divorce or a widowhood) by parity, and the like. The results of a procedure for validating the model are also included.

DEVELOPMENT IMPACTS ON THIRD WORLD FERTILITY
Organized and Chaired by
George J. Stolnitz, Indiana University

Conditions of Fertility Decline: 1965-1980
W. Parker Mauldin, Rockefeller Foundation, 1133 Avenue of the Americas, New York, NY 10036; and Robert J. Lapham.

The authors assess some of the complex relationships that affected fertility change (or lack thereof) in 93 less-developed nations in the period from 1965 to 1980. The focus is on the independent and joint effects of socioeconomic conditions and organized family planning programs on fertility. Data to measure fertility change (both the crude birth rate or CBR and the total fertility rate or TFR) for 1965-1980 and socioeconomic conditions in 1970 are derived from several sources, including data banks developed during recent years. Data for the measurement of family planning program effort are from 1972 and 1982 sets of program effort scores. Parsimonious sets of variables are selected for analysis, and the effects of a political capacity index are investigated. The results show that a parsimonious set of seven social setting variables has an R^2 value of .69, which increases to .83 when a 1972-1982 program effort score is added to the equation. Among groups of countries with similar social settings, CBR and TFR declines are systematically greater among those countries with more program effort.

Development Impacts on Fertility in India
Anrudh K. Jain, International Programs, Population Council, One Dag Hammarskjold Plaza, New York, NY 10017.

Recent analyses have documented that fertility in India during the 1970s has continued to decline. The available data also show that fertility varies

substantially among regions and states in India. The author examines the impact of development on fertility decline and on regional variations during the 1970s. The role of the family planning program is also assessed in this broader context. Indicators of development include such factors as female literacy and education, infant mortality, and poverty at the household level; and availability of social amenities such as schools, medical facilities, and transportation and communication facilities at the village level. States are used as the unit of analysis. Village-level and household-level data are aggregated for each state from published sources, especially the national fertility surveys conducted by the Office of the Registrar General.

This analysis demonstrates that conditions conducive to fertility decline include a small set of factors: adult female literacy and infant mortality as indicators of social development, and use of contraception and female age at marriage among the proximate determinants. The slow pace of social development in India appears to be responsible for the slow pace of fertility decline. There are reasons to believe that the national family planning program did contribute to the observed decline in fertility.

Origin-Destination Comparisons of Migrant and Stayer Fertility Differentials: The Case of Brazil
Hugo M. Hervitz, School of Business, Barry University, 11300 N.E. Second Avenue, Miami Shore, FL 33161.

The purpose of this study is to explore through a case analysis the kinds of fertility patterns that might be revealed if migration movements in developing countries could be heavily disaggregated by joint origin-area, destination-area, and migrant characteristics. The data, involving a mid-1970s national sample of Brazilian currently married women aged 15-44, are such that it is possible to classify migrants, defined as women not living in county of birth, by age and education, number of children ever born (CEB), counties and states of birth and residence, urban or rural status of birth and residence places, development stage of states, and duration of current residence. It is possible, therefore, to distinguish rural-to-rural, urban-to-rural, rural-to-urban, and urban-to-urban classes of migrants, each disaggregated in considerable detail by age, education, and duration of residence, and to compare their CEB levels with those of other analogous migrant groups or with those of analogous nonmigrant ("stayer") groups in both origin and destination areas.

Recent Fertility Declines in Brazil, Colombia, and Mexico
Thomas W. Merrick, Center for Population Research, Kennedy Institute of Ethics, Georgetown University, Washington, DC 20057.

By the early 1980s, total fertility in Brazil, Colombia, and Mexico had declined by 30 to 40 percent below levels in the middle to late 1960s. In this paper, the author seeks answers to two related questions: first, why did fertility remain so high despite comparatively high levels of urbanization and educational attainment during the 1960s, and second, what triggered rapid fertility declines during the 1970s? The answers, it is suggested, lie in changing fertility differentials (by class, region, and rural or urban residence). Access to family planning increased in all three countries, though the channels were different in each case. Changing social and economic conditions contributed to increased fertility control in two ways: by shifts in the composition of the population that increased the weight of lower-fertility groups, and by changes in conditions affecting the desire for larger families among high-fertility groups. Available evidence suggests that both kinds of change occurred. In the second case, increasing economic pressures on low-income families and increased female participation in wage labor were important.

MIGRATION, CIRCULATION, AND COMMUTING IN DEVELOPING COUNTRIES AND
THEIR LABOR FORCE PARTICIPATION IMPLICATIONS
Organized and Chaired by
George J. Demko, National Science Foundation

Temporary Population Movement in China: Leave the Land but Not the Village
Sidney Goldstein, Population Studies and Training Center, Brown University,
Providence, RI 02912; and Alice Goldstein.

Concern in China with problems of rural-urban population distribution,
rates of urban growth, and relationships between employment opportunities and
rural and urban development has resulted in a firmly articulated policy
regarding population movement. Permanent movement from rural to urban places
and from smaller to larger urban places is strictly controlled. Yet the
pressures of a large surplus labor force and the introduction of the new
economic responsibility system have led to a substantial increase in
population mobility, most of it temporary in nature. Such circulation has
become a major mechanism allowing rural areas to cope with their surplus labor
and raising rural standards of living. It has also allowed urban places to
gain the skilled service workers and unskilled construction workers who are in
short supply without putting undue pressure on urban facilities.

The Effects of Migration Status on Occupational Attainment in Bangkok
Jeffrey E. Kallan, Carolina Population Center, University of North Carolina,
University Square East 300A, Chapel Hill, NC 27514.

Sample survey data collected in Bangkok are used to explore some
individual-level variables that might account for migrant-native differentials
in occupational attainment, as well as the determinants of occupational
attainment of the migrants themselves. It is found that rural migrants attain
lower-status occupations relative to urban migrants and natives of Bangkok but
that educational differences between the groups largely account for their
occupational differentials. The lower occupational attainment of rural
migrants relative to urban migrants can be attributed both to their lower
educational level and to their lower occupational status prior to migrating.
The effects of duration of residence and age at migration are also examined.

Job Turnover, Migration, and Wages in Malaysia
Elizabeth M. King, Rand Corporation, 1700 Main Street, Santa Monica, CA 90406.

The author estimates the life cycle job mobility of Malaysian men, its
determinants, and its effect on earnings profiles. Job turnover consists of
transfers between jobs within an occupation, transfers across occupational
categories, and job switches coincident with geographic relocation. The way
in which Malaysia's remarkable economic growth in recent decades has affected
labor mobility and wages is explored.
    Using retrospective work history data for men from the Malaysian Family
Life Survey (1976-1977), the author finds that greatest mobility occurs within
the first five years of working life, that about 40 percent of job turnovers
involve migration, that past mobility and cumulative work experience influence
current mobility (positively and negatively, respectively), and that job
mobility and migration increase earnings and wage growth. The effects of job
and geographic mobility on wages are positive and significant across three
10-year birth cohorts, but these effects are smaller for older than for
younger cohorts. Other variables considered are occupation, distance to work,
education, marital status, wife's labor supply, and ethnicity.

Interurban Movements and Repeat Migration in Nigeria: Implications for a National Urbanization Policy
Linda Lacey, Department of City and Regional Planning, University of North Carolina, Chapel Hill, NC 27514.

Through analyses of migration histories, the author examines the spatial, demographic, and economic characteristics of male and female migrants aged 15 years and above in three cities in Nigeria, namely, Ibadan, Benin, and Kano. The findings show that the migrants represent numerous spatial patterns of mobility. While some move directly from rural areas to the cities, most make repeat interurban and rural-urban moves. Migrants also arrive in the cities with diverse occupational experiences. However, male repeat migrants are more likely to arrive in the cities with higher levels of skill and training than one-time rural-urban male migrants and female migrants. The analyses suggest that a combination of population redistribution policies is required to direct the flow of Nigeria's diverse pool of migrants.

Human Resource Transfers, Regional Labor Markets, and Development Processes: Logit Analyses of Venezuelan Migration
Lawrence A. Brown, Department of Geography, Ohio State University, 190 N. Oval Mall, Columbus, OH 43210; and Janet E. Kodras.

No abstract received.

FAMILY DISSOLUTION AND RECONSTITUTION: DETERMINANTS AND CONSEQUENCES
Organized and Chaired by
Robert T. Michael, University of Chicago

Marital Dissolution: Structural and Temporal Dimensions
S. Philip Morgan, Population Studies Center, University of Pennsylvania, 3718 Locust Walk CR, Philadelphia, PA 19104; and Ronald R. Rindfuss.

Relying heavily on Ryder's (1965) argument concerning the central role of cohort in social change, and on Elder's (1978) work on life cycles, the authors integrate the disparate threads currently existing in the marital disruption literature and provide an integrated framework for subsequent analysis. They focus on the study of intracohort life cycle development and comparative cohort careers and develop a framework that incorporates both these elements simultaneously. Data from the 1980 U.S. Current Population Survey and conditional logit analysis are used to make refined statements about which marriage cohorts are most affected by given variables and where within the cohort's life cycle they act. For instance, it is shown that the timing of marriage and maritally conceived births affect the likelihood of disruption in all cohorts and at all marital durations observed. In contrast, the wife's level of education and a premarital birth affect the likelihood of marital disruption only at early marital durations. Such variable patterns of effects along the temporal dimensions of cohort and duration provide important clues to the mechanisms by which these variables influence marital dissolution.

Marital Stability: The Effects of Spouses' Time Together
Martha S. Hill, Institute for Social Research, Room 3252, University of Michigan, Ann Arbor, MI 48106.

The role of the time spouses spend together in determining the stability of a marriage is explored. The major emphasis of this analysis is the extent to which spending leisure time together serves as a cohesive force in marriage, thus preventing the dissolution of the marriage by divorce or separation. With regard to this relationship, the author proposes and tests what may be termed a "bonding hypothesis". This hypothesis maintains that the

leisure time spouses spend together helps prevent marital instability because it is enjoyable activity that involves marital interaction, and enjoyable marital interaction helps spouses cope better with marital stresses. Stated more simply, leisure time together serves as a bonding agent for the marriage. In the process of investigating this topic, the author also looks at the extent to which effects of children on divorce probabilities operate through the leisure time spouses spend together.

Fertility and Marital Dissolution: Hazards Modeling for Young Women's First Marriages
Karen Woodrow, Population Division, U.S. Bureau of the Census, Washington, DC 20233.

The relationship between the timing of marital fertility and survival of white women's first marriages is the subject of this research. Data are from the U.S. National Longitudinal Survey panel of young women who were aged 14 to 24 years in 1968 and were interviewed during 1968-1978. Including women who were either already married in 1968 or married between 1968 and 1977, discrete-time models are estimated for the hazard of divorce during the first decade. Time-dependent covariates for the occurrence of the first, second, and third marital births substantially improve the fit of the fixed covariates model, which includes only the characteristics present at the time of the marriage. The occurrence of the first and second marital births markedly decreases the hazard of divorce, but the occurrence of the third marital birth during the first six years of marriage is associated with an increased hazard of divorce. For the marital experience following the first marital birth, the presence of a child aged 0 to 5 years significantly increases the survival of first marriages.

Variations in the Economic Well-Being of Divorced Women and Their Children
Andrea H. Beller, Department of Family and Consumer Economics, University of Illinois, 274 Bevier Hall, 905 South Goodwin, Urbana, IL 61801; and John W. Graham.

Variations in the economic well-being of a rapidly growing and disproportionately poor segment of the U.S. population are investigated. In large measure, the economic well-being of a divorced mother with children depends upon the amount of family support (child support and alimony) she receives from her ex-husband, her labor force participation, and how quickly she remarries, if at all. The authors pay particular attention to the effects of family support on the probabilities of remarriage and of labor force participation. The data set used is the March-April 1979 Match File of the Current Population Survey. Within the limitations imposed by the data, it is found that the likelihood of being awarded child support depends upon the needs of the mother and her children and upon the absent father's long-term ability to pay, while the likelihood of receiving child support depends less upon the circumstances of the woman and more upon the current financial status of her ex-husband. Like other forms of nonlabor income, child support payments are found to lower the probability of remarriage, but unlike other forms, child support payments neither raise nor lower labor force participation.

Household Public Goods and the Shadow Price of Privacy: Modeling the Interaction of Household Composition and Economic Behavior
David Lam, Population Studies Center, University of Michigan, 1225 South University Avenue, Ann Arbor, MI 48104.

The existence of household public goods has important implications for both the determinants and consequences of changes in household composition. Household public goods not only create incentives to form large households but are shown in this paper to have more specific effects, such as increasing the tendency toward positive assortative mating. Household public goods also complicate internal household allocation decisions, with some effects, such as

the classic "free rider" problem, tending to offset the advantages of increasing size. The effects of household composition on consumption and labor supply are modeled in this framework. Evidence from rural Guatemalan households indicates interactions between adult household composition and economic variables, working in both directions.

THE DEMOGRAPHIC TRANSITION IN THE UNITED STATES
Organized and Chaired by
Paul A. David, Stanford University

Spacing Versus Stopping in the Past: Marital Duration-Specific Patterns of Fertility Control among U.S. Native White Women, 1880-1910
Paul A. David, Stanford Project on the History of Fertility Control, Department of Economics, Stanford University, Encina Hall, Stanford, CA 94305; and Warren C. Sanderson.

The cohort parity analysis (CPA) methodology developed by the Stanford Project on the History of Fertility Control is used to quantify various dimensions of the fertility control behavior of native white U.S. women circa 1900. Based on data from the 1900 manuscript census and the published census tabulation for 1910, the three main findings tend to contradict the view that fertility control historically was initiated late in marriage and did not involve "precautionary spacing" behavior. It is found that (1) fertility control was initiated relatively early in marriage: 24.1 percent of all native white women aged 20-24 in 1900 had already averted at least one birth within three to four years of marriage; (2) fertility control typically was initiated before "desired fertility" was reached, since the mean fertility of the averters mentioned above was 0.6; and (3) early controllers did not as a rule terminate childbearing: roughly half of the above-mentioned young averters in 1900 had another birth during 1900-1910.

Ethnic Differentials in Marital Fertility during Fertility Decline: Philadelphia, 1850-1880
Michael R. Haines, Department of Economics, Wayne State University, Detroit, MI 48202.

Shifts in marital fertility are examined for Philadelphia for the period 1850-1880. The emphasis is on different fertility patterns among the major white ethnic groups in this city in this era, namely, the native whites, Irish, and Germans. Some estimates are also presented for the black population. Micro-data files from the U.S. censuses of 1850-1880 are used to generate overall and age-standardized marital child-woman ratios. Results indicate a consistent decline over time for the native white population, while the various other ethnic groups exhibited irregular patterns, with an increase for the Irish and German groups between 1850 and 1860 and a decline thereafter. The blacks exhibited an irregular pattern of fluctuations. Tabulations by literacy, occupation, employment, wealth, and husband/wife ethnicity, as well as multivariate analysis, provide some evidence to explain these trends.

Black Family Formation and Tenancy in the Farm South, 1900
Stewart E. Tolnay, Department of Sociology, University of Georgia, Baldwin Hall, Athens, GA 30602.

The author examines the relationship between family formation and the extent of farm tenancy among blacks in the rural U.S. South at the turn of the

century. The primary data source is a 1-in-750 sample of households from the 1900 manuscript census. The findings show that age at marriage for black farmers was significantly and negatively related to the proportion of farmers who were tenants (share and cash) in the couple's county of residence. Early marital childbearing appears to have been unresponsive to the level of farm tenancy, though there is indirect evidence that fecundity may have varied inversely with tenancy. It is inferred that the wide adoption of the "tenancy system" after the Civil War relaxed, or prevented, cultural restraints on early marriage. Further, it is speculated that rapid family formation and the family-based mode of production, which was typical of tenants, trapped many black farmers in the stagnant Southern agricultural economy.

DEMAND FOR AND SUPPLY OF CHILDREN: ECONOMIC BEHAVIOR AND NATURAL FERTILITY
Organized and Chaired by
Bryan L. Boulier, George Washington University

Fecundity, Fertility, and Contraceptive Choice: The Demand for and Supply of Births
Mark R. Rosenzweig, Department of Economics, University of Minnesota, 1035 Business Administration Building, Minneapolis, MN 55455; and T. Paul Schultz.

Individual variation in fertility has been studied by economists as an expression of individual and social choice, constrained by personal endowments, prices, institutions, technology, and tastes. Others have sought to specify and to measure the probabilistic chain of biological events that must occur to produce a birth. Clearly, the former explanation of fertility variation, to the extent that it is applicable, must operate through changing behavior that modifies the probabilities of the occurrence of events in this biological chain. Conversely, proper measurement of the biological structure depends on the extent to which behavior is influenced by biological differences among persons. The authors propose an integration of these two perspectives within a simplified static, continuous, production-demand framework. They also provide a method for estimating the exogenous effect of fertility on related forms of behavior, such as women's labor supply, and a means for simulating the path of unregulated fertility from information drawn from a contracepting population.

The "Synthesis Framework" and Determinants of Fertility in Syria
Ibrahim Bendardaf; Jain-Shing A. Chen; W. Whitney Hicks, Department of Economics, University of Missouri, Columbia, MO 65211; and S. R. Johnson.

The simultaneous determinants of fertility and contraception in Syria are analyzed empirically using World Fertility Survey data. The analytical scheme generally follows the Easterlin "synthesis framework". The approach employs a recursive simultaneous model with a qualitative dependent variable to reflect the discrete nature of the endogenous ever-use contraception variable. A two-stage procedure is applied to estimate the structural parameters.

Supply and Demand Analysis of Fertility: An Application to Two African Countries
Marvellous Mhloyi, Population Studies Center, University of Pennsylvania, 3718 Locust Walk CR, Philadelphia, PA 19104.

No abstract received.

ECONOMIC CONSEQUENCES OF POPULATION GROWTH
Organized and Chaired by
Julian L. Simon, University of Maryland

Malthus and Boserup: A Dynamic Synthesis
Ronald Lee, Graduate Group in Demography, University of California, 2234
Piedmont Avenue, Berkeley, CA 94720.

There are two grand themes in macrodemographic theory: the Malthusian
one, that population equilibrates with resources at some level mediated by
technology and a conventional standard of living; and the Boserupian one, that
technological change is itself spurred by increases in population. The
striking association between the levels and changes in technology and
population over the past million years suggests that at least one and perhaps
both views are correct. The theories share the assumption of diminishing
returns to labor for a fixed technological level. Malthus adds an
endogenizing assumption for population growth rates, and Boserup adds one for
technological change; thus the theories are complementary. In this paper, the
author examines the behavior of a system combining both theories and uses
phase diagrams to examine broad qualitative features of the dynamics of such a
system. It is shown that stable stationary equilibria can exist in such a
world. Since there are diminishing returns to technology, there are both low-
level and high-level Malthusian equilibria, with Boserupian behavior
characterizing the system at intermediate population densities.

Do Women Increase Agricultural Productivity? The Effect of Demographic
Variables on Technological Choice in a Developing Economy
Qaiser M. Khan, Department of Economics, Bowdoin College, Brunswick, ME 04011;
Martey Sam Dodoo; and Susan Horton.

The authors present an analysis of the differential contribution of the
sexes to agricultural productivity in societies that assign sex roles to women
and restrict them from participation in formal labor markets, but not from
"helping out" male members on family farms. The restriction of women is shown
to provide the impetus for increasing landholdings through sharecropping,
adopting new technologies, and growing high-yielding varieties (HYVs), which
invariably mean increased agricultural productivity. Data from the 1977
Bangladesh agricultural census are used to show that the number of women in
the household has a positive impact on size of land rented, which in turn has
a positive effect on productivity and output, independent of the effect of
HYVs. The number of men in the household is shown to have the reverse impact.
The implications of these findings for long-term and short-run policies are
considered.

A Model of the History of Demographic-Economic Change
Gunter Steinmann, Department of Economics, Universität Paderborn, Fachbereich
5, Postfach 1621, D-4790 Paderborn, Federal Republic of Germany.

The aim of this paper is to provide a theory of the long swings of
population and economic activity. The model emphasizes especially the role of
catastrophes (plagues and wars) in economic and demographic development both
in the short and in the long run. Another intention is to emphasize the
interrelationships between technical progress and population growth and to
discuss their implications. The model is distinguished from other growth
models in two respects. It assumes a functional relationship between
technological advance and population density and contains the McNeill-type
interrelationship between plagues and population density. Like other growth
models, it considers only economic and demographic variables and neglects all
political and institutional changes. The author first describes the
assumptions of the model. Next, he shows the steady state solution. Finally,
the results of some computer simulations are presented that describe the

occurrence of epidemic catastrophes and the succeeding process of demographic and economic adjustment.

Population Growth and Natural Resources in the Very Long Run
Julian L. Simon, University of Maryland, College Park, MD 20742.

The long-term benefits of having children are examined. In the first two decades, children impose economic burdens. In the third decade, as they go to work, there are both social costs and social benefits. Thereafter, there are few costs, and people on average bestow an endowment of technology and increased productivity on others. The author suggests that increased population and income cause short-run scarcities that evoke discoveries that leave humanity better off than if the scarcities had never arisen. Consequently, more people are needed who will create more and bigger problems as well as think up solutions to them. This argument is in contradistinction to standard analysis, which suggests that the overriding concern should be to ameliorate material problems by allocating resources more efficiently.

CHARACTERISTICS OF RECENT IMMIGRANT GROUPS: TRENDS AND DATA SOURCES
Organized and Chaired by
Martin O'Connell, U.S. Bureau of the Census

Asian Immigrants in Canada: A Decade of Experience, 1971-1981
K. G. Basavarajappa, Social Statistics Field, Statistics Canada, Jean Talon Building, Tunney's Pasture, Ottawa, Ontario K1A 0T7, Canada; and Ravi B. P. Verma.

The convergence of the socioeconomic and demographic characteristics of Asian immigrants in Canada with those of U.K.-born and native-born populations is discussed. The data are from Canadian censuses and relate to four groups defined by period of immigration: before 1961, 1961-1971, 1972-1975, and 1976-1981. The characteristics considered are age, sex, marital status, family size, educational attainment and vocational training, income, low-income status, occupation, class of worker, and labor force participation. The relevance of the assimilation and the minority group status hypotheses and the role of changing immigration policy are examined in an attempt to explain the differences observed among the three birthplace groups.

Characteristics of New Hispanic Immigrants to New York City: A Comparison of Puerto Rican and Non-Puerto Rican Hispanics
Evelyn S. Mann, Population Division, New York City Department of Planning, 2 Lafayette Street, Room 2107, New York, NY 10007; and Joseph J. Salvo.

Up until the 1965-1970 period, most Hispanics coming into New York City were migrants of Puerto Rican origin or descent. Since 1970, however, the tide of Puerto Rican in-migration has subsided, and immigration of non-Puerto Rican Hispanics has increased. Although classified under the Hispanic cultural banner, these newer non-Puerto Rican immigrants come from a variety of cultural and socioeconomic backgrounds, all quite different from that of Puerto Ricans. Using Summary Tape Files 2 and 4 of the 1980 census, and the Public Use Microdata Samples, the authors provide a comprehensive look at the demographic and socioeconomic characteristics of Puerto Ricans and "Other Hispanics", those non-Puerto Rican immigrants exclusive of Cubans and Mexicans, in New York City. The results show wide differences in socioeconomic status of the groups, with these differences closely related to basic disparities in family structure and composition, fertility, and labor force participation.

