

SEX PREFERENCE FOR CHILDREN
AND GENDER DISCRIMINATION
IN ASIA

January 1996

KOREA INSTITUTE FOR HEALTH AND SOCIAL AFFAIRS
UNITED NATIONS POPULATION FUND (UNFPA)

PREFACE

The Korean Institute for Health and Social Affairs (KIHASA) has organised a series of international seminars and symposia on emerging issues arising from the rapid fertility decline that has occurred throughout most of Asia. Thus in 1991 KIHASA organised an International Seminar on the consequences of fertility decline with respect to the implications for the family and the elderly. In 1993 a follow-up International Seminar was organised on the socio-economic and cultural consequences of replacement and below replacement level fertility. The proceedings of these two seminars were subsequently published by KIHASA respectively as, *Impact of Fertility Decline on Population Policies and Programme Strategies*, and *Low Fertility in East and Southeast Asia: Issues and Policies*.

One of the issues that came to light during the 1993 Seminar was an indication that the sex ratio at birth was rising in several of the low fertility countries of East Asia, notable among them being China, the Chinese Province of Taiwan and the Republic of Korea where figures on sex ratios at birth of higher than 110 boys per 100 girls had been recorded. Although the sex ratio at first birth has generally remained around the expected level, it tends to increase sharply with increasing birth order, which appears to be evidence of sex preference for children.

Towards the end of 1994 an International Symposium on *Issues Related to Sex Preference for Children in the Rapidly Changing Demographic Dynamics in Asia* was held to consider a number of important issues related to sex preference for children and gender discrimination in Asia. The Symposium was held in Seoul from the 21st to the 24th of November 1994. It was jointly organised by

the United Nations Population Fund (UNFPA) and the government of the Republic of Korea and hosted by KIHASA. Many of the important topics that the Symposium addressed are identified as matters for action in the Programme of Action of the International Conference on Population and Development held in Cairo in September 1994, including the situation of the girl child, the status of women, and practices like differential provision of health care services to children of different sexes and sex-selective abortion.

This publication contains an edited set of the 10 country studies that were presented at the Symposium. In addition to the country studies, a broad overview of son preference in Asia is given in the opening chapter and some of the key issues and conclusions arising from the studies are discussed in the final chapter. This publication thus provides a selection of authoritative contributions to the important and current debate on the topic of sex preference for children and gender discrimination in Asia. A series of recommendations in the areas of data and research and policies and programmes drafted at the Symposium are given in Appendix. I am sure that these will be of considerable value to policy makers and planners throughout Asia.

The Symposium was generously funded by UNFPA with additional resources provided by KIHASA. As the joint-organiser of the Symposium, KIHASA is grateful for the technical support provided by the Technical and Evaluation Division of UNFPA, and in particular to its Director, Mr. Jyoti Singh and his Deputy, Mohamad Nizamuddin. Many other people contributed towards the success of the Symposium. I would especially like to thank the staff of the Research and Planning Division of KIHASA, in particular Dr. Moon-Sik Hong, Mrs. Moon-Hee Suh, Mrs. Hyun Oak Kim, and Ms. Wha-Oak Bae, as well as the Vice President of KIHASA Dr. Nam-Hoon Cho for their great efforts in helping to ensure the successful implementation of the Symposium. Finally,

thanks are also due to Richard Leete for editing the selection of papers contained in this publication and to Ms. Soo Mei May and Ms. Yun-Ja Jung for their able word processing contributions.

The views and opinions expressed in the various chapters are those of the authors alone and do not necessarily reflect the views of either KIHASA or UNFPA.

January 1996

Ha-Cheong Yeon, Ph.D.
President, KIHASA

FOREWORD

Asian women are making a major contribution to national development efforts, through their increasing participation in modern sector employment; through the vast sums of money remitted whilst working away from home as migrant labourers, as well as through their continuing contribution to agricultural production, and household and family duties. Yet despite women's self-evident contribution as equal partners in national development efforts, they continue to suffer appalling discrimination in almost every sphere of life. Although there have been some notable improvements, especially in the areas of health and education, in much of Asia clear economic, social and political inequalities still persist.

During the course of the transition from high to low fertility in Asia, traditional prejudices have resurfaced and new forms of discrimination have emerged. Since the mid-1980s more and more evidence has come to light of increased discrimination against girls. Female sex-selective abortion following prenatal foetal sex-detection tests, female infanticide, abandonment, and wilful neglect of female babies in the provision of nutrition, medical attention and general care have been observed in several Asian countries. In some situations these phenomena have led to distortions in the sex ratios at birth, as well as a reversal of the biologically determined infant and child mortality differential that normally favours females. Thus in the same way as the new medical technology appears to be modifying natural sex ratios at birth on account of son preferences, discriminatory treatment of boys and girls, particularly with respect to nutrition and health care, is continuing to reverse the natural differential in survival chances in infancy and childhood in particular settings.

