MORTALITY IN NORTH SUDAN

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1-INTRODUCTION

Unitl recently very little was known about the level and pattern of mortality in the Sudan. Like most developing countries the vital registration system is unreliable and other sources are scarce. The first demographic source for mortality statistics was the First Population census of 1956. A crude death rate of 18.5 per thousand and an infant mortality rate of 94% were reported. However, the data revealed a great deal of inconsistencies which can only be explained in terms of errors in the data. Scholars made attempts to arrive at more realistic figures. Using stable Population assumptions, Demeny concentrated on tribal groups because he believed they formed "closed" Populations (Demeny, 1969) He estimated a curde death rate of 21.3 per thousand for Sudan. He reported a great difference in mortality between the North of Sudan and the South. According to Demeny's estimates the crude death rate is 17.6 for the Northern region.

For his study Demeny used the Coale-Demeny model life tables. "North" and "East" families were selected as best fits for the Sudanese pattern of mortality. Although it was found that the "North" performs better than the "East",

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it was admitted that the effect of age misreporting ".. overshadows any effects that would be introduced by different patterns of mortality" (Demeny, 1969).

Seventeen years passed until more data were made available . The Second Population Census of 1973 as well as the Sudan Fertility Survey of 1979 (SUDFS) provided data on the number of children ever born, divided into those who had died, and those still living, tabulated by age group of mother. Also included were the "orphanhood" questions. These are the data from which estimates of mortality can be derived by the application of indirect demographic techniques. In this paper we intend to use information from the 1973 census and 1979 survey to investigate the pattern and level of mortality and to throw some light on the trend of mortality.

Information on the level and pattern of mortality is the concern of political leaders planning for economic development. Also, it has an influece on individual decisions as the level and trend of infant mortality continues to have a major impact on fertility aspirations, status of women and family formation. Since SUDFS covered the north of Sudan only, our analysis would be restricted to this region.

2-Method

Demographers have selected different families of the model life tables to fit the Sudanses data.The "South" family was used by Zachariah (Zachariah and Soliman, 1970), while the "North" was used by Demeny (Demeny, 1969) and later by Farah (Farah, 1981). However, we find no strong evidence supporting a 'proper' pattern of mortality suitable for Sudan and especially for the Northern Sudan.

Estimates of child mortality derived by Brass's technique based on his standard pattern may be used to indentify a pattern. Brass used the proportion of children surviving among those ever born to women of known age groups to derive q(x) values i.e the probabilities of dying between birth and age x. The estimates q(2), q(3) and q(5) can often be accepted as minimum indications of recent infant and child mortality, (Brass and Coale, 1968). The most reliable value of q(2) - derived from reports of women in the age group(20-24) may be used as a single parameter to determine the pattern of mortality over all ages. However, there is evidence that patterns of mortality may deviate from any existing single parameter model and that the assumption of a fixed relationship between early children mortality and adult mortality may leed to massive bias (Blacker, 1977).

The logit life table system offers a method which is simple and flexible for the construction of a life table. Brass's two - parameter life table system is defined by the l_x values (number of survivors at age x of an original cohort of 10,000) of members of the family, such that their logits Y_x satisfy the linear relationship $Y_x = a + b\ Y_{sx}$ where Y_x is the logit of l_x (i.e $\frac{1}{2} \log_e \frac{1 - x}{x}$) and Y_{sx} is the logit of x in Brass's "standard" life table. When b is given the neutral value of unity, at every age, l_x is less than the standard for positive (a) and more than the standard for negative (a). So the parameter (a) is the determinant of the overall lvel of mortality. The role of (b) is to increase mortality at some ages and decrease it at others so it determines the "tilt" of the mortality pattern. If(b) is less than one, mortality is increased at younger ages and is decreased at older ages.

Our aim shall be to determine both parameters so that a life table describing the pattern and level of mortality of north Sudan can be calculated. To do so we need to put together the information on child mortality represented by q(2) and the information on adult mortality obtained from the "orphanhood" questions. These are questions asked to male and female respondents as to whether his/her father/or mother is alive. We have reason to believe in the better validity of the data on female survivorship

(maternal). This is because of the greater migration of males and the instability of marriages (separation, divorce and polygamy) which make reports on the father's survival less accurate than that on the mother's. Also, African data has shown that males have a greater tendancy to exaggerate their ages which means that the proportion with living parents will be biases upwards. Therefore we perfer to use for our analysis of adult mortality, reports of maternal orphanhood given by female respondents.

