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PS-4

January 1969

PROJECT SUMMARY

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| Project Title | : | Determinants of Family Planning Attitudes and Practices (Phase II of A Study of the Multi-variate Factors Influencing Fertility) |
| Proposed Contractor | : | Harvard University, Cambridge, Massachusetts |
| Principal Investigator | : | David M. Heer, Ph.D., Associate Professor of Demography, Harvard University School of Public Health |
| Duration | : | 36 months - June 1, 1969 to June 1, 1972 |
| Estimated Cost | : | FY 69 - $100,000 |
| Action Officer | : | Harald Frederiksen, M.D. |

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1. Background

The first priority is to meet the as yet unmet demand for contraceptive supplies. But in the long run it would undoubtedly be helpful to know more about the factors which influence some to accept family planning and others to ignore it when it is readily available. It will help us understand to what extent program failure might be blamed on the program or on the public. Conversely, such knowledge may permit us to make our programs more attractive and effective.

Several social changes have been proposed as being of aid in reducing the motivation for high fertility. Among these possible changes is the perception that levels of infant and child mortality have declined. However, even if substantial declines in mortality do occur, it is probable that couples will not decide to limit the number of their children until they themselves perceive that a larger number of children are surviving to maturity compared to earlier times. If this be the case, organized educational campaigns to convince populations that their mortality has declined may be necessary.

A second social change which might have important implications for fertility reduction would be a change in the preference for sons. As is obvious, wherever there is strong son preference, many families will bear a large number of children simply because all or most of the first children are daughters. Furthermore, in many agricultural societies, the content of religion reinforces this practical need for sons. Finally, marriage customs also help to determine the preference for sons.

Obviously, the level of infant and child mortality and the preference for sons are not the only factors determining fertility in the less developed nations. Other factors which appear to be important to indi-

vidual couples are knowledge of birth control, economic status, aspirations for their children's education, and the attractiveness of opportunities for women other than child-bearing. A study focusing upon the influence of mortality level and son preference must obviously control for these other relevant variables.

A.I.D. funded Phase I of this project to permit the contractor to:

a. Examine closely the many variables commonly associated with reduced fertility in acceptance of family planning;

b. Determine which of these variables have the most relevance and are the most manageable in a large-scale study of the interrelationships among variables in effecting fertility decline and the use of family limitation methods;

c. Design questionnaires which will utilize the predetermined variables;

d. Pretest the questionnaires, giving close consideration to the control and surveillance of problems of field work and interviewing by institutions subcontracted to do this work at a later time;

e. Preview potential subcontractors;

f. Explain and justify questionnaire construction and interview methodology;

g. Identify the important characteristics of the potential target population to be used in Phase II;

h. Submit a specific plan for Phase II;

i. Submit a final report on Phase I to A.I.D.

The contractor has been able to accomplish a large part of items a through h. On October 4, the principal investigator made an oral report on his work to date to an assemblage of interested persons from A.I.D. and other government agencies, and he is currently preparing his written report. He has submitted to A.I.D. a plan for Phase II as provided in item h above.

2. Description of Proposed Project - Phase II

The principal focus of this project will be to seek answers to the following questions:

a. How does the actual level of infant and child mortality in a population differ, if at all, from the level which individuals perceive to exist?

b. What effect does the sex of offspring and the personal experience of infant and child mortality have on a mother's subsequent fertility?

c. What is the effect of:

(1) The community level of infant and child mortality;

(2) The idividually perceived level of infant and child mortality;

(3) The personal experience of infant and child mortality, both among one's own children and among one's own siblings;

(4) A pronounced preference for sons

on desired number of children, the proportion wanting additional children, and family planning attitudes and practice?

Since answers to questions a and b will demand a statistical control on several other variables, the project may also help to provide answers to the question of the effects of several other factors on the number of children desired by couples and on their acceptance of family planning. These questions are:

d. What is the effect of a couple's economic status?

e. What is the effect of such variables as educational attainment, general knowledge and specific knowledge of birth control methods?

f. What is the effect of parental aspirations for children's education?

g. What is the effect of the attractiveness to the wife of extra-familial work opportunities?

An additional question upon which the study will be able to shed light is:

h. What is the association between child-spacing intervals and birth order and infant and child survival?

Finally, the study will attempt to answer a last question for which we have as yet very little information, namely:

i. How reliable over time are responses to questions on family-planning attitudes and practice, pregnancy histories, and desired number of children?