The Programme of Action adopted by the 1994 Cairo International Conference on Population and Development put forward a basis for action with respect to the girl child. It noted that since in all societies discrimination on the basis of sex often starts at the earliest stages of life, greater equality for the girl child is a necessary first step in ensuring that women realise their full potential and become equal partners in development. In a number of countries, the practice of prenatal sex-selection, higher rates of mortality among very young girls, and lower rates of school enrolment as compared with boys, suggest that son preference is curtailing the access of girl children to food, education and health care. This is often compounded by the increasing use of technologies to determine foetal sex, resulting in abortion of female foetuses. It further noted the critical importance of investments made in the girl child's health, nutrition and education, from infancy through adolescence.

The International Symposium on *Issues Related to Sex Preference for Children in the Rapidly Changing Demographic Dynamics in Asia* was held in Seoul from the 21st to the 24th of November 1994. The Symposium was jointly organised by the United Nations Population Fund (UNFPA) and the government of the Republic of Korea and hosted by the Korean Institute for Health and Social Affairs (KIHASA). It brought together a number of distinguished population scientists, planners and other experts from within and outside of Asia. This publication of the edited country studies is an output from the Symposium. It will provide an important focus for addressing the issues of sex preference for children and gender discrimination in Asia. In particular, the recommendations drafted at the Symposium (see Appendix below) will provide a basis for formulating population policies and programmes that take into account the implications of sex preference for children in efforts to eliminate gender discrimination.

The success of any international Symposium is contingent upon the effective team work of a large number of individuals. I would especially like to place on record my thanks to Dr. Ha-Cheong Yeon, President, KIHASA, for his keen support and enthusiasm for the Symposium. I would also like to thank my colleagues in the Technical and Evaluation Division of UNFPA, for their strong commitment to the many preparatory tasks that had to be undertaken. The support of the Population Division of the Department of Social and Economic Policy Analysis, United Nations, is also acknowledged.

January 1996

Jyoti Singh
Director, UNFPA

CONTENTS

PART I. CONTEXT AND BACKGROUND

1. Nature of Sex Preference for Children and Gender Discrimination in Asia : *Mohamad Nizamuddin and Iqbal Alam* 23

PART II. COUNTRY STUDIES - EAST ASIA

2. Sex Ratio at Birth and Son Preference in China : *Gu Bao Chang and Li Yong Ping* 43
3. Sex Ratio at Birth and Son Preference in Taiwan Province of China : *Ming-Cheng Chang* 71
4. Effects of Induced Abortion and Son Preference on Korea's Imbalanced Sex Ratio at Birth : *Nam-Hoon Cho and Moon-Sik Hong* 90

PART III. COUNTRY STUDIES - SOUTH ASIA

5. Son Preference and Excess Female Mortality in India's Demographic Transition : *Monica Das Gupta and Leela Visaria* 115
6. Son Preference in Pakistan's High Fertility Setting : *Zeba A. Sathar and Mehtab S. Karim* 139
7. Impact of Demographic Change on Child Discrimination in Bangladesh : *Rafiqul Huda Chaudhury, Nurul Alam and Radheshyam Bairagi* 161

8. Sex Preference for Children in Low Fertility Sri Lanka :
Anthony Abeykoon and Dallas Fernando 186

PART IV. COUNTRY STUDIES - SOUTH-EAST ASIA

9. Sex Preference for Children in Vietnam :
Daniel Goodkind 205
10. Family Size Desires and Sex Preferences for
Children in Thailand: Implications for Replacement
Fertility : *Kua Wongboonsin and
Vipan Prachuabmoh Ruffolo* 224
11. Ethnic Differentials in Son Preference in Indonesia :
Budi Soeradji and Sri Harijati Hatmadji 240

PART V. CONCLUSIONS

12. Son Preference in Asia: Issues and Considerations :
Richard Leete 257

APPENDIX

- Recommendations of the International Symposium
on Issues Related to Sex Preference for Children
in the Rapidly Changing Demographic Dynamics
in Asia 275