Brass's 'orphanhood' technique will provide a series of estimates of $l_{(25+N)}/\ l_{25}$ for females (Brass, 1975). These shall be used to construct an abirdged life table for adult females, with a radix situated at age 25. A series of e_x's (expectation of life at age x) can be computed for ages 25 and above. These values will be compared with corresponding e_x's obtained from the logit model life table indentified by the value of q(2) and a varying (b). Each of the e_x's estimated by the orphanhood method imples a different (b). The choice of a single value for (b) determines the pattern of mortality in our population and with the fixed q(2) we can cmpute a life table which presents the current general mortality.

3-Data From Sudan Fertility Survey, 1979

The abridged life table for adult females constructed using the $l_{25+N}/\ l_{25}$ values is shown in table 1. The life

table population $_nL_x$ is obtained and also the expectations of life at ages 25 and above.

TABLE 1

Life table for adult females from orphanhood data by female respondents, 1979.

Age x	Life table survivors * l_x	life table population $_nL_x$	expectation of life e_x
25	1000	9916	43.8
35	983	4883	34.4
40	970	4788	29.9
45	945	4622	25.6
50	904	4353	21.6
55	837	3948	18.2
60	742	3497	15.2
65	657	2908	11.8
70	506	2202	9.6
75	375	1497	7.0
80	224	853	5.1
85	117	292	2.5

* Source : Sudan Fertility Survey, Vol. 1.

The second step is to estimate the level of infant and child mortality and link this with the estimated adult mortality show in table 1. In order to do that we determine the level of child mortality by the value of l_2 i.e the estimate of survivors at age two. This value is calculated using Brass's technique to be 0.857 for both sexes

(World Fertility Survey, 1981). This corresponds to $l_2 = 0.8665$ for females. A set of e_x's (expectations of life) are obtained using the logit model life table in which l_2 is kept fixed at 0.8665 and the second parameter (b) is varied through the range (0.7 - 1.1). For each value of (b) a life table was constructed using the logit transformation and a set of e_x's obtained.

We then compare the two sets of e_x's - those obtained by the orphanhood method agianst those obtained by the selected models. The result is shown in table 2. The implied values of (b) are also presented. The (b) estimates are very consistent falling between .79 and 1.10.

TABLE 2

Comparison of e_x values derived from orphanhood data with logit model life tables. North Sudan, Females 1979.

Age x	e_x from orphanhood	e_x feom logit model (l_2= .8665)					implied b
		b=.7	b=.8	b=.9	b = 1	b=1.1	
25	43.5	46.1	43.1	4.4	37.5	35.7	.787
35	34.4	38.0	35.2	32.8	30.1	28.6	.833
40	30.3	33.7	31.2	28.9	26.4	25.1	.839
45	26.4	29.7	27.3	25.1	22.7	21.6	.841
50	22.3	25.7	23.4	21.5	19.2	18.2	.858
55	18.5	21.8	19.8	18.0	15.8	15.1	.872
60	15.6	18.1	16.3	14.7	12.6	12.2	.829
65	11.4	14.7	13.1	11.7	9.8	9.7	.879
70	9.4	11.5	10.2	9.1	8.2	7.5	.873
75	6.0	8.8	7.7	6.9	6.3	5.7	1.050
80	4.3	6.5	5.7	5.2	4.8	4.4	1.100

The low(b) for the first age e_{25} is a result of the under reporting of dead mothers of young children. This is known as the adoption effect by which the foster mother with whom the child is living is assumed by the enumerator - to be the real mother . The erratic (b) values for older ages is caused by the age misreporting common to this population. A reliable estimate for (b) would be 0.853 which implies that (a) = -0.2495.

These results are used to construct a life table for the Sudanese females of north Sudan in 1979. The life table presented in table 3 shows that e_o (expectation of life at birth) is about 52 years and the infant mortality rate is about 100 deaths per 1000 female births (i.e about 109 per thousand for both sexes). Although the values of the parameters (a) and (b) are very close to those of Brass's standard (0 and 1) they indicate the special features of the population's mortality experience:

(i) the level of mortality is slightly higher than that of the standard.