## 3. Significance of Project to A.I.D. Objectives

The results of this study should be relevant to the task of optimally allocating resources for fertility control and economic development. First, they should help to decide how much impact a family planning program can have in a high-mortality society as compared to one where the level of mortality is substantially lower. Secondly, it has been empirically observed in most nations that the decline in fertility lags behind the fall in mortality, causing "population explosion." This delay in fertility may be due to the fact that infant and child mortality actually falls more rapidly than the local population perceives it to decline. If the study reveals that perceived levels of infant and child mortality tend to be substantially higher than actual levels, as shown to be the case in the pretest conducted for Phase I in eastern Kentucky, it will indicate the value of educational programs, pointing out current facts concerning mortality as an important and inexpensive means of obtaining fertility decline. Finally, if the study reveals that son preference has a major effect upon fertility, this fact may be of importance for the consideration of various policies serving to effect a reduction in fertility.

In short, the results of this study should be important in deciding to what extent social changes other than provision of contraceptive information and supplies are valuable in achieving low fertility in the less developed nations.

## 4. Relevance of Project to Existing Knowledge

Evidence for the importance of high infant and child mortality as a factor sustaining high fertility comes from several recent multivariate analyses of areal differences in fertility.1/ Evidence that the loss of one's own children affects fertility even among populations in which modern methods of contraception are not generally practiced is found in a study by Hassan of mothers in Cairo, Egypt2/ and from still unpublished data of the Khanna study, conducted by Wyon and Gordon in the Punjab State of India in the 1950's.

Another set of evidence is deductive. According to the results of a computer-simulation model, if parents have only the number of children that they want to have but also want to be 95 percent certain of at least one surviving son, the number of children per mother will fall with each decline in mortality. 3/ As yet unpublished data from a study of the attitudes of male factory workers conducted in six nations by Harvard sociologist Alex Inkeles and his associates show wide variation in preference for sons. Three other studies, by Poffenberger 4/, Eliot 5/, and Freedman and Takeshita 6/ further illustrate this wide variation in son preference.

A final as yet unpublished study, a computer-simulation model prepared by the principal investigator and one of his associates, indicates that preference for sons may interact with the level of mortality in its effect upon the desired number of children.

The questionnaire pretested in a county in southeastern Kentucky for Phase I of this project was the first attempt to measure quantitatively perceptions of child survival. Six different questions regarding the respondent's opinion concerning the chances of a baby born today living to age 15 agreed closely with each other and showed that the average respondent believed that around 75 percent of babies born would survive to this age, even though the actual chances for survival in that county are greater than 93 percent.

The proposed project, in answering the questions listed earlier, will attempt to enlarge on and further document the knowledge gained in these early studies.

5. Description and Evaluation of Methodology

The pretest of the proposed questionnaire forPhase II, which took place during Phase I of this study in McCreary County, Kentucky, during August 1968, allows for an evaluation of the methodology for Phase II. This Kentucky questionnaire developed for the first time a series of questions designed to measure respondent's perception of child survival. Respondents were given the use of an abacus and were asked to estimate the number of babies born today who would survive out of ten babies born, 20 babies born, 30 born, and finally 100 born. Toward the end of the interview they were asked their perception of the average number of babies born per woman in the community and the number of these that would survive to age 15. At the end of the interview they were asked again how many babies would survive to age 15 out of 100 babies born today. The mean proportion of survivors to age 15 according to each of these six questions was compared and found to be very similar. For 48 male respondents the answers concerning mean survival ranged from 70.8 percent to 75.1 percent. For 60 female respondents the mean ranged from 69 percent to 80 percent.

In large part the remaining items pretested in Kentucky were identical or similar to questions asked in previous surveys. Those few questions which were found difficult for respondents to comprehend were revised during the course of the Kentucky pretest so that in its final version none of them remained a problem to the respondent.

As for Phase II, it is proposed that the work be conducted among rural populations in one and later in another two less developed nations having national family planning programs. The project would be designed so as to ensure concrete benefits to the country program concerned. In each nation approximately 5,000 ever-married women and 1,000 of their husbands will be interviewed. Two interviews will be conducted with each respondent, the second 12 months after the first. Two interviews are felt to be indispensable to ensure accurate measurement of attitudes which are either ambivalent or of weak intensity, and for the utmost accuracy in securing data concerning age and pregnancy history. Furthermore, the second interview will allow an opportunity to measure actual fertility during the interval by prior characteristics of the respondent. Finally, if the level of infant and child mortality is not known in

advance, the second interview may be necessary to measure the level of infant and child mortality in the community.