Developing Current Fertility Indicators for the Foreign-Born Women from the Current Population Survey

Amara Bachu, Population Division, U.S. Bureau of the Census, Washington, DC 20233; and Martin O'Connell.

Fertility estimates for foreign-born women in the United States are usually based on data obtained from decennial censuses. In order to update these fertility rates, the Bureau of the Census has begun a program to collect fertility indicators for foreign-born women from the Current Population Survey (CPS). Estimates from the April 1983 CPS show that there were 3.3 million foreign-born women 18 to 44 years old, of which 271,000 reported having a birth during the past 12 months. This fertility rate, about 83 per 1,000 women, is not that much higher than the rate for U.S. women as a whole, which has averaged slightly over 70 per 1,000 since 1980. The survey data reveal that foreign-born women from Latin America, whose childbearing constituted about one-half of all births in the 12-month period between May 1982 and April 1983, had a higher fertility rate than women from Asian or European countries. Fertility rates by country of birth are presented in this paper, along with an evaluation of the reliability of the CPS statistics for establishing an ongoing data base for fertility research.

Generational Differences in Fertility among Mexican Americans

Frank D. Bean, Department of Sociology, University of Texas, Austin, TX 78712; Ruth M. Cullen; Elizabeth H. Stephen; and C. Gray Swicegood.

The authors examine the effects of generational status on both current and cumulative fertility for the Mexican-origin population disaggregated by age group. The results show evidence of fertility reduction the longer the familial exposure to life in the United States. The age pattern of current and cumulative fertility differences that emerges seems more consistent with the idea that Mexican immigration to the United States disrupts fertility temporarily, rather than with the idea that migration selects women disposed toward lower fertility, or that migration is associated with leaving some children behind in Mexico.

PROJECTIONS FOR SUBAREAS AND SUBGROUPS: METHODS AND APPLICATIONS
Organized and Chaired by
William J. Serow, Florida State University

Projections of the Veteran Population: How Are They Prepared and What Do the Data Show?

Mark S. Russell, Office of Information Management and Statistics (711), U.S. Veterans Administration, 810 Vermont Avenue NW, Washington, DC 20420.

Veterans constitute one of the largest and most influential subgroups of the U.S. population, with more than 28 million estimated to be in civilian life. Data on the number and distribution of living veterans are vital to the effective administration of benefit programs, particularly those dealing with medical care. The Veterans Administration does not possess a name-by-name list of all living ex-service personnel. Consequently, estimates and projections of the number of veterans are based on decennial census figures that are updated over time using actuarial and demographic techniques. In this paper, the author details the methodology used to project veteran statistics by age, state, and period of military service and further outlines the major findings of the most recent projection that has been prepared, using information consistent with 1980 census results.

Confidence Intervals for County Population Projections
Stanley K. Smith, Department of Economics, University of Florida, 221 Matherly
Hall, Gainesville, FL 32611.

Nathan Keyfitz has pointed out that demographers cannot be held
responsible for the accuracy of their population projections, but they can at
least provide some sort of warning as to the likely range of errors
surrounding those projections. While confidence intervals in the traditional
statistical sense cannot be made for population projections, it is possible to
look at the distribution of errors from projections made in the past. This
will give some indication of likely future errors. If the projections made
now are as good but no better than those made in the past, and if
unpredictable population fluctuations are as great but no greater than those
occurring in the past, then future projection errors will be drawn from a
distribution similar to past distributions, and the use of confidence
intervals will be warranted. In this paper, the author uses census data and
five different projection techniques to make population projections for the 67
counties in Florida. The accuracy of the projections and the distribution of
errors for the five techniques are evaluated, and the relationship of
projection error with size of place and rate of growth is investigated. The
distributions of errors from different time periods are compared with each
other, and conclusions are drawn regarding the use of past distributions to
predict future distributions.

On the Applicability of Cohort Component Projection Models to Census Tracts:
Harris County, Texas--1980
Isaac W. Eberstein, Center for the Study of Population, Florida State
University, Tallahassee, FL 32306; William J. Serow; Norfleet W. Rives, Jr.;
Linda Mayberry; Karen McLeod; and Jan Parker.

In recent years, an increasing amount of attention has been placed on the
availability of demographic detail, especially age-sex composition, in
population projections of substate units. This growing attention stems from
the need for such data for public and private sector planning as well as
administrative requirements such as certificate of public need applications.
All too often, it is the case that state agencies and other bodies charged
with the routine preparation of population projections will prepare them for
total population or, at best, for broad age groups, for the counties and
perhaps municipalities of that state, but not for subcounty areas and not with
the full amount of demographic detail required for many planning and reporting
purposes. This paper concerns experimental projections of demographic
structure for clusters of census tracts in Harris County (Houston), Texas, for
the year 1980, based on cohort change rates derived from the 1960 and 1970
censuses. The findings suggest that while the total population size is often
wide of the mark, demographic detail is usually good in a relative sense.

A Tract-Level Application of Component Projection Techniques
Kenneth Hodges, Donnelley Marketing Information Services, 1351 Washington
Boulevard, Stanford, CT 06905; and Mary Kay Healy.

A tract-level application of cohort component procedures is described for
the annual production of five-year population projections for over 66,000
census tracts and minor civil divisions in the United States. Post-1980 data
on tract-level changes in the Donnelley Marketing household data base are the
basis for the migration component and are combined with five-year projections
of tract-specific births and deaths to project total population. The authors
describe the data sources and assumptions involved in the application and
present an evaluation of the proprietary household data base.

MORTALITY AND HEALTH POLICY IN DEVELOPING COUNTRIES
Organized and Chaired by
Nancy E. Williamson, Family Health International

Application of a Strategy to Reduce Infant and Young Child Mortality in Asia
William R. Goldman, ASIA/TR, Room 3321, U.S. Agency for International
Development, Department of State, Washington, DC 20523.

   The health strategy of the U.S. Agency for International Development
(USAID) is summarized in this paper. The goal of the strategy is to assist
developing countries to (1) reduce mortality among infants and young children
and (2) reduce disease and disability among selected population groups. The
main strategy elements include the improvement and expanded use of available
technologies, the development of new and improved technologies, and the
strengthening of both human resources and institutional capabilities.
   An in-depth look is taken at how USAID implements its strategy in Asia,
emphasizing the primary goal of infant mortality reduction. A demographic
overview of the nine USAID-assisted Asian countries is provided, together with
a summary of USAID's program support in Asia showing levels and trends by
subcategory. Particular attention is paid to projects supporting selective
primary care. Finally, the author discusses the difficulties of implementing
the strategy and speculates on the chances for its success.

Mortality and Health Interventions in the Sine-Saloum Region of Senegal
Howard I. Goldberg, Division of Reproductive Health, U.S. Centers for Disease
Control, 1600 Clifton Road N.E., Atlanta, GA 30333; and Fara G. M'bodji.

   The Sine-Saloum Health Project has been operating in one large rural
region of Senegal since 1978. This project will soon start its second phase,
but the health interventions to be implemented have yet to be determined
definitely. In this paper, the authors try to determine the likely effects on
early childhood mortality of two interventions that are being considered--oral
rehydration therapy (ORT) and measles immunization. Data on initial mortality
levels and causes of death come from the 1982-1983 Sine-Saloum Family Health
Survey, which was carried out in the areas covered by the health project.
Ranges of assumptions concerning access, utilization, coverage, and efficacy
of the health interventions are made and used to project the possible effects
of the interventions on mortality. Under the assumptions employed, ORT would
reduce diarrhea mortality by 14 to 48 percent and overall mortality by 4 to 14
percent. Measles immunization is projected to avert from 36 to 73 percent of
measles cases and deaths. Because many measles cases result in death from
diarrheal or respiratory complications, the overall effect on mortality could
be as great as that of ORT.

The Effects of Breast-Feeding and Pace of Childbearing on Mortality at Early
Ages
Alberto Palloni, Center for Demography and Ecology, University of Wisconsin,
1180 Observatory Drive, Madison, WI 53706; and Marta Tienda.

   The effects of breast-feeding on infant and early childhood death risks
are assessed for Peru, a country with quite disparate internal levels of
development, cultural contexts, and total mortality levels. In order to
estimate the effects of breast-feeding, the authors propose precise
methodological strategies that overcome problems of simultaneity and
truncation. In addition, by applying analogous strategies, they examine the
effects of pace of childbearing (length of preceding interval and conceptions
that follow the birth of a child). These effects are measured simultaneously
with the effects of breast-feeding. The results reveal that both breast-
feeding and pace of childbearing are powerful determinants of mortality.

Mortality, Health, and Public Policy in Bahrain
Maurice D. van Arsdol, Jr., University of Southern California. Mailing
address: 1025 Lachman Lane, Pacific Palisades, CA 90272; Paula Hancock; and
Jawad Salim Al-Arrayed.

No abstract received.

FEMINIST PERSPECTIVES ON THE SIGNIFICANCE OF WOMEN'S STATUS AND ROLES
IN DEMOGRAPHIC PROCESSES
Organized and Chaired by
Joanne Miller, National Science Foundation

The Status of Women, Fertility, and Mortality in Developing Countries: A
Review of Interrelationships
Karen Oppenheim Mason, Population Studies Center, University of Michigan, 1225
South University Avenue, Ann Arbor, MI 48104-2590.

The various meanings given to the term "the status of women" in the social
demographic literature are first reviewed, and it is argued that it is
clearest to restrict the term's meaning to "gender inequality" (itself a
multidimensional concept). Some methodological issues in the study of gender
inequality in relation to fertility and mortality behavior are then addressed.
In the paper's main section, the hypothesized impact of gender inequality on
the proximate determinants of mortality and fertility in third world countries
is traced. Although gender inequality seems important for some aspects of
mortality, and although women's educational levels are strongly related to
their reproductive behavior in many third world settings, it is less clear
whether other aspects of gender inequality are important for fertility
behavior in third world populations. The paper ends with suggestions for new
areas of research.

Household Allocation of Work: Factors Inhibiting Women's Gainful Employment
in 1900
Christine E. Bose, Department of Sociology, State University of New York, 1400
Washington Avenue, Albany, NY 12222.

The household composition and resources that influenced the allocation of
paid work to female members of U.S. households in 1900 are examined using data
from the census public-use sample. Two different household-level processes
affected women's employment rate, although their usage varied by race and
ethnicity. First, home-based alternatives inhibited women seeking jobs for
which they might have been recorded as gainfully employed. Such alternatives
included work that brought money into the household (e.g., boarders) and
unpaid family work in farms or small businesses. Second, alternatives were
structured by household composition. Families with older children or related
single adults might urge these members to obtain employment, trading off with
the labor of wives. Advantages of the proposed model include: the
conceptualization of work and family as a single set of relations; integration
of two previously separate levels of data (the detail of historical studies in
single cities with the aggregate census materials); and the focus on factors
reducing the reporting, as well as the actual rates, of women's paid
employment.

Women's Educational Attainment and the Timing of Entry into Parenthood
Margaret Mooney Marini, Department of Sociology and Anthropology, Vanderbilt
University, Nashville, TN 37235.

Previous research on the relationship between women's educational
attainment and the timing of entry into parenthood has produced conflicting
results. Although studies have consistently found that educational attainment

has a delaying effect on entry into parenthood, there has been disagreement about the existence of a reciprocal effect of the timing of entry into parenthood on educational attainment. The author attempts to resolve that disagreement by analyzing the relationship between women's educational attainment and the timing of entry into parenthood in a way that builds upon and goes beyond earlier studies. Considerable attention is focused on methodological issues bearing on the modeling and estimation of these effects. The analysis, based on data from a 15-year follow-up study of U.S. high school students originally surveyed in 1957-1958 and resurveyed in 1973-1975, indicates that the timing of entry into parenthood does have an effect on the educational attainment of women.

Occupational Correlates of Sex-Specific Mortality Patterns: Massachusetts, 1860-1899

Caren A. Ginsberg, Population Studies Center, University of Pennsylvania, 3718 Locust Walk CR, Philadelphia, PA 19104.

Higher female than male mortality in the 10-14 and 15-19 age intervals was characteristic of Massachusetts counties during the last half of the nineteenth century. Although the western agricultural counties of the state exhibited lower mortality overall than did eastern industrial counties, agricultural regions showed a significantly larger female disadvantage than did industrial regions, particularly for 15-19-year-olds. The hypothesis is tested that this mortality pattern represents differential care of boys and girls, based on their regionally determined economic values. In agricultural areas, teenage boys were a valuable source of market-oriented farm labor. In urban areas, girls were able to secure jobs in industrial production or domestic service. The author examines structural changes in the local and national economy that created differences in male and female labor values and discusses causes of death that contributed to this mortality pattern.

PROXIMATE DETERMINANTS OF FERTILITY
Organized and Chaired by
John B. Casterline, World Fertility Survey

The Effect of Health Services on Breast-Feeding in Developing Countries

Giorgio Solimano; Beverly Winikoff; Virginia Laukaran; Barbara Mensch, Center for Population and Family Health, Columbia University, 60 Haven Avenue, New York, NY 10032; and Michael Latham.

An analysis of the role played by the health care sector in determining infant feeding practices in urban areas of four developing countries, namely, Colombia, Indonesia, Kenya, and Thailand, is presented. Using current status data, the authors focus on the extent to which the decision to breast- and/or bottle-feed an infant of a given age is affected by (1) place of birth (hospital, clinic, or home), (2) attendance at and before birth by medical professionals or traditional health workers, (3) immediate postpartum contact with the infant, and (4) type and source of advice on feeding practices. The primary goal is to determine the extent to which the move away from breast-feeding might be attributed to the rise in modern medical institutions.

Determinants of Infant Feeding: A Household Production Approach

J. S. Akin, Department of Economics, University of North Carolina, Gardner Hall 017A, Chapel Hill, NC 27514; D. K. Guilkey; C. C. Griffin; and B. M. Popkin.

A household production model of infant feeding behavior, in which the household is characterized by its desire to produce nutrition for the baby, is developed. Nutrition is hypothesized to be produced by three types of foods-- breast milk, breast milk substitutes, and supplemental foods--which can be

used either alone or in combination and are allowed to be correlated. This
approach leads to estimates of the effects of economic, demographic, formula
industry, and health professional related variables on infant feeding
decisions and provides evidence that the use of models that fail to account
for correlations among the methods will lead to serious statistical problems
in the analysis of the determinants of infant feeding. The empirical research
uses data from the 1978 Bicol Multipurpose Survey of 1,903 Filipino households
and a 1981 survey of health and commercial facilities in 100 Bicol
communities.

Measurement of Fecundability from Survey Data: A Comparative Analysis
Charles F. Westoff, Office of Population Research, Princeton University, 21
Prospect Avenue, Princeton, NJ 08544; Noreen Goldman; and Lois Paul.

World Fertility Survey data from a large number of countries are used in
this analysis to assess the potential utility of estimating fecundability from
single-round fertility surveys. Estimates based on the first interval for
Latin American countries yield a remarkable consistency across countries but
are higher than expected and vary substantially by marriage cohort. Since
estimates for Asian countries do not present some of these anomalies, the
results suggest that the large degree of nonmarital exposure to the risk of
conception in Latin America has affected the estimates. In general, estimates
based on marriages two to four years before the survey yield more reasonable
results than for either more recent or earlier marriage cohorts.

NATIONAL CENSUSES: PUBLIC PERCEPTIONS AND PROTESTS
Organized and Chaired by
Conrad Taeuber, Georgetown University

The "Hispanic Issue" in the 1980 U.S. Census
Harvey M. Choldin, Department of Sociology, University of Illinois, Urbana, IL
61801.

During the decade of the 1970s, officials of the U.S. Bureau of the Census
had to develop a procedure to enumerate the Hispanic subpopulation
effectively. These officials were under pressure to minimize the undercount
of poor urban minorities, including the Hispanic component. They carried out
a research program to test new instruments with which to count Hispanic
persons. They also created an official Hispanic advisory committee to involve
leaders of voluntary associations in the process. These leaders were
interested in more than just the census, demanding an expansion of Hispanic
employment in the Bureau of the Census, for example. They attempted to modify
census procedures, successfully advocating the use of indigenous bilingual
enumerators in urban barrios and unsuccessfully opposing the use of the mail-
out, mail-back process in such areas. The Hispanic leaders' main demand was
that the government should produce Hispanic statistics equivalent to black
statistics so that the extent of the poor condition of Hispanics in American
society could be documented.

The Census under Fire: The Press and the 1890 Census
Anne S. Lee. Mailing address: 165 Tipperary Road, Athens, GA 30606.

How the American public perceives the decennial census is very dependent
on the kind of press coverage the census receives. Whether accurate or not,
what the public knows about the census is what is reported. Nowhere is the
importance of the press's role more evident than at the 1890 census, which is
examined here as an example. Robert Porter's 1889 appointment as
Superintendent was declared "the most unfortunate nomination yet made by
President Harrison", and it was asserted that a census under his direction "is
discredited in advance in important particulars, and the money spent upon it

will be to a large extent wasted, because the results...will not be generally accepted." From then on, the press had a field day, culminating in 1892 when the House appointed a special committee to investigate what "has been charged through the columns of the public journals...that the Census Bureau has been wrongfully conducted under Superintendent Porter." Many of the issues raised in the press and Congress have a familiar ring--for example, undercounts, illegal immigrants, sex discrimination, racial quotas, black undercount, press leaks, poverty statistics, and politics.

Data Confidentiality and Public Perceptions: The Case of European Censuses
William P. Butz, U.S. Bureau of the Census, Washington, DC 20233.

    The author describes and discusses issues concerning data confidentiality and public perceptions in the context of the plans to hold a census in the Federal Republic of Germany and also briefly reviews the problems in other European countries. The West German population and housing census, last conducted in April 1970 and having been scheduled three times since then, was postponed on April 13, 1983, by Constitutional Court order. This last postponement culminated an extraordinarily broad-based and powerful protest by German citizens, press, and officials. Perceptions of the census--what it would have done and why it was stopped--differ significantly in Germany, even among very knowledgeable persons. The census protest phenomenon also exists outside Germany in countries with very different characteristics and circumstances. Other census protests have occurred recently in Switzerland and the Netherlands. These respondent difficulties, so to speak, are completely new phenomena in Europe. The author notes that ultimately the citizenry, not the Court, will decide if the census takes place. Following the Court approval, the Statistical Offices now face the task of building citizen cooperation. It is not a foregone conclusion that they can do this.

The 1990 Census: A View from 1984
Bryant Robey, American Demographics Magazine, Box 68, Ithaca, NY 14850.

    George Orwell was wrong in his vision of 1984, but his view is the yardstick Americans use to measure society. The census is a mirror of society, so it reflects our current concerns. As the U.S. Bureau of the Census plans for 1990, Americans are likely to worry about privacy, the growing computerization of data, and the use of census statistics by big business and big government. The author asks whether the generals at the Bureau of the Census are getting ready to fight the 1980 census battles again in 1990, or whether they are facing the future.

THE FUNCTIONS AND FUTURE OF BUSINESS DEMOGRAPHY
Organized and Chaired by
Bickley Townsend, American Demographics, Inc.

Uses and Limitations of Demographic Analysis in a Communications Business
Scott C. McDonald, Time Magazine, Time and Life Building, Rockefeller Center, New York, NY 10020.

    A review of the uses of demographic analysis at Time Incorporated is presented, with special emphasis on the relationship of demographic trends to consumer behavior. Demographic analysis offers several benefits to media market analysis: (1) forecasts, when related to circulation trends, permit strategists to identify threats to existing publications and to spot opportunities for new media; (2) demographic methods (e.g., cohort analysis or survival analysis) can be fruitfully applied to data on magazine subscribers; (3) geographic/demographic analysis can improve efficiency of direct mail marketing and perhaps can provide evaluation of advertising and promotion efforts; and (4) demographically tailored editions offer options for advertisers who want to reach narrow audiences. The author also discusses

ways in which consumer trends monitored by media research reflect underlying demographic and social trends and suggests ways in which these data, usually ignored by academic demographers, might shed light on some of the issues in basic demography.

Demography and the Electric Utility: Understanding the Link between Consumer and Consumption
Karen Buglass, Rate Research and Forecasting, Boston Edison Company, 800 Boylston Street-P260, Boston, MA 02199.

The role of the electric utility demographer, who works in a situation where the market is fixed and where virtually 100 percent of all consumers are electric customers, is described. The demographer's role is divided into four functions. As forecaster, projections of territory population and households are prepared. As research analyst, data collection and analysis are undertaken. As consultant, questions from both company colleagues and external organizations are addressed. Finally, as communicator, the wealth of information generated by the demographer is disseminated to facilitate informed decision-making throughout the utility.

Is Business Ready for Really Sophisticated Demographics? Can Demographers Deliver the Goods Anyway?
Donald B. Pittenger, Demographics Lab, 2065 Lakemoor Drive SW, Olympia, WA 98502.

Demographers were not involved in the founding and development of today's demographic data industry, and few trained demographers are employed in the industry and in business at large. One result is that commercial demographic techniques and analyses are not as good as those used in the econometric data industry. It is not clear whether the poor state of business demography is due to a lack of understanding in the business community or to marketing failings by demographic data suppliers. Even if the business world were receptive to advanced methods, it is questionable whether demographers are adequately trained to provide what is required. A useful set of skills would be general demography, regional economics, marketing, and practical experience in estimation and forecasting. But the catalyst is a keen desire to make money.

The Role of Demography in Sales and Marketing Decision-Making
Edward J. Spar, Market Statistics, 633 Third Avenue, New York, NY 10017.

In order for demography to be of value to the marketing community, it is first necessary to understand this community's decision-making processes, goals, and levels of expertise. Most private sector organizations have similar basic problems. Some of these are: evaluating salespeople, constructing or aligning sales territories, assigning quotas, and allocating advertising dollars. Demography can aid and often play a major role in solving these day-to-day problems.

BARGAINING, ALTRUISM, AND DEMOGRAPHIC PHENOMENA
Organized and Chaired by
Oded Stark, Harvard University

Bargaining, Altruism, and Demographic Phenomena: Definitions and Interactions
Oded Stark, Migration and Development Program, Harvard University, 9 Bow Street, Cambridge, MA 02138.

The author examines some of the interactions among distinct demographic phenomena such as family formation, marriage, divorce, fertility, migration,

and aging, which are interrelated by means of bargaining and altruistic processes. Family members are viewed as altruistic bargainers who negotiate with each other, motivated by the assumption that a joint action of some sort dominates a unilateral action. It is concluded that a large number of demographic phenomena cannot be fully understood, accounted for, or predicted unless intrafamilial bargaining and altruism are taken into consideration.

Intrafamily Conflict and Its Resolution: Implications for Demographic Decisions
B. Douglas Bernheim, Department of Economics, Stanford University, Stanford, CA 94305.

A model is presented in which intrafamily conflict arises from inherent consumption externalities within the family unit, and in which the resolution of this conflict is influenced by adjustments in the distribution of intergenerational transfers. The effects of this process of conflict and resolution on household decisions affecting fertility, marriage, education, and household composition are discussed.

