

# Executive Summary

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## 1. INTRODUCTION

Since its initiation in 1984, the Demographic and Health Surveys, abbreviated as DHS, have produced a series of useful statistical information for a good number of developing countries. The Surveys maintain a good tradition of their predecessor, World fertility surveys, and continue to produce up-to-date information on levels and trends of fertility and infant and child mortality as well as their proximate determinants such as contraceptive prevalence, breastfeeding, etc. At the same time, fertility and its proximate variables may be studied in relation to some social and economic variables, including education, women's employment and exposure to family planning messages through mass media of communication. First of all, it must be so mentioned that the DHS clearly demonstrate a continuance of world-wide increases in the prevalence of family planning and appreciable declines in fertility in recent years in many of the developing sub-regions and countries.

The objectives of the Demographic and Health Survey are: to provide survey countries with data and analysis useful for informed policy choices, to expand the international population and health data base, to develop in participating countries the skills and resources necessary to conduct demographic and health surveys, and to advance survey methodology. As of mid-1991, 36 surveys had been conducted in Africa, Asia, Latin America and the Caribbean under the DHS program. The program is on-going and 22 more surveys will be completed by 1993.

The DHS furnish Japanese demographers and health statisticians with a rich gold mine for internationally comparable studies since the Surveys' record files have been prepared for most Surveys and researchers world wide are encouraged to use datasets for further analysis. The staff of the DHS are indeed generous enough to permit Japanese scientists to get an access to their data files and to have an opportunity to retabulate them for

various academic interests. So far the research activities of the Japanese demographers have rather been limited only to the Japanese scene and they have just recently been launching endeavours to study the demography and economics of the developing countries. In recent years, however, great needs have been felt to obtain accurate and comprehensive demographic information on developing countries and to ascertain causal relationship between fertility and proximate variables, or between fertility and socio-economic variables. In this connexion, the DHS provide truly invaluable statistical data with which Japanese scholars can embark on their comparative research work and get inspired for further innovative research. Perhaps in near future they would conduct their own in-depth surveys, for example, comparative studies of cultural factors affecting fertility and family planning behavior in different parts of Asia.

The present volume was intended to prepare such "further analysis" by using DHS country data. A study team was organized in 1992 under the auspices of the Institute of Developing Economies in order to conduct comparative studies on determinants of fertility and reproductive behavior in developing countries on the basis of DHS datasets. Different analytical approaches have been adopted by a multidisciplinary group of scholars to analyze DHS secondary data. Through contributions from multidisciplines they have enriched the substance of the volume. Except the first chapter which presents an introduction to the entire volume and the last chapter on Taiwan, every other chapter was intended to analyze DHS data for specific countries or regions and according to specific approaches of certain conceptual frameworks.

Bangladesh has been included in this report as a special case since Sri Lanka has typically a low fertility different from other South Asian countries while South Asia in general has a high fertility.

## 2. OVERVIEW OF RECENT FERTILITY DECLINES AND THEIR THEORIES

Chapter 1 by Kono presents a general picture of the demographic situations in the developing countries and gives an overview of theories or hypotheses which have attempted to explain the mechanisms of their changes in fertility in recent years.

Actually the developing regions are not a monolith, but characterized by diversities and multiplicities. Fertility levels are also widely divergent. To one extreme, there are Asian NIEs including South Korea, Taiwan, Singapore and Hong Kong, where fertility falls even under the replacement level. On the other extreme, there are sub-Saharan African nations where the total fertility is at 6.0 or more in most cases and there is a slight sign of decline. In the middle, there are a vast number of countries such as Caribbean and ASEAN countries where fertility hovers around 3-4 in terms of TFR and Indian sub-continent countries which definitely show the level below six and the TFR ranges from 4 to 5.

A series of studies carried out by Mauldin and his associates of the Population Council demonstrate that both economic and social development and Governments' efforts to promote family planning are equally important. For many years before the International Population Conference of Mexico city, it was held that unless the economic and social development have been achieved, fertility decline would not have taken place. However, this economic-social determinism has seriously been challenged in recent years in the face of the outcomes of many innovative field surveys and statistical analyses. In many countries of developing regions, fertility can decline if a nation wisely adopts and vigorously pursues fertility policies and family planning programmes even without concomitant substantial development.

The first chapter also refers to the prewar and postwar experiences of Japan on the basis of the national fertility data for the years 1940, 1952, 1957 and 1962 conducted by the Institute of Population Problems. It was concluded that Japanese fertility initiated declining even in the prewar periods of 1920s or 1930s, perhaps stimulated by Mrs. Sanger's visit to Japan that time, particularly among the educated couples of fourth parity. It was envisioned that the enhancement in education facilitates an acquisition of the idea and knowledge of family planning and the legitimation that family planning is not inimical to their well-being and a good conduct of life. In Japan it was considered that religious prohibition against birth control was minimal if it were not interfered by the Government. By and large, the chapter emphasized the importance of ideational

factors weighing against structural factors such as developmental factors for reducing the family size and fertility.