LIST OF TABLES

2. 1	Sex ratio at birth, China, 1970~1989	43
2. 2	Sex ratio at birth by parity, China, 1981~1989	47
2. 3	Observed sex ratio of surviving children born in 1989 and the first half of 1990, by number and sex of surviving children, residence and education, China, 1990	48
2. 4	Sex ratio at birth by province and residence, China, 1989	50
2. 5	Estimated contribution of the underreporting of female births to the increase in the reported sex ratio at birth, China, 1983~1990	51
2. 6	Sex ratio of the aborted foetus by surviving children, Southern Zhejiang, 1993	53
2. 7	Sex ratio of the aborted foetus by number and sex of surviving children, Southern Zhejiang, 1993	54
2. 8	Comparison of estimated infant mortality rates (per 1,000) by sex and residence, China, 1981 and 1989	56
2. 9	Degree of seriousness of the gender inequality according to perception of respondents, China, 1990 ...	60
3. 1	Per cent distribution of preferred number of sons for married women aged 22~39, Taiwan area, 1965~1991 ..	77
3. 2	Per cent distribution of family composition preferences, Taiwan area, 1965~1991	78

3. 3	Per cent of married women aged 22~39 who want no additional children and per cent who are currently practising contraception, by number of living children and living sons, Taiwan area, 1965~1991	79
3. 4	Sex ratio at birth for Taiwan area, 1960~1990	82
3. 5	Sex ratio at birth by birth order and age of mother for Taiwan area, 1987 and 1990	83
3. 6	Sex ratio at birth by birth order, age of mother and type of administrative district for Taiwan area, 1990 ...	85
3. 7	Fertility measures for married women aged 20~44 who performed prenatal sex determination through CVS for live births, stillbirths, and miscarriages, Taiwan area, 1987~1992	87
4. 1	Changes in ideal number of children among married women aged 15~44, Korea, 1968~1991	99
4. 2	Degree of son necessity for ever married women aged 15~49, Korea, 1976~1991	100
4. 3	Percentage distribution of women by reason for boy preference, Korea, 1964~1991	101
4. 4	Percentage distribution of ever-married women aged 15~49 by reason for boy preference, Korea, 1991	102
4. 5	Changes in sex ratio at birth by birth order, Korea, 1980~1994	104
4. 6	Total marital induced abortion rate by strata, Korea, 1968~1991	105
4. 7	Pregnancy outcome (per cent) for married women by pregnancy order and year of pregnancy, Korea, 1985~1991	106

4. 8	Sex identification test and pregnancy outcome, Korea, 1988	106
4. 9	Actual and projected population (000s) at peak marriageable ages, Korea, 1970~2010	107
5. 1	Total fertility rates, major states of India, 1971~1991 ...	116
5. 2	Life expectancy at birth by sex and place of residence, India, 1970~1990	117
5. 3	Sex combination of existing children and desire for additional children, all India, 1980 and 1988 and four districts of Gujarat state, 1989	119
5. 4	Percentage of respondent women indicating preference for specified sex combinations of children, four districts of Gujarat, 1989	120
5. 5	Percentage of women accepting sterilisation after having the stated number and sex composition of children, Gujarat, 1989	121
5. 6	Decline in total fertility rate and in number of sons desired, India, 1980~1991	122
5. 7	Decline in desired family size and sex composition of children, women aged 15~29, Khanna, Punjab, 1984 ...	123
5. 8	Trends in sex ratios, females per 100 males, major states of India, 1981~1991	126
5. 9	Change in life expectancy by sex, India, 1972/76 to 1990/91	128
5.10	Child mortality rates (per 1,000) by sex, India, 1970/75 and 1990/91	132
5.11	Infant mortality rates per 1,000 live births by sex, India, 1979~1991	133

6. 1	Total fertility rates from various surveys and 1960s to 1980s, Pakistan	141
6. 2	B ₆₀ 's adjusted using indices of relative change, truncation approach, 1975 PFS and 1991 PDHS	144
6. 3	Per cent distribution of currently married non-pregnant women aged 15~49 who want another child and using contraceptives, by preferred sex of next child and number of living children and sons, Pakistan, 1991	146
6. 4	Reported sex ratio at birth by birth order, Pakistan, 1986~1990	147
6. 5	Mortality rates, by sex of child for the 10 year period before the survey, 1975 PFS and 1991 PDHS, Pakistan	149
6. 6	Breast-feeding patterns and reported illness and treatment provided by sex of children under five, Pakistan, 1991	150
6. 7	Proportion of ever-married women who want more children by number of living sons and daughters, Pakistan, 1991	151
6. 8	Proportion of unmet need for contraception by number of living sons and daughters, Pakistan, 1991 ..	152
6. 9	Ideal family size and ideal number of boys and girls by ever-married women who gave a numeric response by stratum, Pakistan, 1991	154
7. 1	Percentage of currently married women of reproductive ages using contraception by sex of living children, Bangladesh, 1989	165