Intrafamilial Contracting and Bargaining: Marriage and Divorce
Elizabeth Peters, Center for Human Resource Research, Ohio State University, 5701 North High Street, Worthington, OH 43085.

The adoption of no-fault divorce by some U.S. states during the 1970s changed the nature of the marriage contract and the possibilities for dissolution by making it easier for one spouse to leave the marriage without obtaining the consent of the other. The author examines the impact of various state divorce laws on decisions about entering marriage, becoming divorced, and investing in marriage-specific activities such as having children. The distributional consequences of the laws through their effects on the relative bargaining strengths of each spouse are also explored. The empirical analysis is based on data from the 1979 Current Population Survey, which contains information about marital history and financial settlements at divorce. Results show that alimony and child support are lower in no-fault divorce states but that the law has little effect on the divorce rate.

Intergenerational Exchange, Bargaining, and the Demand for Children in Agrarian Societies: A Suggestion for Household Economics and Historians of Family and Fertility
Paul A. David, Stanford Project on the History of Fertility Control, Department of Economics, Stanford University, Encina Hall, Stanford, CA 94305; and William A. Sundstrom.

The authors describe the approach and summarize principal conclusions of a longer essay on demographic implications of intrafamily bargaining among children and parents about the terms of the latter's economic support in old age. Bequests and inter vivos gifts are viewed as being exchanged by elders for services from their mature children. A model of a cooperative (bargaining) game is developed to characterize the determination of the magnitude of such transfers and the intergenerational distribution of family wealth. Some parameters of the solutions, e.g., the number of mature children who will participate in the bargaining process, can be predetermined by parents through their reproductive behavior. Hypothesizing optimization of the demographic parameters of the game solution gives rise to a new economic theory of the (derived) demand for children and to implications regarding the effects on fertility behavior of exogenous changes in (1) infant and child mortality expectations, (2) child labor productivity in family farming, (3) outside labor market opportunities for young adults, (4) compulsory education requirements, and (5) tenure institutions.

A Transaction Costs Approach to Families and Households
Robert A. Pollak, Department of Economics, University of Pennsylvania, 3718
Locust Walk CR, Philadelphia, PA 19104.

    The transaction costs approach to families and households generalizes the
"new home economics" by recognizing that internal structure and organization
matter. It suggests that family governance of economic activities is likely
to predominate in low-trust environments and in sectors utilizing relatively
simple technologies. Increases in the minimum efficient scale of production
and decreases in the trustworthiness of family ties are likely to favor
nonfamily over family governance. The transaction costs approach suggests
viewing allocation and distribution within the family as a "contracting
problem", emphasizing the difficulties of structuring complex, ongoing
relationships. The transaction costs approach is broadly consistent with
bargaining models of marriage and families, but by emphasizing the importance
of ongoing relationships, it suggests the inadequacy of one-period bargaining
models. The bargaining or contracting perspective also suggests a distinction
between marriage-specific capital and "hostages".

STRUCTURAL AND POLICY IMPACTS ON RESIDENTIAL MOBILITY AND MIGRATION
Organized and Chaired by
William A. V. Clark, University of California at Los Angeles

Residential Mobility: Why Are the Rates Declining?
Larry Long, Center for Demographic Studies, U.S. Bureau of the Census,
Washington, DC 20233.

    From the late 1940s to the late 1960s about 20 percent of the U.S.
population changed address each year. By 1983 the annual rate was down to
16.6 percent. The rate of moving within counties has fallen by 15 percent
since the late 1960s, the rate of moving between states has fallen by 21
percent, and the rate of moving between counties within a state has not
changed. The decline in intracounty moving is greatest among persons over 40;
the decline in interstate migration is erratic across age groups but is least
among persons in their forties or early fifties. Since most changes of
residence are within counties (about 65 percent) and since most intracounty
moving is somehow housing related, the author suggests that one promising line
of research seems to be to focus on housing conditions, especially those that
might affect opportunities for homeownership and subsequent housing
preferences ordinarily achieved through moving (e.g., desire for a bigger or
better home in a more attractive neighborhood).

Household Flows in Metropolitan Areas
Eric G. Moore, Department of Geography, Queen's University, Kingston, Ontario,
Canada.

    Data from the Annual Housing Survey (AHS) Metropolitan Samples for 1974
and 1977 for Phoenix and Detroit are used to construct a model of population
dynamics. The model represents transfers between owner-occupied and rented
properties in the central cities and suburbs for different segments of the
population characterized by income, age, race, household structure, and
presence of public housing subsidies. The roles played by new household
formation, job shifts, adjustment to housing needs, and displacement in
various segments of the market are identified and discussed. Implications for
extension of the model to a larger sample of AHS cities are also considered.

Mobility within Six Gentrifying Cities during the 1970s
Kathryn P. Nelson, Office of Economic Affairs, U.S. Department of Housing and Urban Development, Room 8228, 451 7th Street SW, Washington, DC 20410.

Since policymakers are alternately urged to encourage or to control "gentrification", an attempt is made in this paper to evaluate whether gentrification can revitalize distressed cities and to determine its impacts on poorer residents and their housing opportunities. Mobility within six U.S. cities is examined with Annual Housing Survey data from the late 1970s. The cities chosen experienced greater migration improvements during the 1970s, and more gentrification at the census tract level, than other large distressed cities.
Although many movers in each city had incomes below the SMSA median, high levels of in-migration among young whites in both income groups, and their positive reasons for moving, offer hope of further revitalization in San Francisco, Washington, and Boston. But higher suburbanization of upper-income households in all cities but Washington makes revitalization far from assured even in these cities. Therefore, revitalization appears even less likely in other distressed cities. Displacement was also relatively uncommon in these cities, even among lower-income households, and forced moves did not markedly increase rent burdens or overcrowding. However, these results cannot be generalized, since gentrification—and displacement—may be more common in less distressed cities, particularly those with rapid growth and tight housing markets.

Spatial Differentials in Residential Displacement
Barrett A. Lee, Department of Sociology, Vanderbilt University, Nashville, TN 37235; and David C. Hodge.

Because existing research treats residential displacement as a consequence of housing market conditions associated with the urban core, the incidence of displacement is thought to be greater in: (1) metropolitan areas than nonmetropolitan areas, (2) the "urban heartland" than other regions of the country, (3) central cities than suburbs, and (4) older, inner-city neighborhoods than younger, peripheral ones. Data from the U.S. Annual Housing Survey are analyzed, and case studies of individual cities are reviewed to test these four spatial hypotheses. While the strength of the evidence favoring the hypotheses depends in part upon the type of displacement rate employed, spatial contrasts in displacement generally appear to be less marked than the literature suggests. The authors attribute the lack of convincing support for the hypotheses to housing market pressures operating at the national level that generate involuntary mobility across all geographical sectors of the population.

MORTALITY IN THE U.S.: EMERGING PATTERNS AND POLICY IMPLICATIONS
Organized and Chaired by
Eileen M. Crimmins, University of Southern California

Twentieth-Century Trends in United States Mortality
Marilyn M. McMillen, Division of Vital Statistics, U.S. National Center for Health Statistics, 3700 East-West Highway, Hyattsville, MD 20782.

A review of U.S. mortality trends, including comparisons across race and sex subgroups, is presented. The data reflect three major periods: decline from 1900 to 1954, leveling off from 1954 to 1968, and renewed decline from 1968 to the present. Analyses of cause-specific death rates over the course

of the century reveal that infectious and parasitic diseases have decreased in importance, while the relative importance of chronic and degenerative diseases and violent deaths has increased. Race- and sex-specific differentials for leading causes of death are similar to the differentials observed for the total death rate, with male death rates greater than female death rates, and death rates for persons of races other than white greater than death rates for white persons. Changes in 6 of the 10 current leading causes of death have been associated with a narrowing race differential. Seven of the 10 current leading causes of death contributed to the increase in the sex differential from 1930 to 1970; more recently the growth in the sex differential has slowed and may be stabilizing.

The Demographic Effects of Declining Mortality in the United States: A Prospective Analysis
Stuart Jay Olshansky, Department of Sociology, University of Utah, 301 Behavioral Science Building, Salt Lake City, UT 84112.

Previous research in the area of mortality projection has been based upon single or multiple cause-elimination models, or linear regression models where overall or cause-specific mortality rates are extrapolated forward in time on the basis of past trends. In this research, the author presents an alternative method of projecting mortality based upon simultaneously delaying the age progression of mortality curves for major degenerative diseases. Data for 1978 on U.S. mortality and population counts by age, race, and sex are used to project overall and cause-specific mortality to the year 2020. Results indicate that the size and life expectancy of future elderly populations in the United States may be significantly underestimated by the Bureau of the Census and the Office of the Actuary. Projected measures of population aging, life expectancy, and survival, based upon the present model, are also presented in light of alternative methods of projecting mortality. The implications of these findings are discussed with reference to the issues of social welfare policy and health care.

Economic and Social Factors Affecting Changes in Mortality Rates over Time: An Analysis of Cirrhosis
Harvey Brenner; and Anne Mooney, University of Delaware, Willard Hall Building, Newark, DE 19711.

No abstract received.

Mortality among the Elderly Spanish-Surnamed Population in the Medicare File: 1968 to 1979
Gregory Spencer, Population Projections Branch, Population Division, U.S. Bureau of the Census, Room 2351, Washington, DC 20233.

The levels and trends of mortality among the elderly Spanish-surnamed population are compared with the levels and trends of mortality found in the non-Spanish-surnamed population of whites, blacks, and other races. The data base is the entire Medicare file of 50 million records for the resident U.S. population. The 1980 census Spanish-surname list is used to extract the Spanish-surnamed population. Because deaths and population are from the same data set, the results are especially reliable. The major finding is that Hispanic death rates were significantly lower than black or white death rates during the 1968 to 1979 period. Mortality levels among those of other races were very similar to the Hispanic mortality levels. There is also some evidence of a trend toward convergence of Hispanic and white mortality rates. In general, these results are also found at the state level for California, Florida, New York, and Texas. In a final section, several possible sources of error are discussed.

The Longer-Term Determinants of Male Mortality in the Years Surrounding Retirement
Frank L. Mott, Center for Human Resource Research, Ohio State University, 5701 North High Street, Worthington, OH 43085; and R. Jean Haurin.

In this study, data from the mature men's cohort of the National Longitudinal Survey of Work Experience are used to examine the socioeconomic and demographic determinants of mortality between 1966 and 1981 for U.S. men who were 45 to 59 in 1966. From a secular perspective, the study focuses on the extent to which the relationships among health, employment, and mortality changed over this period. An attempt is also made to measure in a more comprehensive manner than available data usually permit the association between a variety of early background and more proximate factors and adult male mortality. In particular, multivariate techniques are used to measure the extent to which frequently noted mortality differentials by race, education, and marital status may in reality be proxies for other social and economic variables less commonly available for inclusion in mortality research.

COUPLE FERTILITY DECISION-MAKING: CONSENSUS AND CONFLICT
Organized and Chaired by
Andrew R. Davidson, University of Washington

Misperceptions of Reproductive Ideals among American Husbands and Wives
Daniel A. Seiver, Department of Economics, Miami University, Oxford, OH 45056; and Donald J. Cymrot.

In this paper, recent U.S. data are used to document the extent of misperceptions of reproductive ideals among couples. Perceptual errors of spouses are common and nonrandom and are influenced by various socioeconomic variables. The implications of the findings for several areas of fertility research are discussed.

Individual and Couple Intentions for More Children
S. Philip Morgan, Population Studies Center, University of Pennsylvania, 3718 Locust Walk CR, Philadelphia, PA 19104.

The question, "Do you and your husband intend to have a (another) child?" has become standard fare on fertility surveys. This question, almost always asked of the wife, is treated as the couple's joint intention. In this paper, the author addresses several basic issues: first, whether husband's and wife's reports of couple intent correspond closely; second, whether spouses know the fertility wishes of their partner; and third, whether they take these wishes into account when reporting couple intent. On the basis of a sample of 560 urban, U.S. couples, each question is answered affirmatively. Reports from either husband or wife appear to be good indicators of couple intent.

Marital Conflict and Contraceptive Choice
Elizabeth Thomson, Department of Sociology, University of Wisconsin, Madison, WI 53706.

Attributes of available contraceptive methods are examined in this paper in terms of their relationship to power and equity in the marital relationship. Analyses of responses of 308 couples in the U.S. Value of Children Survey suggest that equity rather than power guides marital fertility control decisions. Couple agreement in desires to have no more children is strongly related to the use of some contraceptive method. Couples in conflict

are not significantly different from consensual couples in their choice of method, but there is some evidence that conflict shifts couples toward use of "female" methods when only the husband desires a child and toward "cooperative" methods when only the wife desires a child.

Husband and Wife Disagreements in Contraceptive Decision-Making
Lawrence J. Severy, Department of Psychology, University of Florida, Gainesville, FL 32611.

The context of an expectancy-value analysis of contraceptive choice allows for the analysis of husband and wife disagreement in decision-making along a number of parameters. Data derived from a longitudinal investigation of approximately 400 U.S. couples indicate interesting patterns of disagreement (and sometimes agreement) on assessments of: contraceptive values, probability estimates regarding the association of various attributes with seven contraceptive alternatives, overall attitudes reflecting satisfaction with these contraceptive alternatives, and, lastly, the behavioral intent to utilize one method rather than another. An important aspect of the research is the concern for the accuracy with which one spouse understands the values and attribute perceptions of the other spouse. These data also demonstrate interesting patterns of agreement, misperception, and obstacles to optimal joint decision-making. Implications for contraceptive choice and use are discussed.

MEASUREMENT AND ANALYSIS STRATEGIES IN FAMILY AND
HOUSEHOLD DEMOGRAPHY
Organized and Chaired by
Thomas J. Espenshade, Urban Institute

Toward a Longitudinal Definition of Households
David Byron McMillen, Population Division, U.S. Bureau of the Census, Room 2312, Washington, DC 20233; and Roger A. Herriot.

Households are the major form for presenting statistics on groups of individuals. A longitudinal survey presenting statistics on households requires aggregation across time for each household to produce values for variables such as annual household income. The problem then is to determine which households exist across the full aggregation period, which are newly formed during this period, and which are dissolved during this period. The authors review a number of proposed solutions to this problem and discuss the advantages and disadvantages of each.

Fertility, Mortality, and Kinship
Noreen Goldman, Office of Population Research, Princeton University, 21 Prospect Avenue, Princeton, NJ 08544.

Mathematical expressions developed by Goodman, Keyfitz, and Pullum are used to estimate the average numbers of female descendants and collateral kin ever born and still alive for women of various ages and to investigate the relationship between fertility and mortality schedules and the frequency of various kinship relationships. Estimates based on model schedules and on demographic data for the Republic of Korea indicate that whereas numbers of sisters and aunts ever born are almost entirely a function of the level of fertility, numbers of nieces and cousins ever born are highly dependent on the level of mortality as well. At moderate levels of mortality, changes in life expectancy have the greatest effect on the survival of grandmothers, mothers, and aunts and the smallest effect on the survival of nieces.

Household Fertility Decision-Making in a West African Setting: Do Male and
Female Surveys Lead to Similar Interpretations?
Frank L. Mott, Center for Human Resource Research, Ohio State University, 5701
North High Street, Worthington, OH 43085; and Susan H. Mott.

This study is based on data collected from independent interviews with
husbands and wives in the Yoruba village of Bolorunduro in Ondo state,
Nigeria. The principal focus is a comparison of the responses of husbands and
wives to a variety of fertility-related questions on topics such as attitudes
toward family planning, desired fertility, and achieved fertility. The
results suggest that individual husband-wife discrepancies within family units
are small and tend to net out for questions related to past family planning
and fertility events. However, there are major variations between husbands
and wives with regard to prospective fertility. Thus, surveys focusing on
completed events could effectively interview either spouse, but surveys
regarding prospective fertility intentions should focus on female interviews,
particularly in communities where polygyny is common.

Effects of Postmarital Childbearing on Divorce and Remarriage: An Application
of Hazards Models with Time-Dependent Covariates
C. M. Suchindran, Department of Biostatistics, School of Public Health,
University of North Carolina, Chapel Hill, NC 27514; Helen P. Koo; and Janet
Griffith.

The authors use U.S. data to examine the effects of having a baby while
separated on the probability of divorce, and the impact of bearing a child
while divorced on the likelihood of remarriage. Among whites, having a first
or second birth while separated has no significant effect on the probability
of divorce. Among blacks, having either a first or second birth significantly
increases the chance of divorce. The function of postmarital childbearing
among black women as an incentive to obtaining divorces (presumably to allow
them to establish new unions formally) is important because a large proportion
of them remain separated indefinitely. Whereas the occurrence of both the
first and second births during divorce significantly increases the probability
of remarriage among whites, only the second birth does so among blacks.
Further analysis suggests that while the legitimization of births is an
important factor among whites, there is little evidence of a comparable effect
among blacks.

Marital Instability and Individual, Family, and Historical Time
Arland Thornton, Institute for Social Research, University of Michigan, Ann
Arbor, MI 48106; and Willard L. Rodgers.

In this paper, a life course perspective is used to examine the way
individual development, family maturation, and historical change combine and
interact to influence experience with marital separation and divorce. These
issues are addressed using data from the vital statistics system of the United
States and data from the June 1980 Current Population Survey. Together, these
data permit examination of the experience of marriage cohorts from 1905
through 1975 and the period from 1922 through 1979. These data suggest that
the historical patterns can best be explained as effects of period rather than
of birth or marriage cohort. The analysis also indicates that of the
indicators of family and individual maturation, age and age at marriage appear
to be the most important, while marital duration appears to have little
influence on marital dissolution. The results show that the trends and
fluctuations of the last century have primarily influenced the level of
marital dissolution and have not changed in any substantial ways the basic
patterns of marital dissolution across the life course.

INTRAFAMILY ALLOCATIONS OF RESOURCES AMONG CHILDREN
Organized and Chaired by
Jere R. Behrman, University of Pennsylvania

Biological Endowments and the Intrafamily Distribution
Mark R. Rosenzweig, Department of Economics, University of Minnesota, 1035
Business Administration Building, Minneapolis, MN 55455; and Kenneth I.
Wolpin.

In this paper, the authors formulate a simple dynamic model incorporating uncertainty to demonstrate the complexity of household decision rules concerning the allocation of resources to and across children when there is both unanticipated and sequential variation in child traits within the family and variation in healthiness across households. Estimates of the effects of the timing and level of fertility, use of medical services, food consumption, and breast-feeding on early measures of children's nutritional status are obtained using an estimation procedure informed by the dynamic model. The results, based on data for a longitudinal sample of households in Colombia, suggest that, consistent with the model, parental behavior appears to respond to unanticipated health outcomes among children and is also significantly associated with more persistent health factors, unrecorded in the data, that vary across households. As a consequence, estimates of the child health effects of parental decisions, or the fertility effects of child mortality, that ignore the behavioral consequences of inter- and intrafamily heterogeneity are biased.

Intrafamily Correlations in Schooling: Educational Policy and Ethnic
Differences in Malaysia
Lee A. Lillard, Rand Corporation, 1700 Main Street, Santa Monica, CA 90406.

No abstract received.

Demand for Child Health and Fertility in Rural India
Leslie A. Laufer, Economic Growth Center, Yale University, 27 Hillhouse
Avenue, P.O. Box 1987, Yale Station, New Haven, CT 06520.

The determinants of child health, mortality, and fertility in rural India are analyzed within a household production framework that incorporates the child's genetic health endowment along with relevant prices. Child height-for-age and weight-for-height are the proxies for child health in the estimated equations. But because child stature reflects both genetic and environmental factors, a proxy for genetic endowment is included, namely, the mother's height and weight-for-height. The empirical results confirm the conventional wisdom of the health literature that child height represents cumulative health, and child weight-for-height, transitory health. This follows from the finding that child height is determined by measures of the longer-term inherited income and health position of the household, namely, father's schooling and household assets. Child weight-for-height is determined by mother's schooling, wage, and weight-for-height and by father's wage. Thus, the two indicators in some sense complement each other in any evaluation of child health.

A Learning Model of Fertility and Mortality
Eric Jensen, Department of Economics, College of William and Mary,
Williamsburg, VA 23185.

A theoretical model in which the choice-based components of within-family fertility and mortality can be stochastically modeled is presented. The model

is applied to Guatemalan data. Resource availability and parents´ willingness to allocate these resources to particular children play an important role in explaining births and deaths in large families.

DEMOGRAPHIC EFFECTS OF INTERNATIONAL INVESTMENT, TRADE, AND ASSISTANCE
Organized and Chaired by
Peter J. Donaldson, Family Health International

Politics, Policy, and Refugee Movements
Charles B. Keely, Population Council, One Dag Hammarskjold Plaza, New York, NY 10017.

No abstract received.

International Population Assistance to Asia
Gayl D. Ness, Center for Population Planning, University of Michigan, Ann Arbor, MI 48109; Chris Alhambra; and Willa Pressman.

International assistance for population activities is of recent origin, relatively modest amount, and uncertain impact. Over the past 20 years the amounts have grown more rapidly than world prices; thus the increases have been real both to donors and to most recipients. There has been a slight shift in the flows, with larger proportions moving through multilateral channels. Aid to Asian countries shows major accounting problems, with donor reports being more complete than recipient reports. Most assistance has come from the two major donors: the U.S. Agency for International Development (USAID) and the United Nations Fund for Population Activities (UNFPA), but private sources and Scandinavian bilateral aid provide the majority of funds to Burma and Viet Nam. Overall flows of aid to countries show no general relationship to measures of program efficiency or effectiveness. The patterns differ greatly by country. Individual country assessments suggest that foreign assistance has little initiating or autonomous power. It can assist governments to do what they are willing and able to do; it cannot initiate programs, nor can it reverse the condition of an ineffective program.

Economic Interdependence and Population Growth: The Long-Term Prospects
Paul Demeny, Center for Policy Studies, Population Council, One Dag Hammarskjold Plaza, New York, NY 10017.

No abstract received.

World System Theory and Societal Evolution: Their Implications for Population Processes
Patrick D. Nolan, Department of Sociology, University of North Carolina, Chapel Hill, NC 27514; and Ralph B. White.

An examination of the growing theoretical and empirical literature on the demographic consequences of the political economy of the world system is presented. The authors attempt to expand on the existing theory by introducing hypotheses derived from ecological and evolutionary theory. They bring together disparate published materials and some unpublished results of exploratory empirical analyses on demographic effects of, first, core-periphery relations in the world system and, second, techno-economic heritage.

The demographic topics covered include mortality, fertility, and migration. The authors conclude by identifying what appear to be some especially promising lines of inquiry.

SOCIAL AND BIOLOGICAL FACTORS AFFECTING MORTALITY IN DEVELOPING COUNTRIES
Organized and Chaired by
George Simmons, University of Michigan

Demographic Determinants of Infant and Early Child Mortality: A Comparative Analysis
John Hobcraft, Population Studies, London School of Economics, Houghton Street, London WC2A 2AE, England; John McDonald; and Shea Rutstein.