(ii) adult mortality is lower than that implied by the high child mortality. This gives us reason to believe that the pattern of mortality of the north of Sudan shares the characteristics of the "South" family of Coale-Demeny model life tables.

TABLE 3

Life table, North Sudan, Females, 1979

X	l_x	$_nL_x$	T_x	e_x
0	10000	9302	519003	51.9
1	9003	8836	509701	56.6
2	8668	8585	500865	57.8
3	8502	8454	492280	57.9
4	8406	8370	483826	57.6
5	8335	41038	475456	57.0
10	8080	40152	434418	53.8
15	7981	39493	394266	49.4
20	7816	38538	354773	45.4
25	7599	37453	316235	41.6
30	7382	36357	278782	37.8
35	7161	35200	242425	33.9
40	6919	33903	207225	30.0
45	6642	32373	173322	26.1
50	6307	30475	140949	22.3
55	5883	28085	110474	18.8
60	5351	25003	82389	15.4
65	4650	21103	57386	12.3
70	3791	16350	36283	9.6
75	2749	10995	19933	7.3
80	1649	5950	8938	5.4
85	731	2335	2988	4.1
90	203	580	653	3.2
95	29	73	73	2.5

Data From the Second Population Census, 1973

A similar set of data was provided by the census for females of the northern provinces. A value of $1_2 = 0.846$ was accepted (Department of Statistics, 1980). This is equivalent to 0.82562 for females. By following the same procedure we arrive at the results presented in table 4.

TABLE 4

Comparison of e_x values derived from orphanhood data with logit model life tables. North Sudan, Females 1973.

Age x	e_x from orphanhood*	e_x from logit model 1_2=.8362				implied b
		b=.7	b=.8	b=.9	b = 1	
25	43.8	45.4	42.5	39.8	37.3	.7552
35	34.4	37.3	34.7	32.3	30.1	.8125
40	29.9	33.3	30.7	28.5	26.5	.8364
45	25.6	29.2	26.9	24.8	22.9	.8619
50	21.6	25.3	23.1	21.1	19.4	.8750
55	18.2	21.5	19.5	17.7	16.2	.8722
60	15.2	17.9	16.0	14.5	13.2	.8320
65	11.8	14.5	12.9	11.6	10.5	.8846
70	9.6	11.4	10.1	9.0	8.1	.8454
75	7.0	8.7	7.6	6.8	6.2	.8750

* Calculated from a set of $1_{25+N}/1_{25}$ values calculated from the census data by the orphanhood method.

The implied values of (b) are again fairly consistent with the exception of the first. A single acceptable value for (b) would be 0.855. The level of mortality is determined by (a) = - 0.2036. The resulting life table is presented in table 5. It is shown that the expectation of life at birth e_o = 50.4 and that the rate of infant mortality q_1 is 108 per thousand females i.e about 118 for both sexes.

Three points may be stressed at this stage :

(i) The consistency of the implied (b) values in table 2 and 4 indicate the validity of the analysis.

(ii) The extremely close values for (b) in 1973 and 1979(0.8) confirms the shape of the pattern of mortality for this population.

(iii) The level of mortality has slightly decreased between 1973 and 1979 as expressed by the slightly higher value of (a) and the modest increase in e_o.

Data From the First Population Census 1956

Unfortunately the first Census has not provided data suitable for the application of the same technique used above. However,- as mentioned before - Demeny has arrived at estimates of the vital rates for the northern provinces of Sudan (Demeny, 1969). A crude birth rate is estimated at 46.3 and a crude death rate at 17.6 . The corresponding