7. 2	Percentage of currently married non-pregnant women who want no more children or have been sterilised by number of living sons and number of living daughters, Bangladesh, 1989	166
7. 3	Percentage distribution of women not contracepting because they desire additional children by the number and sex composition of their living children, Bangladesh, 1985	167
7. 4	Fertility rates by age of women, Bangladesh, 1964~1990	169
7. 5	Sex ratios of the population aged 0~4, Bangladesh, 1951~1991	171
7. 6	Neonatal, post-neonatal and infant mortality rates (per person) by sex, Bangladesh, 1981~1990	172
7. 7	Prevalence (per cent) of stunting by area, sex and year, Bangladesh, 1985/86 and 1989/90	173
7. 8	Monthly expenditure on medical care (including services) per household by sex, types of expenditure and residence, Bangladesh, 1988~1989	174
7. 9	Death rates of children aged 1~4 years by sex and family composition, Matlab, 1976~7 cohort	177
7.10	Death rates of children aged 1~4 years by sex and family composition, Matlab, 1981~2 cohort	178
7.11	Death rates of children aged 1~4 years by sex and family composition, Matlab, 1986~7 cohort	180
8. 1	Age specific fertility rates per 1,000 women, Sri Lanka, 1970~1993	187

8. 2	Mean number of children ever born to currently married women, Sri Lanka, 1975, 1982, 1987 and 1993	188
8. 3	Percentage distribution of currently married women aged 45~49 by number of children ever born, Sri Lanka, 1975, 1982, 1987 and 1993	188
8. 4	Children ever born by mother's education level, Sri Lanka, 1982	189
8. 5	Total fertility rate by place of residence, Sri Lanka, 1982/87 to 1988/93	190
8. 6	Singulate mean age at marriage, SMSM, of females, Sri Lanka, 1953~1993	191
8. 7	Percentage of currently married women using contraception by method, Sri Lanka, 1975, 1982, 1987 and 1993	192
8. 8	Sex ratio at birth, Sri Lanka, 1965~1992	196
8. 9	Infant mortality per 1,000 live births by sex, Sri Lanka, 1952~1985	197
8.10	Age specific death rates (per 1,000) at ages 1~4 and 5~9, Sri Lanka, 1952~1954, 1962~1964, 1970~1972 and 1980~1982	198
8.11	Percentage of women aged 15~49 currently using contraception by sex of those having two living children, Sri Lanka, 1987 and 1993	199
9. 1	Proportion of respondents without a son or daughter, respectively, Vietnam, 1992~1993	209
9. 2	Parity progression ratios by composition of prior children, Vietnam, 1992~1993	210

9. 3	Contraceptive prevalence by sex composition of children, Vietnam, 1992~1993	211
9. 4	Probability of death for younger males and females, Vietnam, 1979 and 1989	213
9. 5	Patterns of ancestor worship, two Vietnamese Provinces, 1993	215
9. 6	Ancestral displeasure of having no son, two Vietnamese Provinces, 1993	218
9. 7	Sex preferences for children, two Vietnamese Provinces, 1993	218
9. 8	Percentage of second birth intervals less than three years: by sex of first birth, two Vietnamese Provinces, 1980~1989	219
10. 1	Distribution and mean number of preferred children, SSATC, 1988	227
10. 2	Distribution and mean number of preferred children by household economic status, married women under age 30, SSATC, 1988	228
10. 3	Percentage distribution of preferred number of boys and girls by type of respondent, SLF, 1993	235
10. 4	Percentage distribution of Coombs IS and IN scales according to type of respondent, SLF, 1993	236
10. 5	Mean values of Coombs IN and IS scales by education, income, and marital status, SLF, 1993	237
11. 1	Per cent of female non-migrants by type of migration and place of current residence, selected provinces, 1990	248

11. 2	Per cent distribution of ever married women according to ethnic group by sex preference of their ideal number of children, 1991	250
11. 3	Per cent of currently married and non-pregnant women who want more children by sex composition of living children, 1991	251
11. 4	Per cent of currently married and non-pregnant women with two or more children who are currently using contraception by sex composition of living children, 1991	252
12. 1	Sex ratios at birth by ethnic group, Peninsular Malaysia, 1960~1993	260
12. 2	Sex ratios by birth order, Chinese, Peninsular Malaysia, 1983~1993	261

LIST OF FIGURES

2. 1	Sex ratio at birth, China, 1970~1989	44
2. 2	Sex ratio at birth by parity, China, 1981~1989	46
5. 1	Fertility decline and sex differentials in child mortality, Khanna, Punjab, mid-1980s	124
5. 2	Fertility and sex ratio trends, India, 1961~1991	127
5. 3	Ratio of male to female age-specific death rates, India, 1970~1972, 1980~1982 and 1989~1991	131
10. 1	Spatial distribution of mean number of preferred children of women under age 30, SSATC, 1988	230
10. 2	Spatial distribution of wives under age 30 preferring three or more children, SSATC, 1988	231
10. 3	Spatial distribution of wives under age 30 preferring no children or just one child, SSATC, 1988	232

PART I.