It is proposed that the first population should be from an area where infant and child mortality is now relatively low and where there is a great cultural emphasis placed on the survival of sons. The second population should be in an area where infant and child mortality is relatively high but which also places great cultural emphasis on sons. It is proposed that the third be in an area where infant and child mortality might be either high or low but where there is apparently a lesser preference for sons.

Within each nation it is hoped that interviews can be collected from at least two communities differing substantially in level of mortality.

One of the major tasks of Phase I of this study was to ascertain the persons and organizations which could conduct the interviewing in the three nations. To this end, the principal investigator visited Dr. Rodrigo Guerrero, of the Department of Preventive Medicine of the faculty of Medicine of the Universidad del Valle in Cali, Colombia; Dr. Laila Sh. El Hamamsy, Director of the Social Research Center of the American University in Cairo, Egypt; and Dr. Hsin-ying Wu, Associate Professor of Biostatistics at the Institute of Public Health of the Taiwan Natic l University Medical College in Taipei, Taiwan. He also conferred with Dr. Wiley H. Mosley, Chief Epidemiology Section, Pakistan Seato Cholera Research Laboratory of Dacca, East Pakistan, while Dr. Mosley was in Washington, D.C.

On the basis of this trip and further information learned since the trip, the principal investigator ould recommend to A.I.D. that Dr. Rodrigo Guerrero of the Universidad del Valle conduct the fieldwork in rural areas surrounding Cali, Colombia, for that part of the study dealing with a population having a low preference for sons. He would also recommend that Dr. Hsin-ying Wu of the Taiwan National University conduct, in areas adjacent to Taipei, Taiwan, the part of the project concerned with a low mortality population with a high preference for sons. Finally, he would recommend that the Pakistan Seato Cholera Research Laboratory conduct in the Laboratory's area of demographic surveillance that part of the study dealing with a high mortality population with a pronounced preference for sons.

The following is a brief description of each of the proposed sites. Near Taipei, Taiwan, the study would be conducted in two townships differing rather markedly in levels of infant and child mortality but both reasonably close to Taipei. The township with a relatively high level of infant mortality is a mountainous township located on the northeast coast of Taiwan; the other township, with infant mortality somewhat lower than the average for Taiwan is semi-industrial. The total fertility rates are respectively 6.9 and 5.0. Dr. Wu is eager to undertake the direction of the fieldwork and his institute has submitted a tentative budget of $54,000 for the work.

Near Cali, Colombia, the study would be conducted in several rural municipios chosen so as to include two rather distinct sub-areas. Family planning services are available in each sub-area. One sub-area is in the mountains and is characterized by a mestizo population predominantly employed on small coffee farms with a low proportion of couples in consensual marriages. The other is in the valley of the Cauca River, where the predominant activity is the growing of sugar cane on large plantations, the proportion of consensual unions is high, and there is a large Negro element in the population. No information on level of infant mortality is available for any part of either sub-area except for the town of Candelaria in the Cauca Valley where the infant mortality rate is around 110 per thousand. The birth rate in this area is around 50 per thousand. Dr. Guerrero, who recently received the degree of Doctor of Science in Hygiene from the Harvard School of Public Health, is most willing to undertake the fieldwork and with his University officials has prepared an estiamted budget for the work totaling $68,828.

Near Dacca, the study would be conducted in the Matlab thana of the Comilla District. According to the excellent vital statistics collected by the Cholera Research Laboratory for an area containing 100,000 persons, the birth rate in this area is 47 per thousand and the infant mortality rate 111 per 1,000. If the level of infant mortality is not uniform in this large area for which good vital data are available, the principal investigator would like to take two sub-areas differing somewhat in level of mortality. Both Dr. Phillips and Dr. Mosley of the Cholera Research Laboratory expressed an interest in having this study done in their area of demographic surveillance. Since no formal budget estimate has yet been prepared for this area, a tentative figure of $65,000 has been used. Dr. Nafis Sadik, Director of Planning and Training of the Pakistan Family Planning Council, has also expressed her approval of the proposed project in Pakistan.

6. Evaluation of Research Competence

The principal investigator for this project will be David M. Heer, Associate Professor of Demography, Harvard School of Public Health. Dr. Heer has a Ph. D. from Harvard University. He has published three books, edited another, and authored a long list of papers. He has long been interested in the determinants of family planning attitudes and practices and has written a number of papers on that topic.