Information from a large number of World Fertility Survey countries is used to examine the demographic determinants of infant and early child mortality. Effects of mother's age, birth order, sex, and child spacing immediately before and after an index birth, including measures of survival status, are considered in the analysis, as is a simple control for education. Specific concerns are the interplay between poor child spacing and age and birth order effects, and the role of survival status for nearby siblings in child-spacing effects.

What Accounts for the Decline in Infant Mortality in Peninsular Malaysia, 1946-1975?
Julie DaVanzo, Rand Corporation, 1700 Main Street, Santa Monica, CA 90406; and Jean-Pierre Habicht.

The infant mortality rate has declined dramatically in Peninsular Malaysia since World War II. The authors use individual-level retrospective data on infant mortality and its correlates to examine possible reasons for this decline. The data are derived from the Malaysian Family Life Survey. The substantial increases in mothers' education that occurred in Malaysia contributed importantly to the decline in their infants' mortality; improvements in water and sanitation also played a role. However, the reductions in breast-feeding that have taken place in Malaysia have kept the infant mortality rate from declining as rapidly as it would have otherwise. In this analysis, it is shown that the detrimental effects of reduced breast-feeding have more than offset the beneficial effects of improvements in water and sanitation. The majority of the infant mortality decline, however, is not explained by changes in the variables considered here but is due to factors not investigated in this paper--most likely, increases in income and improvements in medical and health care.

Determinants of Infant and Child Mortality in Rural Bangladesh
Michael Koenig, Department of Population Dynamics, Johns Hopkins University, 615 North Wolfe Street, Baltimore, MD 21205; Stan D'Souza; and Rezaul Karim.

No abstract received.

The Socioeconomic Determinants of Infant Mortality in Jordan
Maureen Lewis, Johns Hopkins University. Mailing address: 1311 North Lynnbrook Drive, Arlington, VA 22201.

No abstract received.

FINDINGS FROM RECENT U.S. FERTILITY SURVEYS
Organized and Chaired by
John E. Patterson, U.S. National Center for Health Statistics

Contraceptive Use, Pregnancy, and Fertility Patterns among Single Women, 1983
Koray Tanfer, Institute for Survey Research, Temple University, 1601 North
Broad Street, Philadelphia, PA 19122; and Marjorie C. Horn.

The authors examine the contraceptive and fertility behavior of
20-29-year-old never-married women in the United States. The analysis is
based on retrospective life-history data gathered in a national survey
conducted in the spring and summer of 1983. Most of the recent research on
premarital sexual activity, contraception, and out-of-wedlock fertility has
focused on teenagers, and much of the available data has included only
adolescents. But, in fact, rates of illegitimate childbearing are actually
higher for women in their early twenties. Also, approximately one-half of all
illegitimate births occur to women 20 years of age or older. In this paper,
the authors document the prevalence of contraceptive use, the choice of
method, premarital conceptions, and pregnancy resolutions among single women
in their twenties. They also examine the correlates of contraceptive use and
out-of-wedlock childbearing.

Fecundity Status and Infertility, 1965-1982
William D. Mosher, National Survey of Family Growth, U.S. National Center for
Health Statistics, 3700 East-West Highway, Room 1-44, Hyattsville, MD 20782.

No abstract received.

Contraceptive Practice: 1982
Christine A. Bachrach, U.S. National Center for Health Statistics, 3700 East-
West Highway, Hyattsville, MD 20782.

The National Survey of Family Growth, Cycle III, included for the first
time information on the contraceptive practices of all women of childbearing
age, regardless of marital status. In this paper, the author presents
preliminary data from this survey on the contraceptive status and method
choices of never-married, previously married, and currently married U.S. women
in 1982. Trends in contraceptive use among currently married women during the
decade 1973-1982 are also described. During this time, use of the oral
contraceptive pill declined sharply among wives 15-44 years of age, and this
decline occurred in all categories of age, race, and intent to bear more
children. At the same time, the prevalence of female contraceptive
sterilization rose sharply, although this increase occurred mainly among wives
over 30 and among those intending to have no more children. Among other
wives, the decline in pill use was complemented by a smaller rise in the use
of barrier methods, particularly the condom and diaphragm.

Use of Family Planning Services by Sexually Active Teenagers, 1982
William F. Pratt, U.S. National Center for Health Statistics, Room 9A-54
Parklawn Building, 5600 Fisher's Lane, Rockville, MD 20853; and Gerry E.
Hendershot.

Among U.S. women 15-19 years of age in 1982, 46 percent had had premarital
sexual intercourse. Eleven percent had begun this experience before age 15,
and 69 percent of 19-year-olds had begun. The rising prevalence of premarital
sexual intercourse through the seventies did not continue into the eighties;
among white teenagers there was little or no change since 1979, and among
black teens there was a decline. Premarital sexual experience is the
principal factor in adolescent fertility. Family planning services to teens
were most often provided by clinics, but 45 percent were served by private
physicians at the most recent visit. Only one-sixth of sexually active,

adolescent women visited a family planning provider before first intercourse, but almost three-fourths of the currently active had had a family planning visit within the last 12 months. Data are from Cycle III of the National Survey of Family Growth.

Zero, One, or Two Births: 1975 and 1980
Amy Ong Tsui, Carolina Population Center, University of North Carolina, University Square East, Chapel Hill, NC 27514.

Recent childbearing by U.S. white women first married since 1960 has centered on decisions for zero, one, or two births. A marriage cohort framework and life table analysis techniques are used in observing the parity progressions of some 8,000 women in the 1975 and 12,600 women in the 1980 June Current Population Surveys, with premarital conceptions excluded. Recent cohorts have varied more in the timing than in the incidence of first births. Delayed childbearing and voluntary childlessness, emerging issues in 1975, do not gain prominence in 1980. Once parenthood is underway, a majority will progress to the second child, with the tempo of this progression exhibiting marked uniformity across cohorts and surveys. More uncertainty, on the other hand, characterizes progression to a third birth to the extent that this move signals a completed two-child family. Evidence of "compressed" birth spacing appears. The relative effects of socioeconomic variables and prior birth timing on subsequent births are examined within and across surveys.

IMMIGRATION STATISTICS: WHERE DO WE GO FROM HERE?
Organized and Chaired by
Burton Singer, Columbia University

INS Statistical Programs: New Systems; New Data?
Ellen Percy Kraly, Department of Geography, Colgate University, Hamilton, NY 13346; Robert Warren; and Norman Cher.·any.

The U.S. Immigration and Naturalization Service (INS) is in the process of implementing automated data processing systems to support the operational missions of the agency. These developments have potentially significant implications for the store of statistical information available from INS for immigration policy analysis. The authors consider, first, the nature of the data being generated through INS information systems and their relevance for the statistical documentation of the process of international migration to the United States and the status of alien populations in the country. Second, they evaluate the institutional mechanisms within INS for making the data that are collected accessible for policy analysis and demographic research.

The Data Collection and Research Program of the Office of Refugee Resettlement
Linda W. Gordon, Office of Refugee Resettlement, Social Security Administration, U.S. Department of Health and Human Services, Washington, DC 20201.

No abstract received.

Integration of Multiple Data Sources in Immigrant Studies
Marta Tienda, Department of Rural Sociology, University of Wisconsin, 340 AG Hall, Madison, WI 53706; and Teresa Sullivan.

The authors describe and classify the types of data now available in the "system" of U.S. immigration statistics and illustrate through a selective review of recent studies how these sources can be combined into discrete investigations of immigration. First, they outline a heuristic framework for classifying and discussing immigration statistics. This framework

distinguishes between the production and use of official and unofficial statistics. The remainder of the discussion addresses the diversity of studies employing unofficial data sources and selectively highlights points of convergence in substantive findings, policy inferences, and the strengths and limitations of varying research approaches.

Assessing Stocks and Flows of Migrants
Kenneth Hill, Panel on Immigration Statistics, National Academy of Sciences. Mailing address: 5445 30th Place NW, Washington, DC 20015; and James Trussell.

Migration data for the United States are characterized by islands of reliable information surrounded by seas of uncertainty. Though new entries of immigrants and refugees, and naturalizations of aliens, are apparently accurately recorded, little is known about return migration of immigrants, emigration of U.S. citizens, or the size and composition of the population of undocumented foreigners. Assessment of the impact of migration on the United States and traditional population accounting are thus rendered difficult. Methods are proposed and illustrated in this paper for (1) estimating the size of the population of undocumented foreigners from data on detentions by duration of illegal stay, (2) estimating the stock and emigration rate of noncitizens from alien address registration data, and (3) estimating the stock of U.S. citizens living abroad from census data from other countries. The systematic processing and analysis of data already collected, combined with a new data collection initiative, could, at modest cost, provide a sounder empirical basis for many of the guesses that must now be made about stocks and flows of U.S. migrants.

PROBLEMS IN DEMOGRAPHIC DATA AND DEMOGRAPHIC ANALYSIS
Organized and Chaired by
Karen Oppenheim Mason, University of Michigan

Age and Birthdate Misreporting in the 1900 Census: An Analysis of a Los Angeles Sample
Lisa G. Cope, Population Studies Center, University of Michigan, 1225 South University Avenue, Ann Arbor, MI 48109; Karen Oppenheim Mason; and Barbara Laslett.

The authors use data from a Los Angeles household sample to identify persons who have misreported their ages (or birthdates) in the 1900 census. The analysis involves a comparison of individuals´ ages and birthdates. The relative importance of different sources of error is discussed. It is found that literacy, the relationship of the individual to the household head, birthplace, and occupation, but not sex or race, are related to the probability of a data problem occurring, as is also the enumeration district in which the individual resides. However, removal of persons with discrepancies between their ages and birthdates from the sample does not reduce the extent of age heaping observed.

Patterns of Underenumeration of Children and Adolescents in the 1959 and 1970 Soviet Censuses
Barbara A. Anderson, Department of Sociology, Brown University, Providence, RI 02912; and Brian D. Silver.

School enrollment data are used to estimate the number of children of primary-school age (roughly age 7 through 10) in the USSR. Primary-school

enrollment totals are virtual proxies for the census count of primary-school age children at the time of the census. School enrollment data for other years thus provide an accurate "census" of primary-school age children. Enrollment totals for noncensus years projected to the census date are a basis for assessing the completeness of the count of nonprimary-school age children and adolescents in the census year.

The main findings are: (1) four to five percent of births were unregistered; (2) preschool children were underenumerated by three to four percent; (3) primary-school age children were completely enumerated; (4) 16-17-year-olds were undercounted by three to four percent; (5) 18-20-year-olds were nearly completely enumerated; and (6) 20-24-year-olds were undercounted by three to four percent. Explanations and implications of these patterns are explored.

The Demography of Palestinian Refugees: An Analysis of UNRWA Registration Data
Robert H. Weller, Center for the Study of Population, Florida State University, Tallahassee, FL 32306; William J. Serow; and Mohamed Bailey.

UNRWA (United Nations Relief and Works Agency for Palestinian Refugees in the Near East) annually compiles data on the number (by age and sex) of Palestinian refugees registered with it. These data are examined for evidence of age heaping and digit preference for the years 1966, 1970, and 1972-1982. In addition, the authors apply indirect methods of estimating fertility and mortality levels from the age and sex composition of the registered population. These results are compared with various demographic parameters for the host countries. The data are disaggregated by country of residence.

Covariate-Interval-Duration Interaction Effects on Birth Spacing
Craig St. John, Department of Sociology, University of Oklahoma, Norman, OK 73019.

In this paper, the author divides birth intervals into segments of different durations following the interval initiating birth. He then looks at the effects of covariates on the likelihood of closing intervals during these segments. The results show that the effect of at least one covariate (race) varies with interval duration; that is, it interacts with duration of time in its effect on closing intervals. This finding has important implications for birth-spacing research, most of which only focuses on the effects of covariates on closing birth intervals during one segment of intervals, the segment immediately after the interval was begun.

Simultaneous Probit Models: A Preliminary Investigation of Some Theoretical and Empirical Issues
Allen L. Schirm, Population Studies Center, University of Pennsylvania, 3718 Locust Walk CR, Philadelphia, PA 19104.

Some issues regarding the specification and estimation of simultaneous probit models are discussed. These models must be specified carefully in order to maintain logical consistency; however, it is argued that the conditions for statistical reasonability are not necessarily unduly restrictive. A two-step consistent estimator is described and evaluated both theoretically and empirically. Previous results are extended in this paper by deriving an estimable form of this estimator's covariance matrix. It is argued that the simultaneous probit model might be the preferred methodology for studying a number of empirical problems, and one such model is used to study the marital and labor force behavior of white native-born urban U.S. women during the nineteenth century. It appears that this is one of the first empirical applications of such a model and the first using the proposed estimation procedure. Findings are consistent with theoretical predictions.

PATTERNS OF CHANGE IN THE UNITED STATES LABOR FORCE
Organized and Chaired by
Valerie K. Oppenheimer, University of California at Los Angeles

Occupational Change, 1970-1980
Suzanne Bianchi, Center for Demographic Studies, U.S. Bureau of the Census,
Washington, DC 20233; and Nancy Rytina.

Changes that occurred with the reclassification of occupations in the 1980
U.S. census are evaluated. Only about one-third of the 1970 occupation codes
correspond exactly to one 1980 code, but about 70 percent of the 1970 work
force can be reclassified into a 1980 code that has a high degree of overlap
with one 1970 code. Reclassification increases the percent female in the
major groups of technicians and handlers (laborers). Using comparably coded
1970 and 1980 data, the authors analyze changes in the sex composition of
occupations. The degree of occupational segregation declined as the
proportion of both men and women in sex-neutral occupations increased
substantially. The increased representation of women in managerial
occupations during the 1970s was particularly striking. However, the
occupational distribution of men and women remained quite dissimilar in 1980.

Consequences of the Rise in Female Labor Force Participation Rates: Questions
and Probes
Robert T. Michael, Economics Research Center, National Opinion Research
Center, 6030 South Ellis Avenue, Chicago, IL 60637.

Some consequences of the growth in women's labor force participation rates
(LFPR) in the United States in the past 30 years are considered. Three
independent inquiries are pursued. First, the growth in women's LFPR is
decomposed by decade, age, race, marital status, presence of age-specific
children, and years of schooling. Second, the impact of the rise in women's
LFPR on inequality in measured income among intact families and the dearth of
information about its effect on income inequality among all households are
discussed. It is noted that its effect on real as distinct from money income
is probably only a small fraction of its effect on money income. Third,
bivariate autoregressive structures for annual aggregate data for 1950-1980
are estimated for several pairs of variables, always including LFPR. Tests of
Granger-causation are made and suggest that LFPR have an influence on
fertility, marriage, schooling, and men's income but not on divorce or total
family income; only fertility (and marginally divorce) have an influence on
women's LFPR.

Occupational Achievement of U.S. Hispanic Women
Ross M. Stolzenberg, Graduate Management Admission Council, 1299 Ocean Avenue,
Santa Monica, CA 90401.

The research reported here focuses on four key questions. First, what are
the determinants of Hispanic occupational achievement? Second, does the
process of occupational achievement work differently for some Hispanic ethnic
subgroups (e.g., Cubans) than for others (e.g., Puerto Ricans)? Third, does
this process vary across geographic areas? For example, is it different in
Florida than in New York? Fourth, how does Hispanic occupational achievement
differ from that of blacks and non-Hispanic whites, and how do these
differences vary across Hispanic ethnicity groups in the United States? Data
on individual workers are taken from the 1976 Survey of Income and Education
(SIE). Separate analyses are performed for each of nine states with
substantial Hispanic populations.

Job Characteristics of Spouses and Their Work Shifts

Harriet B. Presser, Department of Sociology, University of Maryland, 4101 Art-Sociology Building, College Park, MD 20742.

This study builds on an earlier finding from the May 1980 U.S. Current Population Survey that one-third of full-time dual-earner couples with children include at least one spouse who works other than a regular day shift. Based on the same data source, the relevance of husbands´ and wives´ job characteristics and the nature of the association between husbands´ and wives´ work shifts are explored. Alternative models are posed and tested with log-linear analysis. The best-fitting model is not symmetrical: the wife´s shift is contingent upon both her occupation and industry and that of her husband, but the husband´s shift is contingent only upon his occupation and industry. There is a relationship between husband´s and wife´s shift, the direction of which depends upon the occupation of each spouse. This study demonstrates the importance of taking a "couple" perspective on shift work among married persons and the need for models that include interaction effects.

Changes in Labor Force Participation of Older Men and Women since 1940: A Time-Series Analysis

Eileen M. Crimmins, Andrus Gerontology Center, University of Southern California, Los Angeles, CA 90089; Richard A. Easterlin; and Lee Ohanian.

In this paper, the work/retirement decision is viewed as the outcome of a tension between current income opportunities in and outside of the labor market. A model fitted to 1940-1982 U.S. data gives a tentative assessment of the relative roles of changing job opportunities versus social security in shaping the observed movements in labor force participation of older men and women. The analysis differs from most others in that it (1) examines the behavior of older women as well as men, exploring possible interdependence between the two; (2) aims for consistency with experience in the four decades prior to 1940 as well as post-1940; and (3) takes into account not only the social security retirement program but also the disability program. The conclusions are tentative because this initial model, though more comprehensive than most in its coverage of the availability of jobs or pension support, does not yet incorporate information on rates of pay or benefits.

DATA AND METHODS FOR MAKING CURRENT ESTIMATES OF INTERNAL MIGRATION
Organized and Chaired by
John F. Long, U.S. Bureau of the Census

Current Methodology for Estimating Interprovincial Migration in Canada

Anatole Romaniuc, Demography Division, Statistics Canada, Jean Talon Building, 4th Floor, Room A-8, Tunney´s Pasture, Ottawa, Ontario K1A 0T7, Canada; R. Raby; and P. Parent.

An overview of Statistics Canada´s current methodology for estimating interprovincial migration is presented. Two methods are examined: (1) estimates based on Family Allowance Files using adjustment factor $F_{j,k}$, which is derived from Taxation Files by province of origin (j) and province of destination (k) and which is used to estimate the number of adult migrants from the number of child migrants, and (2) estimates obtained directly from Revenue Taxation Files. The data on child migrants from Family Allowance Files are of good quality, and since they are available shortly after notification of change of address, they are used as input to method (1) for preliminary estimates of interprovincial migration. The Taxation Files have a broader demographic base and provide data for subprovincial disaggregation, but they are available with a time lag of about 12 months. They are currently used as input to method (2) for derivation of final migration estimates. A third method is currently being tested, whereby estimates from Taxation Files are adjusted for child migration derived from Family Allowance Files.

The Consistency of Migration Data from Two Sources: Census and Administrative Data

Signe Wetrogan, Population Division, U.S. Bureau of the Census, Washington, DC 20233.

    The author examines the consistency between two sources of U.S. migration data. The 1980 census data are used to develop state-to-state migration flows and out- and in-migration rates for the period 1975 to 1980. For the same time period, a 10 percent sample of administrative records from the Internal Revenue Service (IRS) is matched to create a second set of state-to-state migration flows and out- and in-migration rates. The analysis shows a general consistency between the two sets of data. However, for the Southern states, the IRS out-migration rates are consistently higher and the in-migration rates consistently lower than the comparable rates based on the census data. In addition, the differences between the data sources are examined with regard to state-to-state migration flows between individual states.

Monitoring Temporal Trends in Migration Patterns

Peter A. Rogerson, Department of Geography, Technological Institute, Northwestern University, Evanston, IL 60201.

    Changes in the design of the Current Population Survey and the recent release of the Internal Revenue Service migration data raise exciting new possibilities for monitoring regional trends in migration flows. The author explores some potential uses for these data sets, which will, for the first time in the United States, allow the analysis of temporal trends in migration patterns on an annual basis. The paper has three objectives. The first is to describe some of the recent (1975-1982) trends in interregional, interdivisional, and metropolitan-nonmetropolitan flow patterns. The second objective is to explore potential alternatives for modeling observed nonstationarity and to discuss the potential for combining the assets associated with particular data sets to construct synthetic migration data. Finally, data sources are compared with each other to evaluate their consistency. This latter task is particularly important for researchers interested in modeling temporal change, since what may appear to be change may in fact only reflect poor data quality.

Estimating Annual Migration for California Counties Using Driver License Address Changes

Elizabeth Hoag, Population Research Unit, State of California, 1025 P Street, Sacramento, CA 95814.

    Estimates of migration using Driver License Address Change records as an indicator have been used in California successfully for the past 10 years. Both intercounty and interstate migration are measured for the population aged 18-64. The data are available by age, sex, and in- and out-movement. This paper includes a description of the Driver License Address File, its history, characteristics, advantages, and disadvantages. It is noted that this file is used as part of California's county population estimating program and has tested well in comparison with other estimating methods.

Current Patterns of Youth Migration in the United States: Evidence from a National Panel Survey

Michael B. Toney, Department of Sociology, Utah State University, Logan, UT 84321.

    The purpose of this paper is to assess the measures of migration available from a major ongoing panel survey in the United States, the youth cohort of the National Longitudinal Survey (NLS). The utility of these data for the analysis of migration seems great since they contain information that exceeds the requirements for standard definitions of migration. Data are available from surveys conducted in 1979, 1980, 1981, and 1982. The information

available permits variation in definition according to (1) geographic detail, (2) direction of flows, (3) sequences of migration, and (4) interval length.

CONTRACEPTIVE KNOWLEDGE AND USE IN DEVELOPING COUNTRIES:
DETERMINANTS AND TRENDS
Organized and Chaired by
Dorothy Nortman, Population Council

Contraceptive Method Mix: What Determines Program and Individual User Preferences?
J. Timothy Johnson, U.S. Centers for Disease Control, PEB/DRH/CHPE (Building 1, Room 4062), Atlanta, GA 30333; Gayl D. Ness; Stan J. Bernstein; and Murali D. Vemuri.

National family planning programs vary greatly in the mix of contraceptives used. Some rely heavily on the pill, others on the IUD, sterilization, or other methods. Variation is found not only among programs but also within programs, and patterns of use change over time. Individual-level cultural, economic, and physiological factors and higher-level sociopolitical and organizational factors are discussed as possible determinants of such variation. The proportional levels of use of four types of contraceptive methods at three points in time for 30 countries are used as the main dependent variables for a preliminary exploration of factors that contribute to method-mix variation. Other indicators of method-mix differences are also considered. Aggregate-level background and program input variables are used as predictor variables to provide insights into variations of use patterns among national programs, by region, over time, and by policy age.

Contraceptive Prevalence: The Influence of Organized Family Planning Programs
Robert J. Lapham, Committee on Population, National Academy of Sciences, 2101 Constitution Avenue, Washington, DC 20418; and W. Parker Mauldin.

This analysis is based on contraceptive prevalence levels for the period 1977-1983 in 69 countries, the results of a new study of program effort that measures program performance in 1982, and socioeconomic data from several sources. Macro-level analyses include simple correlations, multiple regression, and cross-tabulations. Attention is also given to the components of program effort in an attempt to determine which activities have the greatest impact on contraceptive use, in the context of varying social and economic conditions. The results include high R^2 values for the effects on prevalence of both socioeconomic conditions and family planning program effort, especially when combined. Moreover, within groups of countries classified by social setting, higher prevalence is associated with higher program effort scores. For example, among countries with "upper middle" social setting, average prevalence varies from 9 to 63 percent as program effort increases from "very weak or none" to "strong".