CONTEXT AND BACKGROUND

1. Nature of Sex Preference for Children and Gender Discrimination in Asia

Mohamad Nizamuddin, *UNFPA, New York*

Iqbal Alam, *CST/UNFPA, Bangkok*

Asia is currently the fastest growing and arguably the most dynamic region of the world. Spectacular economic growth, most notably amongst the so-called Asian tigers and the newly industrialising economies of South-East Asia, but also including the world's two most populous countries, China and India, has brought with it fundamental social and demographic changes. The reproductive revolution in Asia which led to the modernisation of fertility not only occurred at a much greater speed than had been experienced in the West, but also in widely differing economic, cultural and political contexts, including several in which the populations were of low income and predominantly engaged in rural farming (Leete and Alam, 1993). It is, of course, clear that Asia's rapid fertility declines were not merely brought about by economic and social development alone. Government led family planning programmes not only played a supporting role but in several countries were the main force in bringing about these declines. Yet despite the obvious welfare gains that have accompanied economic, social and demographic changes, large proportions of Asian women continue to suffer appalling gender inequalities and it may well be that there has been a worsening of the situation for many of the region's women.

The maintenance of the traditional perception of females as economic liabilities and of lower social status than males appears

to have worsened their plight in situations where couples feel increasingly constrained to have much smaller families than in the past. Pressures to have fewer children have been brought about by social and economic factors, as well as through national population policies. Since the mid-1980s there has been increasing evidence coming to light of female sex-selective abortion following prenatal foetal sex-detection tests, female infanticide, abandonment, and wilful neglect of female babies in the provision of nutrition, medical attention and general care. In some situations this appears to have led to a reversal of the biologically determined infant and child mortality differential that normally favours females. This paper gives a broad overview of the nature of sex preference for children and gender discrimination in Asia as background to the more detailed country studies presented in Chapters 2 to 11 below. It concludes by proposing some policy and programme measures to help address these gender issues.

Sex Preference for Children

The Tradition of Son Preference

With few exceptions, the status of Asian women, particularly among rural communities, has long been markedly inferior to that of men. Their plight is affected by such factors as lower school enrolments rates with consequential lower educational attainment and higher illiteracy rates than men; differential access to health care, employment, resources and political power. Added to these disadvantages, and indeed helping to reinforce them, are a wide range of cultural and traditional factors, prominent among which are patriarchal and patrilineal kinship structures, socialisation processes that encourage female submissiveness, parentally arranged marriages, *pardah* or physical exclusion, polygyny, and

even unequal legal rights. Of course, not all of these factors necessarily apply at the same time in all Asian countries, and in some countries all, or most of them, are absent.

Strong son preference and discrimination against girls have their roots in traditional agrarian modes of organisation in patriarchal societies (Cain, 1982 and 1986; Caldwell, 1976 and 1978). In such societies women are economically dependent on men, through sexual division of labour, restrictions on physical mobility and labour market segmentation. Women typically concentrate in work that keeps them within or close to the family home. Such work is deemed to be 'household work', while men are engaged outside of the confines of the household in 'productive work' - a distinction that itself tends to downgrade the value of women's work and its central importance to the functioning of the household. In such traditional societies young women have little option but to be fertile for which there are advantages. Through bearing children a wife can establish her position and enjoy a larger share of consumption items, and ultimately achieve a major gain in status by becoming a mother-in-law. Older women dominate younger women so older women become allied with patriarchal interests. Son preference emerges not just among men concerned about the need for support in old age. It is also strong among women who, given their exclusion from mainstream sources of income and being prevented from providing for themselves through their own labour, want sons as an important source of insurance against the risk of losing the economic support of a husband through death or other reasons. Economic security can thus be seen as a key factor for son preference in such male-dominated societies.