TABLE 5

Life table, North Sudan, Females, 1973

X	l_x	$_nL_x$	T_x	e_x
0	100000	9245	503617	50.4
1	8921	8742	494372	55.4
2	8562	8473	485630	56.7
3	8385	8334	477157	56.9
4	8283	8245	468823	56.6
5	8207	40360	460578	56.1
10	7937	39425	420218	52.9
15	7833	38730	380793	48.6
20	7659	37725	342063	44.7
25	7431	36585	304338	41.0
30	7203	35438	267753	37.2
35	6972	34232	232315	33.3
40	6721	32893	198083	29.5
45	6436	31318	165190	25.7
50	6091	29372	133872	22.0
55	5658	26945	104500	18.5
60	5120	23848	77555	15.1
65	4419	19977	53707	12.2
70	3572	15338	33730	9.4
75	2563	10207	18392	7.2
80	1520	5467	8185	5.4
85	667	2128	2718	4.1
90	184	525	590	3.2
95	26	65	65	2.5

rates for the female population are 45.75 and 17.42. The stability of the Sudanese population before 1956 is discussed in detail in the literature (krotki, 1960). The applicability of the "South" family of model life tables to the female population of the northern region of Sudan was indicated earlier. We therefore suggest that a "South" stable pupulation with a birth rate = 47.75 and a death rate=17.42 be selected to represent our population in 1956. This model is at a mortality level=12.8. The model implies an expectation of life at birth e_o= 49.5 and an infant mortality rate of 133 for female births and 145 per thousand for both sexes.

Discussion and Conclusions

The examination of the two most recent sources of mortality statistics showed that the mortality experience of our population is very much similar to that of Brass's standard. However, a slight divergence is revealed as to the relationship between child and adult mortality. It is confirmed that infant and child mortality is greater than what would be implied by the mortality of adults . This pattern seems to be a characteristic of the population. As to the level of mortality we find that the parameter(a) had the value of -.20 in 1973 and -.25 in 1979. This shows a very slight improvement in mortality conditions. Another way of looking at this change is by examining the trend in the expectation of life at birth. Almost no change took

place before 1973. A rise of 1.5 years of life expectancy is noticed in the period 1973-79. The increse is about 0.25 years per year which is very low compared to increases in other developing countries at the same level of mortality. Indeed there has been some improvement concrening infant mortality but it still remains higher than expected.

With no efficient statistics on death by cause we are unable to discuses the consistancy of the mortality experience in terms of the seemingly unchanging structure of cause-specific mortality. If such statistics were to be examined against the social, economic, medical and public health histories some general idea can be made about the mechanism of the modest drop in the level of mortality.

In 1979 the WHO together with the Ministry of Health carried out an infant mortality survey in four northern provinces (WHO/Ministry of Health, 1979). Although the mortality rates obtained were far from realistic, the study presents a report on the health status of the population. Malaria is endemis throughout the country especially in the irrigated areas. "By the mid 1970's, the situation in the irrigated areas had deteriorated with the prevalence rate among children in the Gezira increasing from a low of 3% in 1962 to 20% during the epidemic of 1974 - 75"(WHO/ Ministry of Health, 1979). Diarrheal disrase is the most

important cause of death among children followed by respiratory diseases, measles and whooping cough. The occurance of these diseases accompanied by the poor environmental conditions and inadequate nutrition becomes a serious threat to the lives of the young. The study stresses the lack of adequate ante-natal care for mothers and that a high percentage of births are attended by untrained midwives. The risks for infant and maternal mortality are high. In sudan prolonged breastfeeding of infants is almost universal. However, supplementay food is inadequate and not clean. The report also indicates that few children were immunized against the common diseases. It seems that great efforts are needed in the fiels of public health and sanitary reforms and nutritional improvements before any decline in mortality can be acheived.

Sudanese fertility is high and there is an indication of a recent rise in the level of fertility. a crude birth rate for the northern region in 1973 is estimated at 51.2 per thousand and the gress reproduction rate at 3.3 (Kahlifa, 1983). A stable population corresponding to e_o= 50.4 and GRR= 3.3 in Brass's system has a rate of natural increase= .0327 for the female population which is equivalent to .0333 for both sexes. This implies a crude death rate for the population of north Sudan 17.9 per thousand. As the decline of infant mortality is known to be a prerequisite for

fertility reduction, the high fertilty rate is also expected to contiue. The high rate of growth imposes a heavy burden on the national economy.

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ANNOUNCEMENT.

Research Grants For Population Studies

A) The Population Council Research Program On Determinants Of Fertility In Developing Countries:

1- Objectives:

To stimulate research that will increase understanding of how and why stable or changing fertility levels occur in different cultural settings and under varying socio-economin conditions in developing countries.