The Multilevel Dependence of Contraceptive Use on Socioeconomic Development and Family Planning Program Strength
William M. Mason, Population Studies Center, University of Michigan, 1225 South University Avenue, Ann Arbor, MI 48104; Barbara Entwisle; and Albert I. Hermalin.

Using World Fertility Survey data for 15 developing countries, the authors estimate an equation in which the dependent variable--whether the respondent has ever used an efficient contraceptive method--depends on the respondent's education and type of place of childhood residence. All of the coefficients of this equation, including the intercept, vary over countries. An analysis based on new methodology shows that the intercept and education effect vary as

a function of national family planning program effort and that none of the parameters of the equation depends on gross national product per capita. The results demonstrate the efficacy of multilevel analysis, provide a partial test of the theory that is the basis for the analysis, and sharpen the terms in which discussion of the contributions of development and policy variables to fertility reduction must be framed.

Cross-Cultural Estimates and Determinants of the Unmet Need for Family Planning in Developing Nations
Paula E. Hollerbach, Center for Policy Studies, Population Council, One Dag Hammarskjold Plaza, New York, NY 10017; and Dorothy L. Nortman.

   Utilizing a model that cross-classifies women of reproductive age according to their pregnancy desires and contraceptive use, the authors calculate the potential total contraceptive demand and the unmet need for family planning over a one-year time interval for all women of reproductive age, including respondents currently pregnant at the survey date. Westinghouse Contraceptive Prevalence Survey data, available for 10 countries in Asia and Latin America, are used in the analysis, which includes women who desire to space as well as limit births. The reasons underlying nonuse of contraception are compared within demographic and socioeconomic subgroups of nonpregnant women with current need as well as among never and previous users of contraception. The proportion of unmet need that may be met sometime in the future through the use of traditional as opposed to modern methods is also assessed on the basis of reported intentions.

Why Not Use Contraception? The Economics of Fertility Regulation among Rural Egyptian Women
Wayne A. Schutjer, Population Issues Research Center, Pennsylvania State University, 201 Weaver Building, University Park, PA 16802; C. Shannon Stokes; and John R. Poindexter.

   Women who desire no additional children represent an important potential clientele for family planning programs. In the current study, a microeconomic framework is employed to explain the use of contraceptives among a sample of 440 rural Egyptian women. The findings reveal that the contraceptive decision is influenced by contraceptive costs, the number of additional children that would likely be born in the absence of contraception, and a set of economic factors including child quality, household income, and the families' relationship to land. Of particular importance at the margin are child quality, psychic contraceptive costs, and the families' tenancy status. The theoretical framework and empirical procedures utilized in this study appear to have considerable potential for sorting out the factors that influence the decision to contracept among women desiring no additional children.

OLD AND NEW APPROACHES TO FORECASTING FERTILITY
Organized and Chaired by
Ronald Lee, University of California at Berkeley

Quantifying Implicit Fertility Forecasts for Africa
Douglas C. Ewbank, Population Studies Center, University of Pennsylvania, 3718 Locust Walk CR, Philadelphia, PA 19104; Charles J. Mode; and Gary T. Pickens.

   Discussions of future fertility trends in Africa are generally framed in terms of potential changes in components of birth intervals (for example, postpartum abstinence and contraceptive use); however, projections are based on an assumed starting time for the expected fertility decline and an estimated time to reach replacement. In this paper, the authors present an

illustrative projection for a typical African country using a new, highly efficient computer projection model based on terminating birth processes. The projection is based on assumed parity-specific values of the basic birth interval components for each cohort. The projection is an attempt to illustrate the implications of changes in fertility behavior for population forecasts.

Forecasting with Leading Indicators: An Application to Fertility

Dennis A. Ahlburg, Industrial Relations Center, University of Minnesota, 271 19th Avenue South, Minneapolis, MN 55455.

In this paper, the method of leading indicators developed by the National Bureau of Economic Research (NBER) is applied to the problem of predicting turning points in total live births and the general fertility rate. Cycles in total live births and the general fertility rate are identified, and statistics on the characteristics of the cycles are reported. A small set of leading indicators is identified. The marriage rate is found to be a useful leading indicator for peaks and troughs in total live births under a one-period definition of turning points and for troughs under a two-period definition. For the general fertility rate, total marriages and third births predict troughs under the one-period definition, and third births predict troughs under the two-period definition. The NBER's index of leading economic indicators does not appear to be a useful leading indicator of fertility.

Joint Forecasts of U.S. Marital Fertility, Nuptiality, Births, and Marriages Using Time-Series Models

Lawrence R. Carter, Department of Sociology, University of Oregon, Eugene, OR 97403.

A new approach to forecasting U.S. marital fertility, nuptiality, births, and marriages is presented. The analysis represents a wedding of demographic and statistical time-series methods in models amenable to Box-Jenkins type techniques of model identification, estimation, diagnostic checking, and forecasting. Based on forecasts of the best models for rate indexes of nuptiality and fertility, forecasts of births and first marriages are made for the United States for the years 1983-2000.

The advantages of this approach, in which both rates and events are forecast as opposed to the common practice of simply forecasting events, are that: (a) confidence intervals are more readily interpretable in light of a priori knowledge of upper and lower bounds on fertility or other rates; (b) a longer lag history is parsimoniously incorporated in the models; and (c) knowing the rates underlying or implied by the forecasts of events totals aids the interpretation of results in the familiar terms of average individual behavior.

Age-Period-Cohort Models for Forecasting Fertility

Frans Willekens, Netherlands Interuniversity Demographic Institute, Prinses Beatrixlaan 428, NL 2273 Voorburg, Netherlands; and Nazli Baydar.

Fertility forecasts frequently have to be made in the absence of an explanatory model. Most descriptive models, however, and in particular the conventional time-series models, are not suited to represent the dynamics within age- or seniority-specific time-series data, which are the outcome of both period and cohort components of temporal change. The authors suggest the use of age-period-cohort (APC) models for the analysis and forecasting of demographic time series. A review of the APC models as a particular category of generalized linear models (GLMs) is presented. The identification problem, which has been assumed to be inherent to the age-period-cohort specification, is shown to be a measurement problem: the problem disappears when doubly classified data are used. The APC model may easily be extended to account for additional population heterogeneity. In the paper, regional heterogeneity is considered, leading to a model for analysis and forecasting of regional fertility. The models are applied to fertility data for the Netherlands.

Comparing Old and New Approaches to Forecasting Fertility Changes in Developing Countries
Robert E. Lightbourne, World Fertility Survey, 35-37 Grosvenor Gardens, London SW1W OBS, England.

Policy analysts sometimes assess the prospects for fertility change by contrasting "conventional" preferred family size with the total fertility rate (TFR). In this paper, the author implies that such assessments may greatly understate the prospects for fertility decline. Using World Fertility Survey data for 20 countries, he compares actual TFRs with three different measures of desired fertility, namely, (1) "conventional" preferred family size, based on a direct question asking the number of children desired; (2) "stopping point" preferred family size, based on statements on whether additional children are desired; and (3) "wanted total fertility rates", based on deleting unwanted births from the numerator of the TFR. The third measure implies much larger fertility declines and is argued to approximate better the number of wanted births that women will have, if their reported preferences are taken at face value and if they are subject to real world fecundity impairments.

HIGHLIGHTS FROM THE 1980 CENSUS MONOGRAPHS
Organized and Chaired by
Charles F. Westoff, Princeton University

Changes in Population, Employment, and Industrial Composition in Nonmetropolitan Areas
Glenn V. Fuguitt, Department of Rural Sociology, University of Wisconsin, 240 Agricultural Hall, 1450 Linden Drive, Madison, WI 53706; and Calvin L. Beale.

Although the new population growth in nonmetropolitan areas of the United States has been well documented in work done since 1970, there has been comparatively little attention given to the relationship between population and employment change. When nonmetropolitan counties are distinguished by whether adjacent to metropolitan areas and by level of local urbanization, the pattern of employment change closely parallels that for population in both the 1960-1970 and the 1970-1980 period. For both population and employment, however, these patterns are altered in the latter decade, as part of the new nonmetropolitan trend. But concealed in these results are differences and changes in the level of male and female employment. In both decades more rural, remote counties have a greater increase in the proportion of women employed and a greater decrease in the proportion of men employed. Yet overall it may be that the most significant employment change is the revival of employment for men after a lack of such growth in the 1960s. The most significant change in employment by industry is the continuing development of the industry mix, with a trend for service activities to penetrate the most rural counties.

Black Migration of the 1970s
Reynolds Farley, Population Studies Center, University of Michigan, 1225 South University Avenue, Ann Arbor, MI 48109; and Walter Allen.

This analysis of migration trends among blacks in the United States leads to four findings. First, throughout the nation's history there has been a shifting distribution of the black population. During the nineteenth century, this involved a shift from the Atlantic Coast states to the Gulf Coast area. In the twentieth century, the primary trend was a migration of blacks northward as the proportion living in the South declined from 90 percent in 1900 to 55 percent in 1970. Second, the traditional pattern of black out-migration from the South came to an end in the 1970s, and the South is now gaining in the interregional exchange of migrants. Third, there is a high degree of selectivity in migration, and those blacks who leave their native

regions tend to be younger and of higher socioeconomic status than those who do not move. Interregional migrants are quite successful--in economic terms-- in their new regions. The problems of northern cities cannot be attributed to an influx of untalented rural blacks. Fourth, the new pattern of substantial black migration into the South often involves young, highly educated persons. In the future, one may find a migration of an elite group of blacks who successfully compete in the southern labor market but for jobs very different from the agricultural and domestic service jobs held by their grandparents.

Progress Report on Census Monograph on Families and Households--with Special Attention to the Increase in Cohabitation
James A. Sweet, Center for Demography and Ecology, University of Wisconsin, Social Science Building, Madison, WI 53706; and Larry Bumpass.

One of the important family and household trends of the last decades is the increase in the number, and change in the characteristics, of cohabiting couples in the United States. This is a topic that occurs in almost every chapter of the 1980 census monograph on families and households. In this paper, the authors provide a series of consistent estimates of the number and characteristics of the cohabiting population in 1960, 1970, and 1980 from decennial census data. By 1980 over two percent of the adult population and nearly six percent of the unmarried adult population were cohabiting. The greatest prevalence of cohabitation occurs among divorced persons aged 25-34, a group in which about one-fifth of both men and women are cohabiting. However, the majority of the growth in the number of cohabiting persons occurred because of increases in the prevalence of never-married cohabitors, primarily in their twenties. Nearly two percent of American children are living with a cohabiting parent. The paper concludes with a discussion of the confusion in applying census household and family concepts to cohabiting persons with children of one or both partners in the household. It is suggested that the Bureau of the Census ask explicitly about cohabitation and clearly identify which person, if any, in the household is a parent of which child. Stepparents should also be explicitly identified.

Changing Income Distribution
Frank Levy, Urban Institute, 2100 M Street NW, Washington, DC 20037.

A summary of a forthcoming 1980 census monograph on changing income distribution in the United States is presented. The author notes that the main factor affecting the present situation, in contrast to the situation in previous census years, has been the effect of the two successive OPEC-generated oil price increases occurring in the 1970s. These caused median family incomes to fluctuate rather than increase steadily, as had previously been the case since 1947. The negative effects of the oil crisis are seen to have exacerbated the already difficult economic situation that the baby boom generation faced. These impacts are illustrated by using the example of a 20-year-old man leaving the home of his 50-year-old parents: if he left home in 1950, he would have been earning one-third more after 10 years than his father earned 10 years before; if he left in 1960, he would have been earning one-quarter more after 10 years; but if he left in 1970, he would have been earning 10 percent less after 10 years than his father had earned 10 years previously.

Ecological Differentiation in Metropolitan Areas
Michael J. White, Woodrow Wilson School, Princeton University, Princeton, NJ 08544.

The census monograph on neighborhoods focuses on the residential differentiation of U.S. metropolitan areas in 1980, with some comparisons over time. In this paper, an overview is given of results pertaining to segregation and data quality. Census tract data for a variety of racial, socioeconomic, and housing characteristics are analyzed. Segregation of the black population remains the highest of all characteristics but appears to

have declined slightly since 1970. Segregation for age, gender, and most household types is much less pronounced. Results for most measures of socioeconomic status are intermediate. Using information about the extent of allocation and substitution, the author investigates the quality of data for small areas in the census. For one-tenth of census tracts in the SMSAs studied, the extent of population substitution is over five percent. Metropolitan areas that are large or located in the South have a higher incidence of problems with data quality.

THE DEMOGRAPHY OF AMERICAN CATHOLICS
Organized by Dudley L. Poston, Jr., University of Texas at Austin
Chaired by John L. Macisco, Fordham University

The Demography of a Special Group of American Catholics: The Puerto Ricans
Charles W. Warren, U.S. Centers for Disease Control. Mailing address: 3966 Cynthia Way, Lilburn, GA 30247; Joan M. Herold; Roger W. Rochat; and Jack C. Smith.

No abstract received.

Patterns of Childlessness among Catholics and Non-Catholics in the United States
Dudley L. Poston, Jr., Population Research Center, University of Texas, 1800 Main Building, Austin, TX 78712; and Kathryn B. Kramer.

The principal objective of this paper is to ascertain within the framework of log-linear analysis the degree to which patterns of childlessness differ between Catholic and non-Catholic women in the United States. The authors first compare women who are childless with those who are not. They next conceptualize the dependent variable in two alternative ways, focusing first on childless women in order to ascertain whether their childlessness is voluntary or involuntary, and then looking at the full range of fertility outcomes in order to establish whether the women are voluntarily, involuntarily, or temporarily childless or whether they have children. Given the long-standing emphasis of the Catholic Church regarding the importance of children in marriage and the family, an emphasis that was not reversed during the Second Vatican Council, the authors hypothesize that Catholic women should be less disposed than non-Catholic women to choose voluntarily not to have children. The results do not suggest an end to differentials in childlessness among Catholics and non-Catholics. Furthermore, the existence of strong prochild and profamily sentiments among younger Catholics does not indicate a convergence in Catholic and non-Catholic patterns of childlessness in the near future.

How Catholic are Catholics? Religiosity Differences of Ever-Married Catholics
Rena Cheskis, Office of Institutional Research, Yale University, 451 College Street, New Haven, CT 06520; and Jeffrey Getis.

The current religiosity of ever-married Catholic men is explored using data from the 1967-1969 Rhode Island Population Laboratory. First, the authors look at the prevalence of three types of marriages: religiously homogamous, conversionary, and mixed. Then they explore, for each of the three marriage groups, three measures of current religiosity: church membership, communion frequency, and religion of children. Findings point to

the similarities in religiosity between men in homogamous and conversionary marriages, and the greater religiosity of younger versus older intermarrying cohorts.

Is Being a Catholic Irrelevant for Fertility? What We Can Learn from American High School Students

Judith Blake, School of Public Health, University of California, Los Angeles, CA 90024.

Recent analyses of fertility differences between Catholics and non-Catholics in the United States disagree as to whether convergence has occurred. This analysis of high school sophomores and seniors, surveyed in 1980, supports the conclusion that differences between Catholics and non-Catholics in fertility-related variables persist. Practicing Catholics, as compared with non-Catholics, expect larger families, rate having children as more important, are more traditional in defining the mother's role, and know less about birth control. However, although practicing religious Catholics expect approximately 20 percent higher fertility than non-Catholics, the fact that the differential is not greater suggests that socialization in most Catholic families is tempered by the same influences that impinge on non-Catholic families.

Catholic/Protestant Differences in Marriage

Barbara Foley Wilson, Division of Vital Statistics, U.S. National Center for Health Statistics, 3700 East-West Highway, Hyattsville, MD 20782; and George C. Myers.

Although Catholic attitudes and behavior concerning family matters have changed in the past two decades, studies show that the likelihood of marital dissolution is still considerably lower for Catholics than for Protestants. This suggests that differences in marital patterns, such as age at marriage and age differences between spouses, as well as relative marital stability may be influenced by religious orientation, commitment, and behavior. In this paper, the General Social Surveys for 1972-1983 and the U.S. National Survey of Family Growth are used to study Catholic couples, Protestant couples, and intermarriages of Protestants and Catholics. Descriptive statistics and multivariate analyses are used to examine marital behavior, controlling for education, ethnicity, age, and other sociodemographic characteristics.

DETERMINANTS OF CHILD MORTALITY IN DEVELOPING COUNTRIES
Organized and Chaired by
Douglas Ewbank, University of Pennsylvania

Biological and Social Factors Affecting Infant and Child Mortality: A Comparative Study of Jordan, Egypt, Tunisia, and Yemen

Arjun L. Adlakha, Center for International Research, U.S. Bureau of the Census, Washington, DC 20233; and C. M. Suchindran.

The determinants of infant and child mortality variations in four Neareastern countries are examined using data from the World Fertility Survey. The analysis considers the biological correlates of mortality, including mother's age, birth order, birth interval, and previous infant loss, and several social factors, such as mother's and father's education, mother's residence, father's occupation, and mother's work experience since marriage. A multivariate analysis using a logistic regression model is carried out to

obtain the net effect of each factor on mortality. Separate models are constructed for infant mortality and childhood mortality and for each country. The implications of the findings for future research and for programs and policies to improve infant and child survival are discussed.

A Multivariate Analysis of Social and Economic Determinants of Neonatal and Infant Mortality in Four Rural Thanas of Northern Bangladesh

James F. Phillips, International Centre for Diarrhoeal Disease Research, Bangladesh, GPO Box 128, Dhaka, Bangladesh; and Khorshed Alam Mozumder.

Recent work on the correlates of neonatal, infant, and child mortality in the Matlab research area of Comilla District in Bangladesh suggests that effects of social and economic variables on neonatal and infant mortality are absent but that such effects are pronounced among children over 12 months of age. The authors use a new longitudinal demographic data base to examine these effects in rural North Bengal, where special health services such as those available in Matlab have not yet been introduced. A multivariate hazards model is estimated that shows that maternal education and household economic status have no effect on neonatal or postneonatal mortality. Among neonates, maternal age has no effect on the odds of dying. Among postneonates, mortality risks are inversely related to maternal age. The number of children dead among children ever born is directly associated with neonatal mortality but is insignificant as a predictor of postneonatal mortality. The finding that social and economic status indicators are weak predictors of infant mortality is consistent with findings from other areas of rural Bangladesh.

Famine, Land, and Mortality in Rural Bangladesh

Raymond Langsten, Carolina Population Center, University of North Carolina, University Square 300A, Chapel Hill, NC 27514; and Shafiq A. Chowdhury.

The effects of the Bangladesh famine of 1974-1975 on mortality in a rural area are examined. During the famine there was a strong inverse relationship between size of landholding and mortality. As the famine ended, so did this relationship. Also, the young, the elderly, and, surprisingly, males suffer disproportionate increases in mortality during famines in Bangladesh, as they do throughout South Asia. The authors show patterns of changing mortality by plotting vital rates over time, giving special attention to infant mortality. The data concern about 2,000 households with some 11,000 people, representative of Companiganj thana, in south central Bangladesh. An enumeration survey provides basic data for all persons in the sample households as of January 1, 1975. Vital events were recorded from January 1975 through December 1979.

A Comparative Analysis of the Determinants of Infant and Child Mortality in the Caribbean

Ulla Larsen, Office of Population Research, Princeton University, 21 Prospect Avenue, Princeton, NJ 08544.

The determinants of infant and child mortality in Trinidad and Tobago, Jamaica, Guyana, and Colombia are compared using data from the World Fertility Survey. The analysis employs hazards models to estimate the effects of demographic and socioeconomic variables on the risk of death in childhood. The pattern found is very similar in each country. High parity, combined with a short interval between the reference child and previous child, increases mortality, while higher education, especially of the mother, reduces the risk of childhood death. Women who are in the middle of their reproductive ages experience the lowest risk of child death. Finally, there are substantial regional differences in each country, although no consistent pattern is found between urban and rural residence.

ADOLESCENT SEXUAL ACTIVITY, CONTRACEPTION, PREGNANCY, AND FERTILITY
Organized and Chaired by
Sandra L. Hofferth, U.S. National Institute of Child Health and
Human Development

An Exploratory Study of the Determinants of Adolescent Fertility in Developed Countries
Elise F. Jones, Alan Guttmacher Institute, 360 Park Avenue South, New York, NY 10010.

Information was sought for 36 developed countries on a broad range of characteristics thought to be linked to teenage childbearing. Although there were important gaps in the resulting data set, 46 variables covering a number of the most relevant aspects of national background were ultimately examined in relation to fertility rates for women under age 18 and those aged 18-19. The temporal focus was 1980. The results suggest that the fertility of both age groups is associated with an interrelated set of variables covering socioeconomic modernization and also certain aspects of reproduction. Variables concerning the role of women are also important, especially at ages 18-19. For the younger women, policy matters related to sex, access to contraception, and also the extent of poverty in the country appear to have substantial impact.

Starting Early: The Antecedents of Early Premarital Intercourse
Kristin A. Moore, Child Trends, Inc., 1990 M Street NW, Washington, DC 20036; James L. Peterson; and Frank F. Furstenberg.

A major factor in the increased incidence of premarital teenage pregnancy is the greater frequency of early, premarital sexual intercourse, yet little research has focused on the factors associated with early intercourse. Characteristics of the family and neighborhood are presumed to be important influences, and results from this study support such an expectation. Data on 15- and 16-year-olds from the 1981 U.S. National Survey of Children indicate that black and white females living with both of their biological or adoptive parents are less likely to have had sex. In line with other studies, blacks are much more likely to have had intercourse than whites, and males are somewhat more likely than females. Among whites, youths living in a poor neighborhood are more likely to have had sex. Early premarital intercourse is less common among youths whose parents are highly affectionate and have at least a high school education, among youths who aspire to complete college, and among youths who engage in relatively few deviant activities.

Serum Androgenic Hormones Motivate Sexual Behavior in Adolescent Human Males
John O. G. Billy, Battelle-Human Affairs Research Centers, 4000 N.E. 41st Street, P.O. Box C-5395, Seattle, WA 98105; J. Richard Udry; Naomi M. Morris; and Terry R. Groff.

Serum androgenic hormones stimulate the development of sexual motivation and behavior in adolescent males. This effect does not work through the social interpretation of the accompanying pubertal development.

The Impact of Social Status, Family Structure, and Neighborhood on Contraceptive Use among Black Adolescents
Dennis P. Hogan, Population Research Center, University of Chicago, 1126 East 59th Street, Chicago, IL 60637; Nan M. Astone; and Evelyn M. Kitagawa.

The effects of a number of measures of social status and aspirations, family structure, and neighborhood quality on contraceptive use by black

adolescents are measured. The study focuses on contraceptive use at the time of first, second, and most recent occurrence of sexual intercourse. Data for the study are drawn from a random sample survey of 124 sexually active, black males and 348 females living in the city of Chicago in 1979.

Pregnancy Risk-Taking among Adolescents
Susan Philliber, Center for Population and Family Health, Columbia University, 60 Haven Avenue, New York, NY 10032; Pearila Brickner Namerow; Jacqueline Williams Kay; and Claudette Hammer Kunkes.