A further factor contributing to son preference in patriarchal societies is that girls leave their parents' home at marriage and do not inherit land or property. Because a girl grows up to marry into another family, she is frequently considered as a wasted investment by her own parents. Where she might bring in income, the return has to be weighed against the investment of raising and educating her in a manner fitting to the role mapped out for her. Marriages are arranged, often to foster alliances between clans, and cohabitation often came shortly after a girl reaches puberty. On marriage she is pressured by her mother-in-law to bear sons to carry on the family line. A similar pattern of arranged marriages, albeit at differing ages, is common for girls of all strata. Daughters are thus often perceived as temporary children who change their names and allegiances, particularly in terms of support, after marriage. Further, because many Asian women acquire status and security, including access to resources through sons, they too invest more in them. They also act as role models to their daughters thereby helping to sustain traditional values. The costs of girl children imposed by continuing dowry systems and other comparable practices and customs also helps to strengthen son preference (Jones, 1994). Greater care is shown to boys who help perpetuate the family name, as Mhloyi noted, the 'value attached to a family name in patriarchal societies transcends socio-economic boundaries' (Mhloyi, 1994).

Traditions and cultures can, and do, change in the light of economic and social progress, political expediency, as well as through the effects of the increasing globalisation of information. While many of the characteristics described above as typifying traditional agrarian societies have changed, the tradition of son preference still remains widespread.

Distortions to the Natural Sex Ratio at Birth

The sex ratio of live births in human populations is characterised by remarkable homogeneity and stability across populations and over time. In all population more males than females are born, and the sex ratio at birth usually varies between 104 and 107 male births per 100 female births (James, 1987; Chahnazarian, 1988). While sex ratios at birth have been known to vary by such factors as race, birth order, parental age and during wartime, none of these factors have been shown to have a substantial effect. However, medical sources have identified a few conditions which could theoretically markedly affect sex ratios, such as time of insemination within the menstrual cycle (James, 1987). However, the impact of such factors has not been demonstrated with macro level demographic data. Biomedical research suggests that the sex ratio at birth is lower under conditions of high mortality. Conversely, under conditions of low mortality, where rates of miscarriages, spontaneous abortions, and stillbirths are lower, sex ratios at birth are higher.

Much of the more detailed analysis of sex ratios at birth has been carried out in European countries where long time series of reliable birth registration statistics are available. Johansson and Nygren (1991) have analysed some 240 years of Swedish birth records and concluded that under normal circumstances the sex ratio at birth is between 105 and 106 boys per 100 girls, and that this should be considered the normal range of variation of a stable biological phenomenon. Similarly Shaw (1989) analysed birth statistics for England and Wales between 1901 and 1988 and found that the variation in the sex ratio at birth was within the range of 104 to 107 boys born for every 100 girls. Secular increases in the

sex ratios at birth in both Sweden and England and Wales can be attributed to secular declines in the level of stillbirths - the risk of stillbirth is generally higher for males than females. In other words improved health conditions, nutrition and ante-natal care could be responsible for a slight upward trend in the sex ratio at birth but can not account for levels significantly outside the normal range.

Since the 1980s - more specifically after about 1985 - the sex ratio at birth began to rise in several of the low fertility countries of East Asia, notable among them being China, the Chinese Province of Taiwan and the Republic of Korea where figures on sex ratios at birth of higher than 110 boys per 100 girls have been recorded (Yi et al, 1993; Park and Cho, 1995, and also Chapters 2 to 4 below). Although the sex ratio at first birth has generally remained around the expected level, it tends to increase sharply with increasing birth order, which appears to be evidence of the manifestation of son preference. Elsewhere in Asia, too, particularly in parts of South Asia, there is emerging evidence, albeit less reliable and less robust on account of data deficiencies, of increasing sex ratios at birth.

A plausible explanation for the rising sex ratio with birth order is as follows. If family size must be limited in a society with strong son preference, either because of economic or social considerations, or because of the prevailing population policy (the one-child policy in the case of China), female births after a certain number of children have been born, or even before, must be suppressed so that the required number of sons may be attained within the desired family size (Greenhalgh and Li, 1993). One means for doing so is through the use of technology for prenatal

sex-detection tests followed by sex-selective abortions.