## 3. PROXIMATE DETERMINANTS

Sato's paper centers around the proximate determinants of fertility, namely marriage, contraceptive prevalence, breastfeeding, and induced abortion and the factor of infant mortality, which in turn come to affect fertility.

The DHS have been known to provide particularly rich information on proximate determinants of fertility. It is a merit of DHS which follow excellent tradition initiated by World Fertility Surveys in producing the accurate information on levels and quanta of proximate variables and which ascertain interrelationships between these proximate variables and fertility. Sato's paper disentangles a complex process of bio-demographic aspects of fertility by using the DHS estimates of the levels and patterns of proximate variables.

The degree of contraceptive prevalence is closely and positively associated with fertility and negatively related with late marriage and breastfeeding. It is well known that the last factor has some appreciable depressing effects upon fertility. It is at the same time negatively related to the level of infant mortality. The practice of breastfeeding brings about postpartum temporary sterility and lowers infant mortality. Lowering infant mortality tends to give the married couples in developing societies an assurance that their sons and daughters are likely to survive to the adulthood so that its sharp reduction tends to decrease the necessity of having "spare" children to maintain the family succession, the support of the ageing parents as well as to secure young labour force in the traditionally labour-intensive agriculture. Sato's detailed retabulations have supported the above hypotheses.

## 4. MARRIAGE BEHAVIOUR AND CHILDBEARING

As the developed countries are experiencing late marriage exemplified by an increase in age at marriage, a demographic consequence in some of the developing countries is an increase at age of first childbearing and a shrinkage of the entire reproductive period from the conception of first birth to the delivery of the last birth. It has been argued that the late marriage generally depresses overall fertility behaviour towards a small family. But, actual process is more complex.

According to Anzo, past studies on marriage behaviour can be classified into two categories. One is in relation to studies ascertaining factors affecting marital

behaviour such as education, employment, sexual imbalances at marriage market, etc. The other group of studies attempt to spell out and explicate endogamous norms in mate selection, thus pointing out that males and females tend to marry in homogamy of having similar family backgrounds in regard to ethnicity, education, type of economic activities, taste, etc.

Nuptiality affects fertility. Late marriage generally brings about a lower fertility in terms of the period total fertility rate. But in terms of cohort total fertility, the delay in first marriage shortens the actual reproductive span and attenuate fertility itself.

According to Anzo's study, it was concluded that late marriage causes a late entry into reproductive period and in turn postpones the timing of the first birth. When the age at first birth has increased, the cohort fertility itself, not speaking of period fertility, has declined. Higher education of women tends to be associated with late marriage. But, women of higher education tend to get married with men of higher education according to the rule of homogamy. An association with highly educated husband also facilitates a smaller family.

## 5. HOUSEHOLD AND ITS SOCIO-ECONOMIC DETERMINANTS

The fourth chapter deals with socio-economic factors affecting the household size. Usually, the size of household is taken as proxy for family size though they are different in actual application.

Sakai chose two countries for each major developing region, namely Egypt and Ghana for Africa, Colombia and Brazil for Latin America and finally Sri Lanka and Thailand for Asia. In his analysis, independent variables include age of mother, urban-rural residence, educational level of mother. There are several interesting findings in Sakai's study.

First, household size is greater in rural areas than in urban areas. This is also almost universal phenomena except Sri Lanka, partly reflecting lower fertility in rural areas.

Secondly, but most fascinating is his analysis of employing the factor of age such as mother's age which is presumably affecting the size of household and childbearing behaviour, the degree of three-generation coresidence, etc. When studying the demography of the household, attempts have often been made via headship rates in which a father or an aged grand father has normally been designated as head of household.

Third, at any rate, the approach through mother's age seems quite unique.

With a creeping process of population ageing even in some of the developing countries, extensive and

innovative research would be necessary on the household formation and patterns of coresidentiality existing in those countries.

## 6. EDUCATION AND FERTILITY

Hayase's paper deals with the relationship between women's educational attainment and fertility, the relationship which is conventionally the most often tracked down and best known. Studies of changes in fertility conditions have consistently pointed to education as a paramountly important factor in accounting for fertility differences within the populations.

Through her extensive retabulations of the data files of the Demographic Health Surveys for 28 countries, Hayase presents a number of meaningful findings pertaining to education and fertility through inter-country comparisons and multivariate analyses. By and large, education, particularly female education, is negatively and significantly associated with fertility and its proximate determinants. Because of the space limitation, it is not possible to summarize all of her findings. But, some salient ones will be shown hereunder.