To encourage the use of innovative methods and perpre-ctives to advance understanding of the determinants of behavior affecting fertility.

To foster research on the determinants of fertility be-havior that shows promise of applicability for improv-ing population-related policies.

To disseminate the research findings to government of-ficials, policymakers, scholars, and others in relevant national and international organizations, through publi-cations, seminars, and briefings.

2- Scope:

Projects that have a strong bearing on understanding the determinants of fertility in developing countries are eligiable for funding. The program's priorities focus on research that elucidated how social, psychological, economic, and cultural factors affect behavior bearing on fertility levels, whether they are high or low,stable or changing. The purpose is to advance knowledge beyond

establishing levels and correlates of fertility to understanding how various socioculatural, economic and institutional contexts influence observed levels and patterns of fertility. The expected results of research should be able to inform the policymaking process in regrad to population and population-related issues. Examples of research areas eligible for funding under the program's priorities include (but are not limited to):

The fertility implications of development programs and strategies; analysis of the fertility effects of specific projects; comparative analysis of the demographic consequences of development strategies in different fertility settings.

Family planning, e.g., factors affecting the extent of contraceptive practice; use or nonuse of program services; and case studies of projects to ascertain the variables that led to increased prevalence of contraceptive practice.

Institutional contexts of fertility behavior,focusing, e.g., on local institutions and sociocultural structure that generate incentives or discentives bearing on fertility.

The economics of raising children, especially detailled studies of measures of the economic cost and benefits of children such as children as a form of risk insurance.

Perceptions of the sociocultural and economic environments in which fertility decisions and behavior take palce.

The fertility decision making process, including, e.g., analysis of the temporal sequences of fertility decision, jointness or segmentation of couple decisions, and decision hierarchies.

Determinants of marriage patterns.

Accounting for trends and differentials in the proximate determinants of fertility.

The Program's priority statement can be obtained from the program Manager at the address listed under Requests for Information. The Statement was published in the population and Development review 7, no. 2(June 1981): 311-324. Applicants are encouraged to read the priority statement prior to preparing a proposal.

- Eligibility

Prposala may be submitted by one or more individuals affiliated with an institution in developing or developed countries. Awards are made by an agreement between the population council and the sponsoring institution(s). Preference will be given first to proposals from developing country institutions, and second to proposals representing a collaborative effort between institutions in a developing and developed country. Dissertation research is not eligible for funding.

4- Terms :

Modest proposals up to US$70,000 are encouraged. The maximum award is restricted to US $100,000 per year, although few will be funded at this level. The duration of projects should be realistically geared to meet objectives, but applicants should be aware of budgetary implications of longer award periods. A Project must end 30 September 1986. Funds may be requested for the cost of data collection, processing, and analysis, necessary travel, salaries for a research and support staff and institutional ovehead costs. Successful applicants will be required to submit periodic substantive and budget reports. Population council staff will monitor the progress of projects funded under this program.

5- Application and Evaluation of Proposals:

A program commitee of scholars from a variety of disciplines and with diversified research experience is responsible for policy guidance for the program and decisions on awards. A preliminary proposal of not more than 10 typewitten, double-spaced pages should be submitted as the first step. The preliminary proposal should contain the following.

A brief statement of the problem to be studied and the most relevant literature.

The theoretical basis for the projest.

The method of data collection or the body of data to be analyzed.

The method of analysis.

How The results of the analysis should add to understanding of the fertility determinants chosen for investigation.

In addition, a one-page abstract, a curriculum vitae for each investigator, Information on the institutional facilities, and a tentative budget should be appended to the preliminary proposal. No other appendices will be accepted. For administrative purposes, it is preferred that preliminary proposals be submitted in English. However, prliminary proposals in Spanish and French will be accepted.