The utility of Kristin Luker's cost-benefit theory for adding to explanations of pregnancy risk-taking among teenagers is tested. The theory posits that at each coital event a cost-benefit set toward contraceptive use and pregnancy is operative. Luker also suggests that when the perceived probability of pregnancy is low and the probability assigned to abortion is high, risk-taking is more likely. The data come from interviews with 425 teenage women in New York. The findings offer support for the Luker model since in an equation also including background variables and level of ego development, four of the six Luker variables (the subjective probabilities of pregnancy and abortion, and the disadvantages of pregnancy and birth control) are significantly related to pregnancy risk-taking. The most parsimonious model to explain risk-taking includes five Luker variables, as well as welfare history, a measure of previous risk-taking, and level of ego development.

MIGRATION STRATEGIES, MIGRATION INTENTIONS, AND MIGRATION DECISIONS
Organized and Chaired by
James T. Fawcett, East-West Population Institute

Constraints, Satisfaction, and Residential Mobility: Speare's Model Reconsidered
Nancy S. Landale, Department of Sociology, University of Washington, DK-40, Seattle, WA 98125; and Avery M. Guest.

The authors investigate the role of satisfaction with home and satisfaction with local community in the metropolis as predictors of thoughts about moving and actual mobility during a one-year time period. The analysis tests the mobility model set forth by Speare (1974) using data for Seattle but does not replicate many of the principal arguments on the ways satisfaction influences mobility. Overall, the data strongly emphasize structural influences on mobility behavior.

The Best-Laid Plans: Migration Intentions and Behavior in the Philippines
Robert W. Gardner, East-West Population Institute, East-West Center, 1717 East-West Road, Honolulu, HI 96848; Ricardo G. Abad; and Gordon F. De Jong.

The authors analyze pertinent data from the Philippine Migration Study, a study of migration from a rural Philippine province to Manila and to Hawaii. A panel design permits assessment of objective and subjective factors associated with migration intentions and subsequent behavior. Almost half of those intending to move within two years and over 85 percent of those not intending to move behaved as they had intended. In multivariate analyses used to test a predictive model, it is found that the demographic, socioeconomic, and sociopsychological factors that explain much of the variation in migration intentions also explain variation in subsequent behavior. Many of the

inconsistencies between intentions and behavior occur because of unanticipated constraints, such as unforeseen costs and problems with visa and passport procedures. Reinterviews also reveal that many individuals who had intended to move but were unable to do so still intend to move in the future, indicating a greater correspondence between intentions and behavior after the passage of more time.

Migration Intentions and Migration Behavior in Rural Kenya

Michael Wrigley, Center for the Study of Population, Florida State University, Tallahassee, FL 32306; and David F. Sly.

Data collected in a two-round survey of young people in Kenya are used to address two basic questions fundamental to assessing the role of micro theories of migration in less-developed countries. Since a decision is assumed in all micro theories, the first question asked is who decides and who does not. Using data collected before the move, the authors find that about 35 percent of the respondents are in a decision-making state, and using data collected nine months later reveals that 30 percent of these people did move. Equally important though is the fact that 22 percent of the nondecision processors also moved and that of all migrants only 41 percent were decision processors. The second, and far more complicated, question addressed centers on the extent to which factors and conditions existing prior to migration affect decision processors and nondecision processors differently.

Rural-Urban Mobility in Thailand: A Decision-Making Approach

Theodore D. Fuller, Department of Sociology, Virginia Polytechnic Institute and State University, Blacksburg, VA 24061; Paul Lightfoot; and Peerasit Kamnuansilpa.

An individual, behavioral model of the decision-making process leading to rural-urban mobility is explicated and applied to longitudinal data from Northeast Thailand, in a context dominated by circular rural-urban movement. The individual-level variables included in the model are: recent mobility history, urban social contacts, information about urban areas, evaluations of various locations, migration plans, and actual movements in the period subsequent to an initial interview. The empirical results provide relatively strong support for the model. The authors note that if intervention in this migration process was to be considered, information would appear to be a key variable.

Use of Intentions Data in Refining the Functional Specification of Models of Family Migration Decision-Making: An Analysis of Egyptian Survey Data

Thomas M. McDevitt, Carolina Population Center, University of North Carolina, University Square 300A, Chapel Hill, NC 27514; and Saad M. Gadalla.

In this paper, the authors explore the role of the expectations of husbands and wives with respect to origin-destination differentials in income, employment, educational opportunities, and housing, controlling for personal characteristics of both spouses, in planned out-migration from four villages in Menoufia Governorate, Egypt. The data used allow comparison of (1) models of intended migration that incorporate only the characteristics of the household head and of the household itself (e.g., household size or economic status), (2) models that include the characteristics of both spouses, (3) models that include the expectations of one or both spouses with respect to origin-destination opportunity differentials, and (4) models that also recognize husband-wife differences in appraisal of those differentials. Theoretical, survey design, and estimation questions are addressed.

ISSUES IN THE STUDY OF FERTILITY TRANSITIONS
Organized and Chaired by
John Knodel, University of Michigan

Changing World Prices, the Wages of Women and Men, and the Fertility
Transition: Sweden, 1860-1914
T. Paul Schultz, Economics Department, Economic Growth Center, Yale
University, Box 1987, New Haven, CT 06520.

The objective of this paper is to test three hypotheses with Swedish data
for counties from 1860 to 1914. First, do changing local prices of basic
traded agricultural commodities help to explain the cross-sectional variation
and changes over time in male and female wages in Sweden? Second, do women's
and men's wages exhibit the anticipated association with total and age-
specific fertility rates, with and without controlling for child mortality,
urbanization-industrialization, and the rising general standard of living?
Third, given the likelihood that factors other than shifts in the demand for
labor influence observed wages of men and women in agriculture, can the
exogenous time-series variation in international commodity prices, plus the
smaller intercountry variations in prices, provide a valid instrument for
estimating the responsiveness of fertility to exogenous changes in male and
female wages? The author seeks to test the gist of the demand hypothesis that
assigns importance to autonomous variation in market prices and sex-specific
wage rates in governing the onset and pace of the modern historical fertility
decline in the West.

Schooling and Demand for Children: Historical and Contemporary Perspectives
Jee-Peng Tan, International Bank for Reconstruction and Development (World
Bank), 1818 H Street NW, Room D1126, Washington, DC 20433; and Michael R.
Haines.

Previous research by the authors has found that fertility decline appears
to occur once a relatively high level of primary-school enrollment is achieved
and when secondary-school enrollment begins to increase rapidly. The original
study focused on the historical experience of five developed countries
(England, Germany, Sweden, the United States, and Japan) as well as the more
recent experience of 18 developing countries between 1950 and 1980. The basic
organizational framework for the study was the cost of children and the
quantity-quality trade-off, with some additional attention paid to Caldwell's
theory of shifts in intergenerational transfers. In the present paper, the
authors explore the relationship by constructing a time series of cross-
sectional data for presently developed countries since 1900 and for developing
countries since 1950. The focus is on determining regularities of the
relationship of primary- and secondary-school enrollment rates to fertility
levels and change (prior or prospective), while controlling for the
covariation of select socioeconomic and demographic characteristics.

The Threshold Hypothesis: Latin America, 1950-1980
Phillips Cutright, Department of Sociology, Indiana University, Ballantine
Hall (744), Bloomington, IN 47405; and Lowell Hargens.

A threshold hypothesis that holds that fertility will decline from
traditional high levels if threshold levels of life expectancy and literacy
are surpassed is tested. The authors present a pooled regression analysis of
1950, 1960, 1970, and 1980 crude birth rates (CBRs) in 20 less developed Latin
American countries, in conjunction with 10 years lagged measures of social,
economic, and family planning program development. The analyses performed
reveal statistically significant effects of passing Beaver's (1975) threshold
levels of 1950 literacy (or 1950 life expectancy). These effects are
independent of levels of lagged literacy (or lagged life expectancy), economic
development, and family planning program development, as well as of measures
that control for period effects.

Women's Status and Childbearing on the Eve of a Fertility Transition: Upper Volta, 1983
Francine van de Walle, Population Studies Center, University of Pennsylvania, McNeil Building, 3718 Locust Walk CR, Philadelphia, PA 19104; and Nassour Ougidou.

Several hypotheses have linked the status and role of women with fertility. The authors explore these hypotheses in an urban population of Upper Volta where a regime of natural fertility prevails. They discuss the compatibility of high fertility with such factors as communication between husband and wife, type of marriage, and occupational, domestic, and maternal roles of women. They also look at education of the mother, attitudes toward family size, knowledge of contraception, and women's motivations toward further childbearing. The findings combine statistical information from a large multi-round survey and taped in-depth interviews with a subsample of women to provide qualitative insights.

CHANGES IN THE WESTERN FAMILY:
TEMPORARY FLUCTUATIONS OR STRUCTURAL TRANSITION?
Organized and Chaired by
Ron Lesthaeghe, Vrije Universiteit Brussel

The Impact of Changing Family Patterns on Reproductive Behavior: Nonmarital Cohabitation and Fertility in Norway
Ann Klimas Blanc, Office of Population Research, Princeton University, 21 Prospect Avenue, Princeton, NJ 08544.

The relationship between nonmarital cohabitation and fertility is examined in this paper. As a result of the growing popularity of cohabitation without marriage in many Western European countries and in the United States, the childbearing behavior of women who spend a part of their adult years in nonmarital unions is likely to play an increasingly important role in the determination of fertility patterns in these countries.
Recent Scandinavian survey data are used to carry out life table analyses of the age at entry into nonmarital unions, to examine the characteristics of women who enter such unions, and to compare these women with women who enter traditional marriages. In addition, the legalization of nonmarital unions and the dissolution of both cohabitations and marriages are described. The analysis then turns to a consideration of the effect of nonmarital cohabitation on womens' age at the time they begin childbearing and on both the number and spacing of births.

Determinants of the Timing and Incidence of First Marriage in the United States
David E. Bloom, Department of Economics, Harvard University, Cambridge, MA 02138; and Neil G. Bennett.

Recent nuptiality patterns in the United States are analyzed in an attempt to estimate cross-cohort changes in the timing and incidence of first marriage and to identify the social and economic correlates of those patterns. A parametric marriage model is fit to survey data on age at first marriage for successive birth cohorts separately for three recent data sets.
The principal results are: (1) age at first marriage is increasing slightly across cohorts; (2) the incidence of first marriage is decreasing across cohorts, with the magnitude of the decrease being particularly large for black women; (3) the effect of education on the incidence of first marriage is small for the older cohorts, although it appears to be increasing among recent cohorts; (4) education has a positive and stable effect on age at first marriage; and (5) the empirical findings are strongly consistent across the three data sets, which utilized different sample designs and were collected at different points in time.

<u>Couples</u> <u>without</u> <u>Children</u>: <u>Premarital</u> <u>Cohabitation</u> <u>in</u> <u>France</u>
Elwood Carlson, Department of Sociology, University of South Carolina,
Columbia, SC 29208.

A 1977 survey of young adults in France, conducted by the Institut
National d'Etudes Démographiques, reveals social variations in incidence of
cohabitation similar to those observed in the United States and other nations.
In contrast to married couples, cohabiting couples have fewer children.
Interpretations of this fertility contrast are explored, in terms of an
underlying current of change from consanguine to conjugal family forms.
Cohabitation without children, without marriage, and without other kin-based
entanglements may in fact represent the "purest" ultimate form of the conjugal
family as a collective representation.

<u>American</u> <u>Household</u> <u>Structure</u> <u>in</u> <u>Transition</u>
Paul C. Glick, Department of Sociology, Arizona State University, Tempe, AZ
85281.

The actual decline since 1970 in the number of American households that
include a husband, a wife, and one or more of their young children is
documented in this paper. Consideration is given to the tremendous increase
since 1960 in the number of households of three types: one-parent households,
one-person households, and unmarried-couple households. Each type has more
than doubled since 1960, and many subcategories classified by age, sex, and
marital status of the householder have increased more than 500 percent, some
as much as 1,500 percent. These developments have significantly affected the
distribution of living arrangements of young children. Some projections and
the social implications of these trends are discussed in the concluding
section. Despite the continuing transition of American household structure,
three of every four Americans today still are members of married-couple
households. Moreover, there is ample reason to expect that changes in
household structure will occur at a much slower pace during the next decade
than they have occurred during the last decade or two.

COSTS AND BENEFITS OF PARENTHOOD
Organized and Chaired by
Linda J. Waite, Rand Corporation

<u>The</u> <u>Consequences</u> <u>of</u> <u>Parenthood</u> <u>for</u> <u>the</u> <u>Activities</u> <u>of</u> <u>Young</u> <u>Adults</u>
Linda J. Waite, Rand Corporation, 1700 Main Street, Santa Monica, CA 90406;
and Gus Haggstrom.

An examination of how the first birth affects the work activities of
young men and women is presented. The authors describe changes, trace the
mechanisms through which they occur, and compare actual activities with those
they estimate would have occurred without the birth. Data are from the U.S.
National Longitudinal Study of the Class of 1972. The results show that most
young women work prior to pregnancy but quit as the birth approaches, so that
only one-fifth remain at work in the month of the first birth. Two years
later, employment rates for mothers have risen to 60 percent of previous
levels. In the absence of parenthood, it is found that these mothers would
have had an increase in employment and that the real deficit due to parenthood
exceeds that implied by a before-after comparison. The largest contributor to
decreased employment following parenthood is labor force withdrawal; women who
retain their jobs show very modest declines in hours at work and few changes

in job characteristics. Parenthood affects men's employment only slightly, mostly operating through increased overtime during the pregnancy and following the birth.

The Temporal Relationship between Labor Force Participation and Intended and Unintended Fertility: Racial and Religious Comparisons in the United States

Frank D. Bean, Department of Sociology, University of Texas, Austin, TX 78712; and Elizabeth Hervey Stephen.

This paper has two main objectives: (1) the specification of a temporal model of relationships between female labor force supply and both intended and unintended fertility; and (2) the development and testing of hypotheses about the ways in which sociocultural and socioeconomic contexts might impinge on decisions about childbearing and labor force participation for different groups of women. Using a data file that merges three recent national fertility surveys, the authors examine these relationships separately for white Catholics, white non-Catholics, and blacks. The results indicate that, for whites, intended and unintended fertility do not both relate to work involvement as both a determinant and a consequence. As predicted, unintended fertility is more constraining of labor force participation than is intended fertility.

A Cohort Analysis of the Opportunity Cost of Children

Barbara L. Devaney, Mathematica Policy Research, P.O. Box 2393, Princeton, NJ 08540.

This paper is a cohort analysis of the opportunity costs of childrearing, with opportunity costs defined as the earnings forgone by women as a result of having children. The empirical results suggest that the primary wage effect comes from the initiation of childrearing, as only the first-order birth has a significant effect on wages. The labor supply effects come from the first three births, with the first and third births reducing female labor supply and the second child exerting a positive influence on labor supply. In addition, the primary labor supply effects are changes in the labor force participation rates of mothers, rather than changes in hours of work of working mothers. The estimated coefficients of the wage and labor supply equations are used to generate a series of projections of the opportunity costs of the first child. From the mother's perspective, the first child implies a loss of earnings in the range of 30,000 to 45,000 dollars.

The Impact that Children Have on Parents' Time Allocation Decisions

Jennifer L. Gerner, Department of Consumer Economics, Cornell University, 137 Martha Van Rensselaer Hall, Ithaca, NY 14853.

In this paper, the effect that children have on the joint determination of time allocation for husbands and wives is examined. To do this, the author hypothesizes that households maximize a single household utility function that varies by family structure. From this maximizing process comes a system of demand equations that includes the time allocated to household activities by husbands and wives and that makes it possible to identify the impact of ages and sex of children. The data used to estimate the system consist of a sample of 2,000 two-parent, two-child households and were collected in 11 U.S. states in 1977-1978. Two specifications are estimated, each allowing examination of the impact of a different aspect of family structure on time allocation. In the first, it is found that there are economies of scale to having children close together rather than far apart, and these economies operate for both husband and wife. In the second, it is determined that wife's time is most strongly affected when the younger child is young. Husbands are unlikely to add much time to nonmarket work when the younger child is between 2 and 11.

THE INTERNATIONAL POLITICS OF POPULATION: FROM BUCHAREST TO MEXICO CITY
Organized and Chaired by
Donald Heisel, United Nations Population Division

World Population Growth and the Policy of Nations
Ambassador Richard E. Benedick, U.S. Department of State, Washington, DC
20520.

The third world remains in a phase of rapid population growth without
precedent in human history. Population growth of such dimensions, occurring
in areas already experiencing widespread poverty, increases the costs and
difficulties of economic development. The pressure of numbers aggravates
problems of malnutrition, health, deforestation, and water supply. Frustrated
economic aspirations, high unemployment among young adults, and overcrowding
of cities add to potential dangers of political instability, social unrest,
and mass migrations.
Evidence from countries with widely varying economic, social, and
religious backgrounds indicates that relatively inexpensive family planning
programs can help lower population growth rates. In August 1984, an
International Conference on Population will take place in Mexico City,
offering a unique opportunity to strengthen the international consensus on
actions needed to address population problems.

The Next Frontier in Population Policy
Nancy Birdsall, International Bank for Reconstruction and Development (World
Bank), 1818 H Street NW, Washington, DC 20433.

Proposals for reducing rapid population growth in developing countries
raise difficult questions about the proper domain of public policy. Family
and fertility are areas of life in which the most fundamental human values are
at stake. In this paper, two reasons for a public policy to reduce fertility
are discussed. First is the potential gap between the private and social
gains from many children: the isolation paradox. Second is the fact that
many couples have more children than they want or would want, given better
access to family planning information and services. The policies that are
needed clearly include family planning services, education and health
services, and better opportunities for women. In addition, the next frontier
in population policy involves economic incentives, a mechanism by which
societies can compensate individuals willing to defer or forgo the benefits of
an additional child. Experience and problems with incentive programs are
discussed.

International Conference on Population, 1984: The View of UNFPA
Jyoti S. Singh, United Nations Fund for Population Activities, 220 East 42nd
Street, New York, NY 10017.

The major difference between the World Population Conference (Bucharest)
and the forthcoming International Conference on Population (Mexico City) is
that the Bucharest conference was convened under the pressure of developed
countries, whereas in the case of the Mexico conference, it is the developing
countries that have taken the initiative. During the last 10 years, most of
the developing countries have become involved in formulating and implementing
population policies and programs, and the Mexico conference will provide the
opportunity for a review of their successes in the population field as well as
of the problems they face. It should thus enable both governments and the
international community to formulate specific suggestions and recommendations
for further action. Whereas the discussions in Bucharest were theoretical to
a large extent, the discussions in Mexico will be, it is hoped, operation-
oriented. The work done by the Preparatory Committee of the Conference, which
has formulated 85 recommendations, and the results of all the regional
meetings that have taken place augur well for the success of the conference.

From Bucharest to Mexico City: Evolution of the AID Population Program
Steven W. Sinding, Office of Population, U.S. Agency for International Development, Washington, DC 20523.

As a response to the rapid increase in world population, U.S. population assistance has become widely accepted and has demonstrated proven successes. Yet, at a time when developing country needs are expanding, further successes are imperiled by resource scarcities that result in serious shortfalls of U.S. and other major donor assistance. Past experience has shown that family planning services are of interest to the people of developing countries; that program success is affected by favorable socioeconomic setting, strong management, political support, private sector involvement, and resident field staff; that program growth will eventually plateau; and that plateaus in assistance can contribute to declining program performance. Successful implementation of AID's strategy in future years will depend upon: setting further priorities for allocations in order to enhance efficiency; remedying performance plateaus; delivering additional evidence of the successes of assistance; increasing emphasis on the management component of population programs; and increasing coordination with other donors.

ISSUES IN HISPANIC DEMOGRAPHY: SETTLEMENT AND PROGRESS OF IMMIGRANTS
Organized and Chaired by
Douglas S. Massey, University of Pennsylvania

Geographic Distribution of Undocumented Immigrants: Estimates of Undocumented Aliens Counted in the 1980 Census by State
Jeffrey S. Passel, Population Division, U.S. Bureau of the Census, Washington, DC 20233; and Karen A. Woodrow.

The authors present estimates of the number of undocumented aliens in each state who were counted in the 1980 U.S. census. These estimates are not based on individual records but are aggregate estimates derived by a residual technique. The census count of aliens (modified somewhat to account for deficiencies in the data) is compared with estimates of the legally resident alien population based on data collected by the Immigration and Naturalization Service in January 1980. Estimates are developed for each of the states for selected countries of birth, age, sex, and period of entry.
Roughly half of the 2.06 million undocumented aliens counted in the census reside in California (1.02 million). New York (231,000), Texas (186,000), Illinois (135,000), and Florida (85,000) account for the majority of the remainder. Undocumented aliens are shown to reside in areas with large numbers of documented aliens. The differences in geographic distribution between documented and undocumented aliens are not large and can be accounted for by two main factors. First, the undocumented alien population has proportionately many more Mexicans than the legally resident aliens—55 percent versus 22 percent. Second, California, as the state with the largest numbers of both Mexican and non-Mexican undocumented aliens, has a disproportionate share of the undocumented population as compared with its population of legally resident aliens.

Kinship Assistance in the Settlement Process: Dominican and Colombian Cases
Mary M. Kritz, Rockefeller Foundation, 1133 Avenue of the Americas, New York, NY 10036; and Douglas T. Gurak.

On the basis of data from a life-history probability survey of Dominican and Colombian immigrants in New York City, the role of kinship assistance in

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the immigration and settlement process is described, and its impact on cultural and structural integration is examined. A path model is developed that assesses the relative importance of kinship assistance, immigrant background, and social and demographic characteristics as determinants of cultural and structural integration by sex. While immigrants rely heavily on relatives to assist them with their initial housing, employment searches, and adjustment, immigrants receiving such assistance score lower on English-language ability, socioeconomic status, and income attainment.

Determinants of Earnings among Three Groups of Mexican Americans: Undocumented Immigrants, Legal Immigrants, and the Native Born
David M. Heer, Population Research Laboratory, University of Southern California, Los Angeles, CA 90007; and Dee Falasco.

The data for this study were obtained from two systematic samples of Los Angeles County birth certificates in which either the mother or the father of the baby was reported to be of Mexican origin and in which the mother was either born in or outside of the United States. Multivariate analyses are conducted with three dependent variables: (1) the natural log of annual earnings in hundreds of dollars in 1979, (2) total hours worked in 1979, and (3) the natural log of the average hourly wage in dollars in 1979. For both father and mother, it is found that being legal rather than an undocumented immigrant has a statistically significant positive impact on the hourly wage. Findings concerning the impact of other independent variables on the hourly wage and other dependent variables are also reported.

Occupational Mobility among Mexican Migrants to the United States
Brendan Mullan, Population Studies Center, University of Pennsylvania, McNeil Building, 3718 Locust Walk CR, Philadelphia, PA 19104.

The occupational mobility of Mexican migrants to the United States is conceptualized as having two distinct phases: that of labor market entry and that occurring within the U.S. labor market. Log-linear and multivariate analyses are performed on 1982-1983 data from four Mexican sending communities to examine this mobility. Occupational immobility and a pronounced rural-urban difference are dominant findings. Also, the importance of agriculture as a destination occupation is striking.