First of all, one can wonder how widely educational levels are different among the 28 countries under investigation. Again, the developing countries really vary in levels and patterns from one extreme to the other and signify diversities and multiplicities of demographic behaviour.

It is interesting to note that among different groups fertility differentials were greatest between women with primary education and those with higher education. Similar patterns of differences are found in proximate determinants of fertility such as age at first marriage, knowledge and prevalence of contraception. The greatest difference is not necessarily found between the women of non-education and those of primary schooling, but is likely to exist between women of primary education and those of higher education, though somewhat depending on the types of variables. The important point is that the watershed is always not found between the non-educated and educated. As the United Nations study in 1987 maintained (United Nations, 1987), her observation may suggest the existence of some kind of threshold beyond which fertility starts declining appreciably. This is related to the social diffusion or cultural lag hypothesis which in turn emphasizes the influence of ideational factors affecting fertility decline.

Another useful, yet oft-talked about hypothesis is that wife's education is more important than husband's in practicing family planning and in reducing fertility level. Hayase's analysis of DHS also supports the validity of the hypothesis.

All in all, education has been recognized as most

"robust" factor influencing fertility. Hayase's multivariate analysis reconfirms a saliency of education as determinant of fertility change.

Finally, some policy implications have been derived from the analysis of 28 different country surveys. Although family planning programmes are useful and effective, Hayase goes ahead in this context in suggesting that educational investment upon women would probably play a greater part in leading towards eventual substantial fertility decline.

## 7. WOMEN'S ECONOMIC ACTIVITIES AND FERTILITY

Ohbuchi's chapter makes another round of stimulating comparative study of three countries in Asia, namely Indonesia, Sri Lanka and Thailand, with regard to women's employment and its relationship to fertility. Ohbuchi makes an attempt to apply to the DHS data the new consumer theory of Gary Becker and his associates.

In the developed countries, the relationship between women's employment and fertility has been one of the most important subjects for the economics of fertility. According to the "new home economics", fertility behaviour which involves childbearing and the subsequent child care is an important part of household production. His paper attempts to apply its conceptual schemes to fertility behaviour directly with the elements of female labour supply and human capital.

According to the model, the higher the economic value of the mother's time is, the greater its opportunity cost and the cost of having children are. Hence, the substitution process operates in shifting from the time-intensive goods like children to other market goods, and the desired number of children among couples will decrease. A great number of empirical studies have confirmed the negative relation between the opportunity cost of mother's time and fertility. In the comparative studies of WFS, working status, type and timing of women's work are significantly related to the level and pattern of fertility.

In the traditional societies where the families are involved in domestic production, the opportunity cost of bearing and caring children is relatively small because women can work not too far away from her home and the motivation for family limitation is not very strong. As a matter of fact, in many developing countries the relationship between women's work and fertility is not straightforward, and often positive or certainly not negative caused by interactions with other factors.

As already mentioned, Ohbuchi applied the above new home economics theories to three Asian countries, namely Indonesia, Sri Lanka and Thailand. But, it

should be reminded that these three countries are not least developed ones. Actually, these three countries belong economically to a moderately developing group and demographically to a medium-low fertility group in Asia.

Through the frequency distribution of numbers of children ever-born and currently living, a variance test has been performed to assess whether differentials in fertility by working status of women are statistically significant. According to Ohbuchi, it can be maintained pretty safely that negative relationships are held between women's employment and fertility when using working status of women before marriage. But the relationship is not hold well enough when using working status after marriage. The author proposed a hypothesis that for the women who used to work before marriage but were idle after having had more than a few children, they may feel like economically deprived. Therefore, they wish to go out again of their home for gainful work. This means that there emerges a positive (instead of negative) relationship.

It is somewhat regretted that the DHS do not provide much data on economics of fertility to test interesting and provocative theories of Gary Becker and his associates. Nevertheless, the preliminary study presented here in this report would mark a good start off for a more sophisticated series of economic studies in Japan in future.

## 8. MASS MEDIA OF COMMUNICATION AND FAMILY PLANNING

Kojima's paper attempts to assess effects of mass-media of communication upon the dissemination of knowledge of family planning over the population via multivariate analysis. The DHS countries selected are four African countries, namely Egypt, Morocco, Tunisia and Zimbabwe.