Medical technology for prenatal sex-detection tests became more readily available after the mid-1980s. Park and Cho (1995) note that three modern medical technologies that can be used to determine the sex of a foetus became more readily available in parts of East Asia after the mid-1980s. Chorionic villus sampling can be performed at between eight to twelve weeks of pregnancy. However, this method is very expensive and is not affordable on a wide scale. Amniocentesis is frequently used; but the test is applicable only after 16 weeks of pregnancy, and it requires another three to four weeks for the laboratory test to determine the sex of the foetus. Thus, an induced abortion based on the results of this technology cannot be done in the first trimester. Furthermore, amniocentesis is not always safe and a foetus can, albeit rarely, be injured during the procedure. The most frequently used method appears to be ultrasound. While it is the least expensive and simplest method, it is effectively applicable only in later stages of pregnancy. Ultrasound is performed even at private clinics, but considerable skill is required for an accurate reading. Several scholars have attributed the abnormal sex ratios at birth in East Asia, at least in part, to increasing practice of prenatal sex-detection tests followed by sex-selective abortions (Hull, 1990; Johansson and Nygren, 1991; Hull and Wen, 1992; Park and Cho, 1995). Additionally, underreporting of female births and, to a lesser extent, female infanticide and abandonment have also been hypothesised as part of the explanation for higher than expected sex ratios at birth, as well as at very young childhood ages. Moreover, Johansson and Nygren (1991) have reported that in China girls are given away through adoption much more frequently than boys.

China, like other rural Asian societies, has traditionally had a very favourable attitude toward high fertility and large families. Son preference reinforced behaviour leading to large families as couples continued having children until they had both the size and family composition they wanted. Sons still serve as a source of both labour and old age security in much of China. The other side of son preference is the devaluation of female status. In a situation of strong son preference and small family size, parents attempt to avoid the birth of a daughter. The preference for sons in China is manifested in selective contraceptive practices, acceptance of one-child certificates, non-authorized births and non-registration of births. At any existing family size, parents of boys are more likely to practice contraception or be sterilised than parents of girls (Blayo, 1993).

The Republic of Korea and Taiwan province of China's situation differs from that of Mainland China primarily with respect to less evidence of, and concern about, infanticide and abandonment. Sex selective abortion has emerged with the availability of technology to detect foetal sex. The role of the culture of son preference appears to be much more important than the level of economic development in affecting sex ratios at birth in these societies. The availability of the new technology for prenatal sex-detection tests appears to have helped to give renewed expression to the latent cultural value of son preference in the context of low fertility.

The widespread availability of foetal sex-detection technology in India has led to the growth of many prenatal clinics providing sex determination and abortion services (Nandan, 1993). The state of Maharashtra has prohibited sex determination but, according to

Nandan, business has become clandestine, and women go to other states where it is still legal. Physicians in government hospitals claim that they do not use sex determination practices and do not conduct abortions based on sex preference. Private physicians who practice sex-detection tests and sex-selective abortions claim parents have the right to choose a child's sex.

In several Asian countries concern with population growth led governments to adopt and implement family planning programmes. Rapid economic and social development also reinforced individual and couples' desires for smaller families. The rapid transition to smaller family sizes has clashed with traditional values concerning both family size and preferences for the sex composition of families. The imbalanced sex ratios at birth that have been observed raise concerns about people's attitudinal and behavioural expressions of traditional values. The abnormal sex ratios at birth are an outcome of four factors: socio-economic development, population, rapid fertility decline and cultural setting. The problem appears more likely to occur among populations in a developing setting with a culture of strong son preference and when fertility declines very rapidly.

Conceptually, fertility transition has long been viewed as a single dimensional process from high fertility to low fertility, and this has been the preoccupation of most theorists. Such a view focuses almost solely on changes in fertility levels. If fertility transition is viewed as an integral part of the overall transition from traditional to modern society, it can then be conceptualised as a multi-dimensional process, which includes decisions on not only *how many* children to have (level of fertility), but *when to* have them (timing of childbearing), and also *what to have* (sex of

birth) - see Chapter 2 below.

Discrimination Against Female Children

Sex discrimination against female infants and children in nutrition, health care and education has persisted in several Asian countries for several decades, despite significant economic and social development. The discriminatory treatment in favour of male infants and children has been sufficiently strong that it has offset the normal advantage in mortality that females have over males.

There is abundant evidence to show that in societies that provide unbiased health conditions and equal nutrition to males and females, male mortality rates are higher at every age from zero to the highest attained. (Coale, 1991). This natural differential in age-specific mortality rates has been established in the historical time series data for numerous European populations, as well as in those from other countries where reliable death registration statistics are available.

However, just as new technology appears to be modifying natural sex ratios at birth on account of son preferences, discriminatory treatment of boys and girls, particularly with respect to nutrition and health care, is reversing the natural differential in survival chances in infancy and childhood. Thus in both the Matlab project area in Bangladesh and the Punjab, female mortality has been shown to be lower than male mortality in the early months after birth, consistent with the general tendency of a female advantage in survivorship (D'Souza and Chen, 1980; Das Gupta, 1987). But beginning in the latter part of the first year of life however, female death rates are higher than male death rates. As Coale (1991) notes the normal female advantage holds in the

early interval after birth, when the source of nutrition is predominantly breastfeeding, but when supplementation begins, female death rates start to rise relative to male death rates. The shift appears to be caused partly by provision of better nutrition other than mother's milk for males, and partly by better health care.