7. Appraisal of Research Resources and Budget

Harvard University's research potentials are well known and need little elaboration. In regard to this particular project, the large international alumni of Harvard's School of Public Health make it easy for faculty to engage in international research, enlisting the cooperation of faculty members at institutions throughout the world who have had some former connection with Harvard.

We would recommend that the project be implemented at one of the three sites and that A.I.D. consider expanding the project to cover the other two sites after the results are available for the first. A.I.D. will need to allocate only $100,000 now and a like amount for each of the other two sites if such should be advisable.

The overall magnitude of the proposed budget appears reasonable, both from the point of view of the scope of work proposed and of A.I.D. objectives.

8. Technical and Scientific Review of the Project

Dr. Heer originally submitted a proposal to A.I.D. early in 1968. That proposal, describing what are now both Phases I and II, was circulated to key persons in WOH, PPC, and the Regional Bureaus, as well as to selected persons outside A.I.D. These reviews were largely favorable. The proposal was revised to take account of relevant comments from the various reviewers.

On October 4, Dr. Heer presented his results to an assemblage of key persons in A.I.D. and other government agencies. Invitations to this meeting were sent to members of the Intra-Agency Working Group on Population Matters, to members of the Demographic Data Committee and to Dr. Erven Long, Dr. Lee Howard, and Dr. Thomas Dublin. Of those attending, three whose professional backgrounds made them particularly well suited to evaluate the project were contacted and were asked for both oral and written comments on the merits of the project and its relevance to A.I.D. program goals: Mrs. Lydia Giffler, Demographer, Department of State; Mr. Thomas Merrick, Economist-demographer, PPC; and Mr. Samuel Baum, Director of the International Demographic Statistics Center, Bureau of the Census. The general concensus of the three is that the project is highly relevant to A.I.D. objectives, if A.I.D., in its policy and planning, is to take into account the process by which the family arrived at its desired size. A basic understanding of this process could point the way to methods of both speeding up the process of family planning acceptance in this first stage of extending services to meet existing demands and maintaining the momentum of the programs after the initial demand is met.

9. Summary Evaluation

This project has a high potential payoff, particularly in later stages of family planning programs when the initial demand for family planning has been met. The investigator has a clear grasp of his subject and a substantial experience from having worked on Phase I. We believe the project has considerable merit and deserves our support.

The budget of $100,000 would be the absolute minimum for conducting this research at one site and would allow for the most important analysis of the data for that site. Funding for studies at additional sites at the rate of $100,000 each would cover the field cost and allow analysis in depth since there would be an economy of scale.

FUNDING REQUIREMENTS
(for three sites, 36 months, FY 69-72)

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|---|---|
| **A.** Harvard Expenses: | |
| Salaries and Benefits | $76,336 |
| Travel | 5,420 |
| Supplies | 12,701 |
| Equipment | 600 |
| Overhead | 29,943 |
| Harvard Total | 125,000 |
| **B.** Expenses of Field Contracts | |
| # 1 (Taiwan) | 54,000 |
| # 2 (Colombia) | 68,828 |
| # 3 (Pakistan) | 65,000 |
| Sub Total | 187,828 |
| Grand Total | 312,828 |

FOOTNOTES

1. Robert Weintraub, "The Birth Rate and Economic Development: An Empirical Study," Econometrica, Vol. 40, No. 4 (October 1962), pp. 812-817; David M. Heer, "Economic Development and Fertility," Demography, Vol. 3, No. 2 (1966), pp. 423-444; Harald Frederiksen, "Determinants and Consequences of Mortality and Fertility Trends," Public Health Reports, Vol. 81, No. 8 (August 1966), pp 715-728.
2. Shafick S. Hassan, "Influence of Child Mortality on Fertility," Paper presented at the 1966 meeting of the Population Association of America, New York City, April 1966.
3. David M. Heer and Dean O. Smith, "Mortality Level and Desired Family Size," Contributed Papers Sydney Conference (International Union for the Scientific Study of Population, 1967).
4. Thomas Poffenberger, "Age of Wives and Number of Living Children of a Sample of Men who had the Vasectomy in Meerut District. U.P., "The Journal of Family Welfare, Vol. 13, No. 4 (June 1967), pp. 47-51.
5. Johan W. Eliot, "Urban-rural and Berber-Arab Differentials in Desired Numbers of Male Children and Related Factors in Algeria," paper presented at the 1968 meeting of the Population Association of America.
6. Ronald Freedman and John Y. Takeshita, "Studies of Fertility and Family Limitation in Taiwan," Eugenics Quarterly, Vol. 12, No. 4 (December 1965).