The program committee will review preliminary proposals. Investigators whose preliminary proposals are judged by the program committee to indicate that the projects would add significant new knowladge on the determinants of fertility in accordance with the objectives of the program will be invited to submit a detailed research proposal. Instructions for detailed proposala will be sent to all persons invited by the program committee. All detailed proposals will be evaluated by a peer Review committee appointed by the program committee. The peer Review committee will base its evaluation on the following criteria, the definition of the problem;

the merit of the research approach or design; the promise of fulfilling the objectives of the project; the qualifications of the principal investigator(s); the adequacy of the institutional facilities; and the appropriateness of the budget. The program committee's decisions on awards will be based on the scientific evaluation of the peer Review committee, the overall objectives of the program, and the availability of funds. In the case of smaller proposals of about US $15.000 or less, where there are compelling reasons and very high quality the program committee reserves the right to make an award on the basis of the preliminary proposal. Expedited consideration for grants at this smaller level may be requested by applicants, but is at the sole discretion of the program committee.

Preliminary proposals will be reviewed every four months. They should be received by the program Manager by the program Manager by 1 July and 1 November 1984 and 1 March and 1 July 1985. Any extension of the Program will be announced in future brochures along with appropriate deadlines for receipt of preliminary proposals. A response to preliminary proposals will be posted within six to eight weeks after the deadline for receipt For those invited to submit a detailed proposal, instructions will include information on deadlines for submission of the detailed proposal

Review of detailed proposals will take appeoximately four to six weeks after deadlines.

6- Requests for Information :

Inquiries about the program, requests for a copy of the program's priority statement, and preliminary proposals should be addressed to:

Program Manager
The Population Council
One Dag Hammarskjold Plaza
New York, New York 10017 U.S.A.

Or

The Population council
P.O. Box 115 Dokki
Cairo, Egypt

B) The Rockefeller Foundation Research Program On Women's Status And Fertility:

1- Scope:

Under this new program, the Foundation seeks to support research regarding the relationship between the status and roles of women in developing countries and fertility. While there exists a considerable body of empirical work on determinants of fertility including the effects of such factors as women's education and labor force participation, relatively little attention has been directed

to the impact of women's complex roles - as wives, mothers, and household or market workers - on fertility, or to the impact of varying household and institutional settings on these interrelations. There is also a growing body of research on women's roles in development that has contributed valuable theoretical insights, though much of this work still requires empirical verification. The Foundation wishes to encourage theoretical and empirical work that will advance our knowledge of these issues and that will identify promising police and programmatic implications. While a broad range of issues can be proposed for our consideration, we are particularly interested in projects that would:

- develop new theoretical frameworks specifing the relationship between women's status and fertility in developing countries, and subject these propositions to testing;
- build new sets designed to examine the status-fertility relationship, which would incorporate data on the household, other menmbers, and the community context;
- evaluate intervention projects aimed at improving women's status and roles, to determine the effect of these projects on family size decisions and behavior.

Researchars may propose to gather such data through sample surveys, ethnography, historical studies of several institutional settings, or any combination thereof. Analyses of existing data sets may be proposed if relevant to our program interests. Correlational studies of the relationship between female eduction and fertility, or between female labor force participation and fertility ,would be of interest only if they go considerably beyond single-country replications, for example, drawing on longitudinal data or proposing the development of a new data set designed to elaborate these commonly observed correlations.

2- ELIGIBILITY:

The Foundation wishes to encourage submission of collaborative projects involving scholars from developed and developing countries. However, proposals can also be submitted by one or mor scholars from a single country. There are no special disciplinary, nationality, or other eligibility criteria. All applicants should ask three seniorlevel scholars who are familiar with their work and the research proposal to write recommendations in support of the project. These letters should be requested by the applicant and sent by the referee for receipt at the same time as the proposal.

3- BUDGET AND INSTITUTIONAL INVOLVEMENT:

The Foundation seeks to support research project having small-and moderate-sized budgets. Most grants awarded will be in the range of $15,000 to $30,000; moreover, all grants will be available for a maximum of two years, with none renewable. Proposals having smaller budgets c. be submitted, as well as proposals with budgets up to $50,000, although grants approaching this maximum will be rare. Researchers are encouraged to seek additional financial support from other sources, including their home institutions; information about these other sources of support should be included in the proposal submitted to the Foundation. Grant funds may be requested for the costs of data collection and processing, research assistance, necessary travel, professional salaries, and other research expenses. Neither overhead payments nor university tution will be provided. Grants will usually be made to the tax-exempt institution with which the applicant is associated. Successful applicants will be asked to provide a letter from the appropriate administrative officer stating the institution's willingness to adiminister the grant.