STATISTICAL DEMOGRAPHY
Organized and Chaired by
Toni Richards, Princeton University

Logistic Regression Multivariate Life Tables: A Communicable Approach
David Guilkey; and Ronald R. Rindfuss, Department of Sociology, University of North Carolina, Chapel Hill, NC 27514.

The purpose of this paper is to demonstrate the use of logistic regression in estimating multivariate life tables. The method segments the duration of an event and calculates separate estimates of the q life table parameter in each segment. The authors then show how to estimate the entire time path in one step and how to test for a proportional hazards method. Two examples are presented: one examines the timing of first births in eight Asian countries; the other examines child spacing in the United States. The second example illustrates the ease with which time-varying covariates can be entered into the model.

Determinants of Child Spacing: Methods of Analysis with Application to Educational Effects on Birth Intervals

Anouch Chahnazarian, Office of Population Research, Princeton University, 21 Prospect Avenue, Princeton, NJ 08544; Jane Menken; and Minja Choe.

In several recent articles, Rindfuss, Bumpass, and Palmore and their colleagues suggest that determinants of birth interval lengths should be analyzed separately for different duration segments of the overall birth interval. They use standard regression techniques, especially multiple classification analysis or logistic regression, to examine determinants of birth intervals. There are, however, several other methods for multivariate analysis of life tables that permit birth interval segments (or duration categories) to be treated simultaneously.
If all variables believed to affect intervals can be treated as categorical, hazard models are appropriate for this type of analysis. If, however, variables can be specified as continuous, then logistic regression with birth interval segments appearing as explanatory variables can be used to estimate the models. In both of these cases, the time-dependence of the effects of other determinants is captured through their interactions with these segment variables. In this paper, a comparison is made among the four methods described. The substantive question addressed pertains to the impact of education on birth intervals.

Proportional Hazards Models for Current Status Data: Application to the Study of Age at Weaning Differentials in Pakistan

Ian Diamond, Department of Social Statistics, University of Southampton, Southampton SO9 5NH, England; John W. McDonald; and Iqbal Shah.

Survival analysis can be used to study the association between a set of explanatory variables and the age at which an event of interest, say weaning, occurs. As retrospectively reported age data often contain serious reporting errors, many analysts prefer to use current survival status data. In this paper, the authors discuss two approaches to fitting survival models to current status data from the Pakistan Fertility Survey. A generalized linear model approach using constrained maximum likelihood estimates proves computationally expensive, and so a transformation of the baseline hazard is modeled using spline functions.

Estimating Continuous-Time Birth Processes with Longitudinal Data: An Integrated Approach

James J. Heckman, Department of Economics, University of Chicago, 1126 E. 59th Street, Chicago, IL 60637; V. Joseph Hotz; and Burton Singer.

An integrated multistate continuous-time model is developed to investigate systematically the socioeconomic determinants of the timing and spacing of births over a typical woman's life cycle. The authors estimate flexibly parameterized hazard functions, i.e., functions that measure the instantaneous probability of a birth occurring. These hazard rates are specified to be dependent on: (1) the woman's current parity, (2) the duration since last birth, (3) time-invariant and time-varying socioeconomic variables (such as the woman's education and the annual income of the household in which she resides), and (4) unobserved variables that take on a factor analytic structure. The models are estimated using longitudinal U.S. data for young women drawn from the Panel Study of Income Dynamics. The authors attempt to uncover empirical regularities characterizing birth processes using a variety of alternative estimation methods and hazard function specifications and to determine the robustness of these "facts" to such estimation and specifications. Such analysis is needed given that most previous economic research on the determinants of fertility has focused on static models of completed family size with little attention given to dynamic considerations.

STATE AND LOCAL DEMOGRAPHIC ESTIMATES
Organized and Chaired by
Jeff Tayman, San Diego Association of Governments

A Special Consideration in Improving Housing Unit Estimates: The Interaction
Effect
Theresa J. Lowe, Office of Financial Management, Policy Analysis and
Forecasting, State of Washington, Mail Stop AQ-44, Olympia, WA 98504; William
R. Myers; and Lawrence M. Weisser.

The integrity and accuracy of the housing unit method in preparing local
population estimates has been substantiated in recent studies. An evaluation
of 1980 population estimates for 211 Washington cities provides further
support for the accuracy of this method. The error in each estimated data
component of the method is also examined in relation to the error in the
population estimate. Results indicate that the interaction of errors in the
estimated components of the method is an important consideration in refining
the method. More precise estimates of any given data component (e.g., housing
stock and occupancy rates) do not necessarily improve the accuracy of the
population estimates.

Test of a Medicare Change Model for Substate Estimates of the Elderly
Population
Scott Campbell Brown, Center for Assessment and Demographic Studies, Gallaudet
Research Institute, Gallaudet College, Washington, DC 20002.

Throughout the 1970s, the U.S. Bureau of the Census has used the Medicare
enrollment data series to estimate the number of elderly persons in the United
States. This procedure involves adding the respective county change in
enrollees 65 and over to the number of persons 65 and over living in a county
who were enumerated in the previous census. The result is an updated county
estimate of the older population. Using 1970 census data and Medicare data
from 1970 to 1980 to replicate the census methodology for the 21 counties that
compose the state of New Jersey, the author compares 1980 estimates for these
counties with the 1980 census counts. Two other methods of estimating the
elderly population are also shown. The first applies county 1980 to 1970
ratios of the Medicare enrollment to elderly persons living in the counties in
1970, while the second uses simple linear regressions to yield estimates.
When all of the estimates are compared with the 1980 census counts, it is
concluded that the coverage of the Medicare data influences the quality of a
county estimate of the population 65 years of age and over to a greater extent
than any given estimating methodology. Given intercensal changes in Medicare
coverage, procedures may need to be developed either to improve the data or to
take into account possible changes in the percent of persons 65 and over who
enroll under Medicare.

A Micro Application of a Modified Housing Unit Model for Tract-Level
Population and Household Estimates
Kenneth Hodges, Donnelley Marketing Information Services, 1351 Washington
Boulevard, Stanford, CT 06905; and Mary Kay Healy.

For purposes of direct mail applications, Donnelley Marketing maintains a
continuously updated file comprising the names and addresses of all persons
listed in the 5,000 telephone and city directories published in the United
States. This data base contains approximately 60 million records geocoded to
census tract and minor civil division levels and serves as the input data for
the production of over 66,000 population and household estimates annually.
These data are incorporated into a modified housing unit method using rates of
change and independently derived estimates of average household size. In this
paper, the authors outline the method and present results of evaluations of
the estimates in comparison with 1980 census counts.

Improving the Accuracy of Postcensal Projections of the Civilian
Noninstitutional Population
Kenneth C. Land, Population Research Center, University of Texas, Austin, TX
78712; and George C. Hough, Jr.

Estimates of the civilian noninstitutional population define the sample
frame of most major national sample surveys and are used as denominators in
the computation of prevalence rates for various sociodemographic phenomena
such as labor force participation and school enrollment. Current U.S. Bureau
of the Census methods for projecting the civilian noninstitutional population
beyond the latest decennial census rest upon the assumption that the age-sex-
race-specific proportions of the population that are institutionalized--as
estimated by the last decennial census--remain constant until the next census.
The authors examine the empirical validity of this assumption using data from
the decennial censuses for 1940 through 1980 and, in light of substantial
decade-to-decade changes in the age patterns of the institutional proportions
for sex- and race-specific populations, seek to develop alternative methods.
These alternatives include fitting parametric curves to the institutional
proportions and studying the consequent changes over time.

Generalized System for Evaluation and Production of Total Population Estimates
for Subprovincial Areas
Ravi B. P. Verma, Demography Division, Statistics Canada, Jean Talon Building,
4th Floor, Tunney's Pasture, Ottawa, Ontario KlA 0T7, Canada; K. G.
Basavarajappa; and R. K. Bender.

A generalized system for evaluating and producing total population
estimates for subprovincial areas is presented. The system contains five
modules, TRANS, UPDAT, MODEL, ERANA, and PRODUC. Subroutines have been
writtin in PL1 language for various methods of population estimation:
component, proportional allocation, ratio-correlation, difference-correlation,
and vital rates. The system also incorporates methods for producing modified
regression estimates using weights for controlling heterogeneity of variance
of the error term and multicollinearity.

POPULATION DISTRIBUTION TRENDS OF U.S. RACIAL AND ETHNIC GROUPS
Organized by Karl E. Taeuber, University of Wisconsin at Madison
Chaired by Harold M. Rose, University of Wisconsin at Milwaukee

Patterns of Rural-Urban Redistribution among Blacks and Nonblacks: 1950-1980
Daniel T. Lichter, Department of Sociology, Pennsylvania State University,
Liberal Arts Tower, University Park, PA 16802; Glenn V. Fuguitt; and Tim B.
Heaton.

The authors examine recent black and nonblack rural population change and
urban-rural population deconcentration in the United States during the
1950-1980 period. Using population counts from the U.S. decennial censuses,
they examine shifts in the distribution of blacks and nonblacks across various
size-of-place categories within nonmetropolitan counties. They also document
changes in black and nonblack rural and urban growth rates across
nonmetropolitan counties grouped by region, proximity to metropolitan
counties, and levels of urbanization. Results reveal that urban-rural
deconcentration during the 1970s was largely a nonblack phenomenon. Although
the findings indicate a rather pervasive turnaround from rural black decline
during the 1950s and 1960s to rural growth during the 1970s, nonmetropolitan
blacks nevertheless continued to concentrate in urban areas.

Mover Destination Selectivity and the Changing Suburbanization of Metropolitan Whites and Blacks

William H. Frey, Population Studies Center, University of Michigan, 1225 South University Avenue, Ann Arbor, MI 48104.

Citing post-1970 changes in the ecology of declining U.S. metropolitan areas, in the composition of households, and in race relations, urban analysts have suggested that white and black intrametropolitan population redistribution patterns within large older SMSAs may be departing significantly from those observed during the immediate post-World War II decades. In the present investigation, the nature of these redistributional changes is evaluated using fixed-interval migration data for the periods 1955-1960, 1965-1970, and 1975-1980. The findings indicate that while white suburbanward redistribution has slowed during the post-1970 period, the slowdown cannot be attributed to a greater city attraction for the young adult, high-status, career-oriented whites who are often associated with "city revival". However, the recent suburbanward redistribution of metropolitan blacks constitutes a genuine departure from the past and is similar to the white suburbanward redistribution of the 1950s.

Suburbanization as a Sociological and Ecological Process

Sean-Shong Hwang, Department of Rural Sociology, Texas A & M University, College Station, TX 77843; and Steve H. Murdock.

A synthesized theory that views population suburbanization as a residential adaptative process reflecting the cultural idealization of the suburb, the structural characteristics of suburbs, and the characteristics of the population involved in the process is presented. Hypotheses based on this theory are tested using the suburbanization experiences of four population groups in 109 suburbs in Texas. The hypothesis that population suburbanization is positively associated with the positive image of suburbs is strongly supported for the total and the white population models but is less adequately supported for blacks and Spanish Americans because of social structural barriers that restrict the suburbanization of racial and ethnic minorities. The addition of indicators of these factors leads to substantial improvements in the predictive ability of the black and Spanish models. In general, the results support the synthesized theory of population suburbanization.

The Trend in Metropolitan Racial Residential Segregation

Karl E. Taeuber, Center for Demography and Ecology, University of Wisconsin, 1180 Observatory Drive, Madison, WI 53706; Franklin W. Monfort; and Perry A. Massey.

During the 1970s, black central city population in the United States increased by 2.2 million, suburban population by 2.5 million. Twenty-nine percent of metropolitan blacks lived outside of central cities in 1980. Two prior studies reported segregation indexes for 1960 and 1970 based on census tract data for metropolitan areas. According to one, segregation indexes showed little change; the other concluded that metropolitan residential segregation increased during the 1960s. Demographic, political, and social changes during the 1970s produced contradictory perceptions of the decade's trend in metropolitan segregation. Indexes of dissimilarity for 36 metropolitan areas of more than 1 million population reveal a universal pattern of declining black-nonblack segregation from 1970 to 1980. The mean score dropped from 80 to 71, and 25 of 36 areas had decreases of more than 5. Average decreases were smaller for the very large northern metropolitan areas with more than 10 percent black population. The pace of decline is remarkable in contrast to the past but is not sufficient to transform rapidly the prevailing high levels of segregation. The 1980 values of the index of dissimilarity, the average exposure of nonblacks to blacks, and the average exposure of blacks to nonblacks all document the persistence of metropolitan racial residential segregation.

THE TIMING OF CHILDBEARING
Organized and Chaired by
Lee E. Edlefsen, University of Washington

Lifetime Fertility Objectives and Economic Analysis of the Age Pattern of Childbearing
Charles A. Calhoun, Center for the Study of Population, Florida State University, Tallahassee, FL 32306.

The problem of simultaneously estimating the age patterns of cumulative fertility and female labor force participation from cross-section data is confounded by the fact that a random sample of women will include individuals who have terminated childbearing, do not participate in market work, or both. In this paper, a simultaneous limited dependent variables model of age-specific cumulative fertility and female labor supply is derived and then estimated by the method of maximum likelihood. Observed cumulative fertility at each age is assumed to be limited by desired lifetime numbers, thereby extending the usual "Tobit" model, which accounts for the effect of nonparticipation in market work. Inferences about the age pattern of childbearing for working and nonworking women are then possible. The model is applied to U.S. data from the ninth wave of the Panel Study of Income Dynamics (wives interview).

The Determinants of Fertility Levels and Timing: An Application of Parametric Survival Analysis
John W. Molyneaux, Carolina Population Center, University of North Carolina, Chapel Hill, NC 27514.

An estimator designed to evaluate how exogenous factors influence both the age pattern and level of fertility is developed. Anomalous variations between the patterns of age-specific fertility rates in two Brazilian frontier settlement projects suggest that these patterns may vary independently of the level of childbearing (as indicated by the total fertility rate). To adjust for systematic differences in fertility patterns, two different functional forms are fit to the observed age-specific birth probabilities. Each of these (the Box-Cox transformation of the normal distribution and the Coale-McNeil distribution) has the desirable property that the influence of exogenous factors on the pattern and level of childbearing may be estimated as coefficients on three parameters, which may be loosely interpreted as the mean age of childbearing, the variance of births about that mean, and the cumulative probability of all births (i.e., the cumulative fertility at the end of the woman's childbearing years).

A Stochastic Dynamic Model of Fertility
John L. Newman, Department of Economics, Tulane University, New Orleans, LA 70118.

A model that considers both births and deaths to be stochastic and has parents exercising control over their probabilities of births in a dynamically optimal fashion is presented. In contrast to previous dynamic models, this one has a closed-form analytic solution. The model provides an explanation for the trend in the lengths of birth intervals with parity that does not depend on declining fecundity and suggests how the behavioral explanation might be distinguished from the biological explanation. The model identifies the different ways that a variable can affect the fertility decision and derives comparative static results for particular variables. Finally, it provides insights into the differences between estimations of the risk of a birth and estimations of the number of births at different ages of the woman.

The Economics of Family Planning
V. Joseph Hotz, Graduate School of Industrial Administration, Carnegie-Mellon
University, Schenley Park, Pittsburgh, PA 15213; and Robert A. Miller.

The authors develop and estimate a model of household fertility behavior
over the life cycle. Based on the notion that the benefits of offspring
endure longer than their rearing costs (and therefore constitute a form of
family capital), the analysis predicts the timing and spacing of births, as
well as completed family size, in a stochastic, dynamic environment. Two
important predictions derived in the paper are that the conditional
probability of having another birth increases with the age of the youngest
child but is declining in current family size.
    The solution to the household's problem is characterized by a particularly
simple optimal decision rule. For any family size there exists a barrier,
such that if the household's current child care costs are below this barrier,
the parents should attempt to conceive; otherwise it is optimal to contracept.
Using U.S. panel data, the authors identify and estimate the barrier (which is
a declining function in family size) and test whether its theoretical
properties receive empirical support.

POPULATION/DEVELOPMENT/NUTRITION INTERACTIONS IN THE THIRD WORLD
Organized and Chaired by
Pan A. Yotopoulos, Stanford University

Population and Nutrition: Review of Selected Microanalytic Relationships
Barry Edmonston, International Population Program, Cornell University, 323
Uris Hall, Ithaca, NY 14853; and Reynaldo Martorell.

This paper focuses on key aspects of the relationship between
undernutrition and mortality in developing countries. The authors review the
nature and substance of the main mechanisms linking the nutritional and
demographic characteristics of infants and children, outline a conceptual
scheme of the major interrelationships among variables, and describe the
empirical evidence (that is, the direction and magnitude of associations) for
this scheme.

Child Nutrition and Family Size: Results from the Philippines
Susan Horton, Department of Economics, University of Toronto, 150 St. George
Street, Toronto, Ontario M6P 2X7, Canada.

The relationship between child nutritional status and family size is
tested in this study using the quality-quantity framework. The theory tested
predicts that number of children and average quality of children are inversely
related. The rationale behind this theory is that the cost of additional
children rises as average quality desired per child rises, and conversely that
it is more expensive to raise child quality with a larger family. Previous
tests of the theory have used education as a measure of quality but have not
as yet used nutritional status. Estimates of the determinants of desired
number of children and of child nutritional status are obtained both by single
equation and simultaneous equation methods. The independent variables include
expenditure, parental education, rural or urban location, water supply, and
family planning availability and knowledge. The data are from the Bicol
region of the Philippines.

Does Better Nutrition Raise Farm Productivity?
John Strauss, Department of Economics, Yale University, New Haven, CT 06520.

Household-level data from Sierra Leone are used to test whether higher
caloric intake enhances family farm labor productivity. This is the notion
behind the efficiency wages hypothesis, which has found only weak empirical

support. A farm production function is estimated, accounting for the simultaneity in input and calorie choice. An agricultural household model is used to develop a proper set of instruments, which include prices, household characteristics, and farm characteristics. The latter two sets of instruments are later dropped to explore the robustness of the results to different specifications of exogeneity. Various ways in which calories might enter the production function are explored, the results being quite robust to these. The exercise shows a highly significant effect of caloric intake on labor productivity, providing the first solid support for the nutritional-productivity hypothesis.

Do Austerity Policies Work? The Macroeconomics of Nutrition and Agricultural Development in a Low-Income Country
Qaiser M. Khan, Department of Economics, Bowdoin College, Brunswick, ME 04011.

Prices have been clearly demonstrated to be linked to agricultural output. As prices rise, farmers produce more. Recently, following foreign exchange shortages, many countries have been asked by the International Monetary Fund to adopt policies such as restricting price support. In very low income countries this could have the unintended effect of reducing output in agriculture. This is because effective demand is low, and the lack of demand in turn depresses prices. In the absence of government support, prices may fall even further. The impact of these changes on nutrition by economic class in rural Balgladesh is simulated in this paper.

NEW DIRECTIONS IN FORMAL DEMOGRAPHY
Organized and Chaired by
Michael A. Stoto, National Academy of Sciences

Swedish Population Projections: Confidence Intervals Based on Products of Random Matrices
Joel E. Cohen, Laboratory of Populations, Rockefeller University, 1230 York Avenue, Box 20, New York, NY 10021.

The need for probabilistically meaningful confidence intervals to accompany or replace traditional population projections is apparent from the failures of past projections to recognize realistically the extent of their own uncertainty. The author reports and evaluates the first use for human populations of new methods of projecting confidence intervals of future population size. These statistical methods, developed by Heyde and Cohen (in press) and Heyde (in press), apply martingale limit theorems to a demographic model for age-structured populations with stochastic fluctuations in vital rates. The assumptions that underlie the results of Heyde and Cohen (in press) and Heyde (in press) are defensible for and testable by a long time series of data on population size. The data analyzed are the total population sizes of Sweden at five-year intervals from 1780 to 1975 inclusive. Four checks of the model and of the proposed statistical techniques are carried out.

Some General Relationships in Population Dynamics
W. Brian Arthur, Food Research Institute, Stanford University, Stanford, CA 94305; and James W. Vaupel.

This paper extends the Lotka system of stable population equations to any population. The authors present this new general system and describe its duality with the recent Preston-Coale system. They derive these results by

considering the calculus of change on the surface of population density defined over age and time. They show that analysis of this Lexis surface leads to all the known fundamental relationships of the dynamics of single-region human populations, several interesting new relationships, and a duality between period and cohort life tables.

How Do Age-Specific Growth Rates Reflect the Impact of Past History upon the Current Age Structure? An Alternative Derivation of the Age-Distribution Equation
Shiro Horiuchi, Population Division, United Nations, Room DC2-1926, New York, NY 10017.

An equation has previously been proposed that expresses the proportional age structure of a population at a given time as a function of the demographic rates at that time. The equation has previously been derived by integrating the McKendrick-von Foerster partial differential equation with respect to age. This author proposes another derivation of the age-distribution equation and discusses some demographic implications of this deriviation. The derivation presented here clarifies an important role of age-specific growth rates in building a bridge between the demographic experiences of cohorts in the past and the corresponding demographic conditions at present.

Generalized Stable Population Theory
Marc Artzrouni, Department of Biostatistics, School of Public Health, University of North Carolina, Chapel Hill, NC 27514.

Constant age-specific mortality and fertility rates are sufficient (but not necessary) conditions for a population to be stable. In generalizing stable population theory, the author gives weak sufficient conditions (on mortality and fertility) under which a population reaches an asymptotic stable exponential equilibrium: if the dominant eigenvalues of the Leslie matrices converge rapidly (in a well-defined sense) to a value x, and if mortality rates converge, then each age group grows exponentially as x^t for large t. These conditions are also virtually necessary. Indeed, when a population reaches an asymptotic stable exponential equilibrium (with growth rate x), then mortality rates converge and the dominant eigenvalues of the Leslie matrices converge (simply) to x.

INSTITUTIONAL FACTORS AFFECTING FERTILITY
Organized and Chaired by
Mead Cain, Population Council

The Demographic and Economic Implications of the Production Responsibility System in Rural China
Lily Waiyee Lee, Population Council, One Dag Hammarskjold Plaza, New York, NY 10017.

The demographic and economic implications of the new production responsibility system in rural China are examined under two hypothetical scenarios. One scenario assumes that the production responsibility system will spark off a flourishing economy with demographic problems well under control. The other proposes that the current optimism regarding the production responsibility system is filled with serious long-term problems. Several key issues are identified to be of crucial importance in determining whether the demographic and economic development of China will resemble the

optimistic or pessimistic scenario. New data and observations on the population and economic scene of China are used to gain insights into probable future trends.

Child Fostering in Sub-Saharan Africa

Odile Frank, Center for Policy Studies, Population Council, One Dag Hammarskjold Plaza, New York, NY 10017.