## FUNDING REQUIREMENT - ONE SITE
## PROJECT BUDGET

| | June 1, 1969 June 30, 1969 (1 mo.) | July 1, 1969 June 30, 1970 (12 mo.) | July 1, 1970 June 30, 1971 (12 mo.) | July 1, 1971 June 1, 1972 (11 mo.) | TOTAL (36 mo.) |
|---|---|---|---|---|---|
| **Direct Costs** | | | | | |
| Salaries, Wages, Fringe Benefits | | | | | |
| Principal Investigator | $ - | $ 1,600 | $ 3,200 | $ 3,200 | $ 8,000 |
| (17.25%) | - | 276 | 552 | 552 | 1,380 |
| Summer Student Research | - | | - | - | |
| Pre-Test Interviewers (2) | - | | - | - | |
| (11%) | - | | - | - | |
| Research Assistant | 670 | 4,000 | 8,000 | 7,330 | 20,000 |
| (11%) | 73 | 440 | 880 | 806 | 2,199 |
| Clerk-Typist | 200 | 2,400 | 2,400 | 2,200 | 7,200 |
| (11%) | 22 | 264 | 264 | 242 | 792 |
| Consultant Fees | - | - | - | - | |
| Travel | | | | | |
| Foreign | - | - | 1,800 | - | 1,800 |
| Domestic | - | 200 | 225 | 150 | 575 |
| Other Direct Costs | | | | | |
| Computer | - | 750 | 2,000 | 2,000 | 4,750 |
| Office Supplies | - | 275 | 500 | 250 | 1,025 |
| Communications | - | - | - | - | - |
| Postage | - | - | - | - | - |
| File Cabinets | - | - | - | - | - |
| Duplication | - | - | - | - | - |
| TOTAL DIRECT | 965 | 10,205 | 19,821 | 16,730 | 47,721 |
| **Indirect Costs** | | | | | |
| Overhead (31.5%) | 333 | 3,521 | 6,838 | 5,772 | 16,464 |
| Taiwan Fieldwork (includes 10% overhead) | - | 14,135 | 17,127 | 4,141 | 35,403 |
| TOTAL COSTS | $1,298 | $27,861 | $43,786 | $26,643 | $99,588 |

February 3, 1969

## BUDGET - TAIWAN FIELDWORK

| | Sept. 1, 1969 June 30, 1970 (10 mo.) | July 1, 1970 June 30, 1971 (12 mo.) | July 1, 1971 Sept. 30, 1971 (3 mo.) | TOTAL (25 mo.) |
|---|---|---|---|---|
| **Direct** | | | | |
| Personnel: Salaries/Wages | | | | |
| Dr. Chen | $ 700 | $ 840 | $ 210 | $ 1,750 |
| Dr. Wu | 1,500 | 1,800 | 450 | 3,750 |
| Research Assistant | 1,000 | 1,200 | 300 | 2,500 |
| Clerk Typists | 1,200 | 1,440 | 360 | 3,000 |
| Interviewers | 3,500 | 4,200 | 1,050 | 8,750 |
| Driver | 600 | 720 | 180 | 1,500 |
| Consultants & Related Interviewer Services | 2,000 | 2,560 | 440 | 5,000 |
| Equipment & Supplies | | | | |
| Jeep | - | - | - | - |
| Motorcycles | - | - | - | - |
| Gas/Maintenance | 750 | 900 | 225 | 1,875 |
| IBM Cards & Materials | 300 | 300 | 100 | 700 |
| Office Equipment | - | - | - | - |
| Office Supplies | 150 | 150 | 50 | 350 |
| Other | | | | |
| Travel (food/lodging) | 500 | 600 | 150 | 1,250 |
| punching | 600 | 800 | 200 | 1,600 |
| postage | 50 | 60 | 50 | 160 |
| TOTAL DIRECT | $12,850 | $15,570 | $3,765 | $32,185 |
| **Indirect** | | | | |
| Overhead (10%) | 1,285 | 1,557 | 376 | 3,218 |
| TOTAL COSTS | $14,135 | $17,127 | $4,141 | $35,403 |

February 3, 1969