4- FORMAT OF APPLICATIONS :

All proposals must be in the English language. Five typewitten, double-spaced copies are required. A com-

plete proposal is expected to be not more than 18-25 pages in length. It shoud provid sufficient information and detail to allow proper evalution, and should be self-contained, i.e. not dependent on supporting documents such as previous papers by the researcher(s). The resume of the researcher(s) and, if applicable, a sample questionnaire should accompany the proposal. Applicants are encouraged to model their submissions on the following outine which lists in sequence the main elements wanted, their recommended length, and the information to be covered.

1. **Title Page.** This page should be headed "Research program on Women's Status and Fertility." Below this heading should appear(a) the title of the research project(15 words or less): (b) the names, titles, disciplines, and institutional mailing addresses of all principal investigators;(c) the total amount of funding sought (in U.S. dollars); and (d) the duration of the project in months, with beginning and end dates apecified.

2. **Abstract** page that restates items(1.a) through(1.d) above for convenience of prelinary review, and that includes a paragraph summarizing the research problem and objectives, methods, and potential policy relevance.

3. **Table of Contents.** This should provide page location for each major section of the proposal.

4. **Project Description.** This should include a discussion of the projects:

a. **Scope:** (6-7 pages) Describe the project in detail, including the conceptual framework, the specific objectives, research hypothese, and overall research design; summarize and/or the other related research and literature.

b. **Data:** (2-4 pages) Specify the type, quality and availability of data (sample survey, historical, other); describe the mode of collection (attach a copy of the questionnaire if survey data are to be used); provide assurances of necessary clearances and access to data; and, if appropriate, indicate the units of analysis (e.g., individuals, households, states) and sample size. If it is intended to make use of data already collected for another project, the relation between the two projects should be explained

c. **Methodology:** (5-6 pages) Describe the proposed analytic techniques, indicating why they are considered appropriate, and discuss their adequacy for testing the research hypotheses. For proposals involving statistical analysis applicants should list the dependent indendent, and control variables to be used, and discuss their measurement and relation to the conceptual framework.

5. **Policy Significance of expected findings.** (1-2 pages) specify the policy relevance of the research findings and the expected contribution of the proposed study to development and population policy issues in developing countries.

6. **Dissmination of the research findings.** (1-2 pages) describe plans for diseminating the findings in the country of research at the end of the project, and, if appropriate, meeting plans, including sponsorship, likely participants, and the type of reports that will be presented. Also, indicate the type of report(s) to be prepared for scholarly journals.

7. **Research facilities.** Dsecribe the institutional services and facilities available that will assist the project. If the research is to be conducted in or focused on a country other than that of current intitutional affiliation, describe any collaborative arrangements with local institutions or researchers and provide supporting docmentation. If the research proposes to make use of data already collected for another project, explain the relation between the proposed research and the other project.

8. **Itemized budget.** Show all costs in U.S. dollars (and other currency, if appropriate) with adequate explanations of key budgetary items, including:(a) an annual budgetary breakdown if project duration is longer than one year; (b) the proportion of the principal investigator's time to be

spent on the project, whether or not salary is requested from the project;(c) justification of salary support reguested (level should be appropriate to institutional and country setting);(d) support to be contributed by researcher's institution;(e) details of any other pending requests or current finanial support (agency, amount, status) for this or related projects; and(f) an assessment as to whether the amount requested is sufficient to permit completion of the research project, including the write-up of the research findings.

5- EVALUATION OF PROPOSALS

External reviewers will evaluate each proposal according to:(1) its relevance to policy issues and its potential contribution to policy formation and implementation; (2) its innovative use of theory and methods;(3) its technical merit;(4) its feasibility;(5) the qualifications of the researchers; and(6) the appropriateness of the budget. The Foundation will make final decisions on all proposals.

6- CLOSING DATES

Deadlines for submission of research proposals are july 1 and Decemberl,1984. The final decision on awards will be announced approximately four months after submission. Applicants are limited to one submission annually. Inquiries about the program and all proposals should be sent directly to:

Population Sciences Research Program

The Rockefeller Foundation

1133 AAvenue of the Americas

New York, NY 10036

U.S.A.