The use pattern of contraceptives is substantially affected by the radio ownership and the exposure to family planning messages on the radio among females. The availability of information on family planning through radio networks has a significant and positive effects in all selected countries. As Kojima pointed out, this study suggests that channelling the idea of family planning and its new methods through mass media of communication is essentially useful and that advancing social development exerts a synergetic effect for spreading contraceptive knowledge. The importance of development in audio-visual communication network through radio and television has been studied particularly by American demographers with the background of operations research. Indeed, one of the themes of this volume centres around the efficacy and strength of

ideational factors in a close kinship to the social-diffusion theory.

Kojima's research findings reveal that the significant part is played by the availability and ownership of audio-visual equipment and that such would supply strong instrumentalities to legitimize the idea of family planning and disseminate its knowledge and methods under the circumstances where contraceptive supplies are sufficiently available and medical facilities are at an easy reach to clients.

#### **9. SUCCESS OF FAMILY PLANNING WITH RELATIVELY LITTLE DEVELOPMENT: THE CASE OF MATLAB**

The paper by Mosleh Uddin, a statistician and a Bangladesh citizen currently teaching at SIAP (Statistical Institute for Asia and the Pacific) in Tokyo, provides a very vivid and insightful picture of the recent family planning activities and fertility declines in Bangladesh.

According to Ronald Freedman, Bangladesh is worthy of special mention, because its fertility decline from a total fertility rate of almost seven to about five between 1970 and 1991, as well as its concomitant increase in contraceptive prevalence rate from 3 percent to 40 percent, was unexpected. It is one of the poorest countries in the world, with high illiteracy rate, low status of women, extremely dense settlement for agricultural economy, high dependency on families, and high infant and child mortality.

These conditions are generally considered to be classical determinants of high fertility. But with little evidence of these structural changes, fertility decline has occurred. This makes Bangladesh an especially important case to study because of its possible relevance to other countries where prospects for fertility decline are considered to be remote.

A good number of papers have been written on the family planning programmes and fertility decline in the Matlab district where intensive efforts of family planning programmes have been claimed to be successful and have been argued that efforts would have been replicable for other poor countries.

But, most of those papers have been written (or at least known as such) by demographers in the United States and Europe and few have been done by Bangladesh scholars themselves. Uddin's paper is particularly informative and stimulative, because he was not carried away by what might be called the "Matlab fever" and he presents a well balanced opinion, taking into account of positive and negative viewpoints. The present author of this executive summary observes that Dr. Uddin does not seem to be exactly a staunch believer of the efficacy and benefit of family planning programmes. On

the other hand, however, it is interesting to note at the end of his paper, he mentioned that if the present is any guide, programme input, rather than socio-economic development or declining family size ideals, will be the catalyst to further fertility declines in Bangladesh. The present author keeps crossing his fingers.

#### **10. TIME-SERIES ANALYSIS OF FERTILITY**

Last but not least, the final substantive chapter deals with a time series analysis of fertility and its association with socio-economic variables in Taiwan which provides by the way a rich stock of accurate statistical data. Noda's paper is highly technical and methodological one, and it uses a macro approach in contrast to the micro approach of fertility analysis employed by the preceding authors. Nevertheless, his study demonstrates the importance of preparing multi-sectorial time series analysis of fertility and it would perhaps be useful for preparing fertility projections in a medium range.

At the very end, the present volume supplements an appendix of very rich statistical data on fertility in developing countries which were compiled on the basis of DHS. This is a useful enterprise that the Institute of Developing Economies has so far played a vanguard role in the statistical circle of Japan and East Asia and there must be three cheers lauding this nicely and usefully compiled set of data by them.

#### **11. CONCLUSION**

It is rather difficult to write conclusive remarks on the totality of this volume inasmuch as it consists of a variety of topics prepared by a variety of scientists of different disciplines and backgrounds. It might be able to mention, however, in this connexion that the metaphor "development is the best contraceptive" has no longer become valid. This was a central theme of population debates at the time of the 1974 Bucharest World Population Conference, but it has now largely faded away. In general, economic and social factors are important for affecting fertility. But recent studies show that programme efforts, enthusiasms and volitional forces are sometimes more important than developmental factors in reducing fertility and in changing its proximate determinants and service variables such as contraceptive practice, supply of contraceptives etc.

The Matlab experiment in Bangladesh seems relevant in this context. As Samuel Preston appropriately stated, the Matlab success has been the scene of the most carefully conducted experiment in the delivery of family planning services to a poor rural population. That this experiment produced a sharp reduction in fertility is

a decisive indication that there were preexisting but unrealized desires to reduce fertility and that supply factors can influence fertility outcomes.

In the 21st century, ideational and policy elements of human behaviour are becoming more important and more widely recognized.

#### REFERENCE

United Nations. 1987. *Fertility Behaviour in the Context of Development : Evidence from the World Fertility Survey*. New York. ST/ ESA/ SER. A/ 100