Child fostering arrangements of various types are widespread in sub-Saharan Africa. These arrangements reduce the salience of high fertility and spread its costs within the population. Their presence may well be an important institutional support of the persisting high-fertility ethic. In this paper, the author discusses estimates of the prevalence of fostering and argues that it is especially important to women, who rely on the institution to make large families manageable, given the family structure and the domestic and economic division of labor of their societies, as well as their own life cycle childbearing needs. Fostering provides means for dealing with uncertainties and risks in women's lives, by allowing for immediate relief or rescheduling of childbearing costs, providing a mechanism to deal with imbalance in the availability of and need for child labor, introducing options in planning for children's futures, and improving the odds of receiving support in old age.

The Process of Proletarianization and Fertility Transition in Brazil

Paulo Paiva, Federal University, Brazil. Mailing address: CEDEPLAR, Universidade Federal de Minas Gerais, Rua Curitiba, 832—Salagos, 30000—Belo Horizonte, Minas Gerais, Brazil.

An attempt is made to assess the impact of changes in labor organization on fertility trends in Brazil. It is suggested that the organization of nonwage labor (colonato, sharecropper, sharetenant, etc.) was responsible for the stable fertility level in the pretransitional period. Large family size may have contributed to lowering the costs of subsistence, and price variations seem to have had little effect on the standard of living. The process of proletarianization meant fewer benefits from domestic food production, making a large number of children burdensome. It meant monetization of family subsistence, diversification of consumption goods and services, and homogenization of the unskilled labor market. In this paper, it is argued that these recent changes should have destabilized fertility levels and favored rapid fertility decline since the late 1960s.

Fertility and Family Structure

Norman B. Ryder, Office of Population Research, Princeton University, 21 Prospect Avenue, Princeton, NJ 08544.

Failure to explain fertility decline is attributed to the microanalytic emphasis of most research, in contrast to the macroanalytic orientation of modernization theory, of which demographic transition theory is a part. The kinship system is designed to cope with the consequences for the individual of the passage of time. The most promising link between family structure and social change is the time dimension of the family: the contract between senior and junior generations. Mortality decline disrupts the quantitative and temporal equilibrium underlying that contract. Institutions are developed to supplant the kinship system and provide alternatives to disadvantaged family members. The morality underlying the intergenerational contract is challenged by a competing model, originating in already developed societies. The new normative orientation gives priority to the interests of the individual vis-a-vis the family, and of the junior vis-a-vis the senior generation. In consequence, fertility declines.

RESEARCH ON THE POPULATION IN CHINA
Organized and Chaired by
L. P. Chow, Johns Hopkins University

Research on Fertility Control Methods in China
Sheldon J. Segal, Rockefeller Foundation, 1133 Avenue of the Americas, New
York, NY 10036.

No abstract received.

Proximate Determinants of Fertility in Beijing City, People's Republic of
China
ShaoXian Wang; Yu-De Chen, Reproductive Health Division, U.S. Centers for
Disease Control, Atlanta, GA 30333; Charles H. C. Chen; Roger W. Rochat; L.
P. Chow; and Rowland V. Rider.

A sample survey of 3,830 married women who were under 50 years of age and
lived in a district of Beijing city reveals that the total fertility rate
(TFR) was 1.24 per woman in 1982. Such a dramatically low level of fertility
results from total fecundity (TF) being inhibited by the proximate
determinants of fertility, namely, nonmarriage (C_m), spousal separation (C_s),
contraception (C_c), induced abortion (C_a), and lactational infecundability
(C_i). Based on Bongaart's formulation of the relationship between TFR and TF
and on indexes of the proximate determinants as estimated from the Beijing
sample,

$$TFR = TF \times C_m \times C_s \times C_c \times C_a \times C_i, \text{ or}$$

$1.24 = 16.73 \times .395 \times .963 \times .346 \times .586 \times .962$. The total fertility rate and
these indexes of proximate determinants are compared with those of selected
developed and developing countries. Further research needs and policy
implications associated with the study are discussed.

Urban Labor Force Participation, Unemployment, and Employment of Women in
China
Ann C. Orr, International Bank for Reconstruction and Development (World
Bank). Mailing address: Galaxy Apartments, Apartment 145E, 7000 Boulevard
East, Guttenberg, NJ 07093.

No abstract received.

Quality of Life, Intellectual Development, and Personality Traits of Single
Children in China: Evidence from a 1980 Survey in Hunan Province
Dudley L. Poston, Jr., Population Research Center, University of Texas, 1800
Main Building, Austin, TX 78712; and Mei-Yu Yu.

This paper contains the results of a June 1980 survey of 1,069 single and
multiple children in Changsha, Hunan province. The data have been unavailable
previously either in Chinese or in English. In general, they suggest that
comparisons of single children with multiple children in China regarding
quality of life, intellectual development, and personality traits are similar
to comparisons conducted in the United States and other Western countries. In
some ways Chinese single children are different from Chinese multiple
children, and in some ways they are similar. Single children in China appear
to have a better quality of life than multiple children. Regarding
intellectual development, single children in China perform better than
multiple children. Finally, single children in Changsha are not that
different from multiple children on various aspects of behavior and
personality. These latter findings are the opposite of those of the Shanghai
study, the other major analysis of single children in China; the Shanghai
survey indicated that single children were not as well-behaved as multiple
children, a finding that caused some concern among Chinese social scientists.

To the extent that the findings of the Hunan study, and not those of the Shanghai study, reflect the situation of single children in China, this could mean that the one-child family planning campaign may not have a negative impact on behavior.

FAMILY AND FERTILITY IN THE PAST
Organized and Chaired by
David Weir, Yale University

Short-Term Demographic Fluctuations in the Austrian Military Border, 1830-1847
Eugene A. Hammel, Graduate Group in Demography, University of California, 2234 Piedmont Avenue, Berkeley, CA 94720.

Austrian published data for 1830-1847 on births, marriages, deaths, population size, grain production, and extent of livestock holdings are decomposed to show fluctuations in the three-year moving average and annual deviations from it. All data were recorded at the regimental (county) level, normalized with mean zero and variance one, and then pooled at the generalcy (subprovincial) level. Normalization overcomes problems of extreme regional ecological variation. Graphical, correlational, and regression analyses show strong coincidence of economic and demographic fluctuations, with some trends over time and influence of the cholera epidemic of 1831. Births and marriages fluctuate positively with grain production in the year just before the demographic events and with both grain and livestock levels in the year of those events. Mortality fluctuates negatively. Nuptiality shows a less clear picture than the other demographic indicators and seems to lead economic trends, suggesting that shifts in household formation and organization of labor may have been important. Between 20 and 80 percent of the variance in the demographic fluctuations can be accounted for from the predictor variables named.

Structural Transformation and Early Fertility Decline: The Case of Catalonia
Jaime C. Benavente, Population Studies Center, University of Michigan, 1225 South University Avenue, Ann Arbor, MI 48109.

Using data from local areas in Catalonia, the author identifies the levels of fertility during the pre-decline period (the late eighteenth century) and during the early phase of the fertility decline (the first half of the nineteenth century). Subsequently, fertility and nuptiality during the two periods are compared in an attempt to detect the extent of early decline and to explore plausible explanations.
At the end of the eighteenth century, Catalonia experienced high mortality, uncontrolled marital fertility, intensive nuptiality, and rapid population growth. One century later, marital fertility was subject to significant control, mortality had only reached a moderately low level, and marriage patterns were relatively unchanged, indicating that Catalonia was the first Spanish region to experience the fertility transition. Empirical evidence suggests an onset of the decline closer to the French experience than that of any other Western European region.
Sources of data are censuses, parish registers, and various socioeconomic statistics. The relationships among the variables are estimated using multivariate regression and path analysis.

Early Birth Control in Marriage in Some Hungarian Villages
R. Andorka, Department of Sociology, University of Economics, Dimitrov tev 8, Budapest 1093, Hungary.

The aim of this study is to establish the period when birth control began to spread in peasant communities in Hungary and to determine the economic, social, and cultural conditions of the communities in which birth control was

practiced at an early date. The analysis is based on the family reconstitution of the parish registers of nine villages, four of them being in the region in which it is known that birth control was practiced early. The indicators of marital fertility developed show the spread of birth control starting with the marriage cohort of 1791-1820 in some villages. In other villages, birth control was only practiced on a wide scale several decades later. The main reasons for the early practice of birth control seem to be the pressure of population in conditions of land scarcity and the lack of other possibilities of finding subsistence and employment.

THE DEMOGRAPHY OF THE AGED
Organized and Chaired by
Everett Lee, University of Georgia

Older Workers: A Future Force?

Cynthia M. Taeuber, Population Division, U.S. Bureau of the Census, Washington, DC 20233.

Today, elderly men are much less likely to be in the labor force than was true 30 years ago, but the picture has not changed much for elderly women. The author examines a series of questions about what will happen 30 years from now as the baby boom cohort ages. First, will the elderly want to work longer? An increasing proportion of the population is in white-collar occupations, the most likely group of elderly to continue working. Second, will the elderly need to work? With more oldsters caring for their very old parents, their economic resources may not match their responsibilities. Third, will the elderly be able to work longer? A sizable minority have serious health problems. Fourth, what will be the impact of technological change and of competition for jobs among the elderly, the young, and women of all ages? Fifth, how will the black elderly be affected by the projected changes in the occupational structure? The members of the baby boom cohort have restructured American society at every point of their life cycle, and there are many indications that they will affect the structure of the labor force as they age.

The Rural Elderly

Nina Glasgow, U.S. Department of Agriculture, 500 12th Street SW, Washington, DC 20250.

Using microdata taken primarily from the 1980 U.S. census, the author develops a profile of the rural elderly that emphasizes how they differ from the urban elderly with regard to characteristics such as age, education, income, poverty, employment status, marital and household status, housing, and health. The data show a higher proportion of rural than urban elderly living in poverty. Problems of inadequate housing are more common among rural than urban older people. Furthermore, rural are more likely than urban elderly to have chronic health and disability conditions. These relative disadvantages are somewhat offset by the lower proportion living alone and the higher proportion of rural than urban elderly who are married. Policy implications of the findings for community service needs of the older rural and small town population are discussed.

The Black Aged

Wilbur Watson, Atlanta University, Atlanta, GA 30314.

No abstract received.

The Challenge of an Aging Population in the People's Republic of China
Alice Goldstein, Population Studies and Training Center, Brown University, Providence, RI 02912; and Sidney Goldstein.

The problems of the aged and of an aging population are of growing importance in China. The current one-child family policy and job placement policies that often separate family members have raised serious concerns about old-age security, which has traditionally been the obligation of children toward their parents. These concerns, in turn, have hampered acceptance of the one-child policy. Concurrently, high levels of surplus labor resulting from past high fertility levels and labor reallocation under the new economic responsibility system are putting pressure on workers and peasants to retire before the official retirement ages (55 for women, 60 for men). That the current problems are likely to become exacerbated in the future is suggested by projections that show the proportion of persons aged 65 and over more than doubling within the next 40 years. China must therefore develop programs to provide economic security and to utilize the talents of its older population in order to meet its overall goals of modernization and development.

MARRIAGE AND FERTILITY IN DEVELOPING COUNTRIES
Organized and Chaired by
Anne R. Pebley, Princeton University

The Recent Evolution of African Marriage and Polygyny
Etienne van de Walle, Population Studies Center, University of Pennsylvania, 3718 Locust Walk CR, Philadelphia, PA 19104; and John Kekovole.

In contrast with the recent experience of other world regions, nuptiality in sub-Saharan Africa has shown few signs of changes. It preserves some of its unique characteristics, including a large difference in the age of spouses and widespread polygyny. The authors review the evolution that can be documented through the comparison of data from existing censuses and surveys.

Assessing Cohort Nuptiality Trends in the Philippines
Peter C. Smith, East-West Population Institute, East-West Center, 1777 East-West Road, Honolulu, HI 96848; Adelamar N. Alcantara; and Eliseo de Guzman.

A significant trend in the timing of marriage among women in the Philippines is evident in the time series of eight national censuses, complemented by the recent sequence of three National Demographic Survey (NDS) and Republic of the Philippines Fertility Survey (RPFS) rounds. Analyses of these data have established past trends but do not indicate whether further marriage delay can be expected and, if so, how much additional delay. In this paper, the authors examine the past and anticipated nuptiality of recent cohorts of Filipino women by applying the well-known Coale-McNeil age model of the cohort first marriage process to the experience of actual cohorts. A second major focus is methodological. Estimates from the several sources are juxtaposed in order to establish the degree of consistency among them. In a final section, consideration is given to inconsistencies among the 1968, 1973, and 1978 surveys and to interpretations of why these inconsistencies occur.

Patrilineages, Wives, and Fertility in Rural India
Paul D. Frenzen, Population Studies Center, University of Michigan, 1225 South University Avenue, Ann Arbor, MI 48104.

Recent discussions of the demographic patterns of rural India have emphasized regional variations in the status of women. Patrilineages are more powerful in north India than south India, and northern wives are more restricted than southern wives. In this paper, district-level data from the 1971 census of India are used to investigate the impact of kinship patterns,

female status, and other factors (including family planning) on local fertility levels. Districts with northern kinship patterns have higher rates of female child marriage, lower levels of female literacy and employment, and higher fertility than other districts. Once other factors are controlled, Indo-European language areas still have higher fertility, but districts with higher levels of female exogamy have lower fertility. A separate state-level analysis suggests that exogamy reduces fertility because more wives are absent on visits to natal kin in their native village.

Age Patterns of Women at Marriage, Cohabitation, and First Birth in India
David E. Bloom, Department of Economics, Harvard University, Cambridge, MA 02138; and P. H. Reddy.

The purpose of this paper is to research the age patterns of Indian women at marriage, cohabitation, and first birth. This task is complicated by features of the Indian marriage institution that differentiate it from the institution of marriage in Western cultures, by the diversity of Indian marriage customs, and by the possibility that Indian marriage patterns have changed over time. The empirical analysis is based on published statistics from a 1972 India-wide fertility survey and on survey data collected in the 1975 Bangalore Population Project. The major results are that (1) marriage and childbearing have been and continue to be universal in India; (2) the age at marriage and childbearing, which showed only a small tendency to increase over a fairly long period of time, appears more recently to be undergoing some changes in the direction of greater delays; (3) the significant rural/urban differences in marriage and fertility timing seem to be the result of education having a greater impact on age at marriage, age at cohabitation, and age at first birth in urban areas than in rural areas; (4) observed characteristics such as religion and education explain more of the variation in women's marriage and fertility patterns in urban areas than in rural areas; (5) the incidence of childhood marriages and two-stage marriages has been on the decline, causing the small but noticeable rise in age at marriage to overestimate somewhat the increase in age at cohabitation; and (6) age patterns of marriage in India do not closely resemble Western patterns, although age patterns of cohabitation and first birth do.

TECHNICAL DEVELOPMENTS IN MORTALITY ANALYSIS
Organized and Chaired by
Joseph E. Potter, Harvard University

Breast-Feeding and Infant Mortality: Methodological Issues and a Research Strategy
Sara Millman, Department of Sociology, Brown University, Providence, RI 02912; and Alberto Palloni.

While existing studies of the relationship between breast-feeding and the child's survival are virtually unanimous in finding a strong positive association, much of this research is ambiguous with respect to any causal interpretation. Although the association is typically interpreted as showing the effect of breast-feeding on survival, in many studies this effect is confounded with effects of survival on breast-feeding and with effects of common cause variables on both breast-feeding and survival. The authors propose a strategy for obtaining less-biased estimates of the effect of breast-feeding on survival. The strategy, designed to exploit World Fertility Survey data, is employed in sample analyses of data from Peru and Jamaica. To demonstrate the importance of distortions resulting from less careful investigations, results are compared with those obtained when complications of the breast-feeding/survival relationship are ignored. Further, the adequacy

of this strategy to capture the underlying process is investigated by developing and testing certain hypotheses about how much difference the strategy should make under various circumstances.

Child Health and Survival in Malaysia: A Random-Effects Logit Approach
Mark Montgomery, Office of Population Research, Princeton University, 21 Prospect Avenue, Princeton, NJ 08544; Toni Richards; and Henry Braun.

Suppose that children who are in poor health at birth are less likely to be breast-fed. If such initial selection exists, and health at birth is not an observed variable, one would expect conventional estimates of the effect of breast-feeding on survival to be subject to selection bias and, perhaps, overstated on average. The authors review evidence from clinical studies and from the 1976 Malaysian Family Life Survey that suggests that a selection mechanism is present; they then specify and estimate several maximum-likelihood models designed to take initial selection into account. A child's health enters the models as an unobserved variable, within the framework developed by Heckman and Singer. Birthweight is treated as a proxy or indicator for unmeasured variables; that is, the "mixing distribution" for the unobservables shifts with the level of birthweight. The indicators approach permits both family-specific and child-specific effects to be incorporated in a qualitative-variables framework. The results indicate that the direct influence of breast-feeding on survival remains of overwhelming importance even after the correction for selection bias is made.

CHANGES IN URBAN-REGIONAL SYSTEMS
Organized and Chaired by
John M. Wardwell, Washington State University

The Dynamics of the System of Cities in Korea, 1960 to 1970
David R. Meyer, Department of Sociology, Brown University, Providence, RI 02912; and Kyonghee Min.

Analyses of polarized development have generally focused on the primate city and have ignored lower-level cities. The authors examine the changes in the functional characteristics of cities during the 1960s, a decade of rapid economic growth in the developing nation of the Republic of Korea. The increased dominance of the core region of Seoul and its satellites was accompanied by rapid growth of most other cities outside the core. Manufacturing cities grew dramatically, and the functional structures of cities changed significantly. These changes occurred during the polarization phase of development, and they formed a base for the polarization reversal stage in the 1970s.

Organizational Components of Dominance
Judith J. Friedman, Department of Human Ecology, Cook College, Rutgers University, P.O. Box 231, New Brunswick, NJ 08903.

Because the concept of dominance combines economy, power, and space, it can be a powerful tool for the analysis of local economic change. To move beyond description, however, the concept needs to be refined. Separation of the organizational aspects from the functional is especially useful, and the organizational aspects are stressed here. Recent work on the organization of firms and of the finance industry makes it possible to identify dominant organizations: they control flows of financial resources and related information. In this paper, the author explores the connections between the presence of dominant organizations in a community and the presence of new firms.

Differential Population Growth and Costs of Service Provision in Urban/Suburban U.S. Areas, 1950-1970
Alan S. Doyle, Population Research Center, University of Texas, 1800 Main Building, Austin, TX 78712; and Laura B. Perkinson.

No abstract received.

Changing Patterns of Migration to Growing Nonmetropolitan Areas of the Western United States, 1955-1980
Linda L. Swanson, Population Section, U.S. Department of Agriculture, Room 492, 500 12th Street SW, Washington, DC 20250.

Migration streams from one area to another tend both to be self-perpetuating and to give rise to smaller counterstreams over time. During the 1970s, the migration of metropolitan residents to nonmetropolitan areas exceeded the flow in the opposite direction, a reversal of past patterns. The author examines the extent to which this reversal was a result of the expansion of old counterstreams and whether new streams were created. She attempts to determine the extent to which these new streams arose from conditions whose effects were limited to a specific time period and also considers whether these new streams are likely to persist. As the first stage in a larger project, specific streams into growing nonmetropolitan areas of the West are examined for the period from 1955 to 1980. Briefly, in the last decade the volume of migration streams leading from metropolitan California to Western nonmetropolitan areas increased sharply in all but two states. In the same period, new streams were found leading from Northeastern metropolitan areas and from metropolitan and nonmetropolitan North Central areas.

DETERMINANTS OF BIRTH INTERVALS IN DEVELOPING COUNTRIES
Organized and Chaired by
Barbara Mensch, Columbia University

Postpartum Practices and Child Spacing in Senegal and Jordan
John E. Anderson, Family Planning Evaluation Division, U.S. Centers for Disease Control, Atlanta, GA 30333; Howard I. Goldberg; Fara M'Bodji; and Abdallah Abdel-Aziz.

Components of birth intervals are quite different in two high-fertility populations covered in recent family health surveys conducted in a rural area of Senegal and in Jordan. Interbirth intervals are measured for all intervals starting in the five years before interview using life table methods. Durations of five major postpartum variables are measured: breast-feeding, full breast-feeding, abstinence, postpartum amenorrhea, and the nonsusceptible period. In rural Senegal, intervals tend to be long, nearly three years on average, and there are few short intervals. Long and intensive breast-feeding appears to be the main determinant of child spacing. In Jordan, despite some use of modern contraception, intervals tend to be much shorter, averaging 27 months.

Explaining the Differential Effects of Breast-Feeding on Duration of Amenorrhea: Frequency and Patterns of Breast-Feeding
Lily Waiyee Lee, University of California at Berkeley. Mailing address: Population Council, One Dag Hammarskjold Plaza, New York, NY 10017; Beverly Winikoff; Virginia Laukaran; and John Bongaarts.

The hypothesis that frequency and intensity of breast-feeding are important determinants of the duration of postpartum amenorrhea is supported by the data from an Infant Feeding Study survey. The marginal increase in median duration of amenorrhea for each additional month of breast-feeding for women in Semarang, Indonesia, and in Nairobi, Kenya, is examined. An

additional month of breast-feeding has a stronger effect on delaying menstruation among Semarang women than among Nairobi women. This differential effect can be explained by the difference in infant feeding practices of the two samples: Semarang women breast-feed at a higher frequency and are less likely to supplement their breast-feeding with breast milk substitutes (usually bottles) when compared with the Nairobi women.

Explorations in Fecundability
J. Richard Udry, Carolina Population Center, University of North Carolina, Chapel Hill, NC 27514.

Some women are more likely to become pregnant than others, but demographers do not know why. The author uses birth histories for eight noncontracepting populations to examine heterogeneity in first birth hazard rates within and among populations. The findings show widely different rates within and among populations over the first three years of marriage. Application of multivariate hazard models identifies some of the dimensions of heterogeneity. Generally, those variables usually associated with high fertility are shown to be associated with low fecundability in these models. Demographers are ignorant of the causes of these differences in effective fecundability, and it is suggested that future research should focus on this area.

Determinants of Birth Interval Length in the Philippines, Malaysia, and Indonesia: A Hazard Model Analysis
James Trussell, Office of Population Research, Princeton University, 21 Prospect Avenue, Princeton, NJ 08544; Linda G. Martin; Robert Feldman; James A. Palmore; Mercedes Concepcion; and Noor Laily Bt. Dato´ Abu Bakar.

The results of a comparative study of the determinants of birth interval length in the Philippines, Malaysia, and Indonesia are presented. The hazard model analysis, which here is based on World Fertility Survey data, makes it possible to estimate the effect of multiple covariates at one time and to include both closed and open intervals without introducing censoring bias. The authors find, as expected, that use of contraception and breast-feeding are important determinants of birth interval length. However, they find that length of the previous interval also has an effect and speculate that this variable may capture part of the information on length and efficacy of contraceptive use that is not available. In some cases, socioeconomic variables also have an effect on birth interval length--ethnicity in Malaysia, male occupation in the Philippines, and urban residence and male occupation and education in Indonesia all have an impact. These results are puzzling, because the effects of the length of the previous interval as well as biological factors (such as age, contraception, and breast-feeding) have been controlled. These variables must indicate differences that the authors have not been able to measure, such as differences in fecundity or coital frequency, in efficiency and length of use of contraception, or in the incidence of abortion.

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Children and the Elderly: Divergent Paths for America´s Dependents
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