Muhuri and Preston (1991) also demonstrated a pattern of parental discrimination against girls in Bangladesh. They concluded, much the same as did Das Gupta (1987), that the fact that mortality is so much higher among girls with older sisters than among those without suggests that higher female mortality is not primarily a result of a general pattern of cultural practice that treats all girls differently from boys. Instead it points to a pattern of conscious selective neglect of individual children. To what extent similar patterns of discrimination are prevalent outside of these areas of South Asia is impossible to determine at present because of the lack of reliable data on infant and child mortality by sex for many of the Asian developing countries.

Several attempts have been made to roughly estimate the magnitude of the effects of gender discrimination in mortality, by comparing observed census based sex ratios of populations with excess female mortality with 'expected' sex ratios that would have prevailed in the absence of such discrimination (Coale, 1991; Klassen 1994). This estimate, often referred to as the number of 'missing women', represents the cumulative demographic effect of discrimination against all cohorts of females currently alive. While such estimates need to be interpreted cautiously, because, for example, of their sensitivity to the life table models that are used, they suggest upwards of 60 million 'missing women' in Asia.

Addressing Gender Issues in Policy and Programmes

The Programme of Action adopted by the 1994 Cairo International Conference on Population and Development put forward a basis for action with respect to the girl child. It noted that since in all societies discrimination on the basis of sex often starts at the earliest stages of life, greater equality for the girl child is a necessary first step in ensuring that women realise their full potential and become equal partners in development. In a number of countries, the practice of prenatal sex-selection, higher rates of mortality among very young girls, and lower rates of school enrolment as compared with boys, suggest that son preference is curtailing the access of girl children to food, education and health care. This is often compounded by the increasing use of technologies to determine foetal sex, resulting in abortion of female foetuses. It further noted the critical importance of investments made in the girl child's health, nutrition and education, from infancy through adolescence.

In follow-up to the Programme of Action of the International Conference on Population and Development, a more comprehensive set of basic indicators will need to be developed to measure progress in the performance of reproductive health and family planning programmes, which should include sex ratios at birth, disaggregated by birth order where possible.

In formulating population policies and programmes, Governments will need to take account of the implications of sex preference for children and related issues in order to eliminate gender discrimination. The underlying causes of discrimination against girls include discriminatory laws; inequitable inheritance systems; unequal access to education, economic opportunities and

resources; discriminatory social and cultural practices; and, differential access to nutrition and health care. Relevant policies and programmes will need to be implemented with the objective of reducing and ultimately eliminating discriminatory practices. For example, intervention to improve female access to basic education will not only be desirable to improve the status of women but is also likely to result in significant gains in child survival (United Nations, 1994).

Countries will need to take the necessary steps to make school curricula at all levels gender-sensitive in order to promote gender equity and equality and thereby reduce gender-discriminatory practices including sex preference for children. In addition, the ethics curricula in medical schools will need to be further developed and strengthened to incorporate those issues concerning prenatal sex-detection and related techniques, and sex preference for children.

Several of the above points have been incorporated in the recommendations made at the Symposium and the latter are reproduced below as Appendix.

Conclusions

In several Asian countries the impact of son preference on reproductive behaviour appears to have increased as fertility has declined. In general, sex-selective abortion appears to be on the rise, infanticide appears to be declining and abandonment and adoption of girls is increasing. Changing patterns appear to be emerging in trends in the determinants of sex preference, with improvements in women's status, decreased salience of the need for family labour and old age support and an increased concern

for family lineage. The new and critical factor is the impact of the introduction of the medical technology which allows prenatal sex-detection. Such technology is used at different times, that is at different birth orders, in different settings. Government interventions to curb the use of prenatal sex-detection tests may need to be introduced. However, the difficulties of monitoring and enforcing legislative bans on sex determination procedures and sex-selective abortions should not be underestimated, nor should the importance of political commitment.

In the same way as the new medical technology appears to be modifying natural sex ratios at birth on account of son preferences, discriminatory treatment of boys and girls, particularly with respect to nutrition and health care, is continuing to reverse the natural differential in survival chances in infancy and childhood in particular settings. Policies and programmes will need to be implemented with the objective of reducing and ultimately eliminating discriminatory practices in the treatment of girls. A key intervention would appear to be to improve female access to basic education. It is abundantly clear that education not only helps to improve the status of women but also results in significant gains in reproductive health and child survival.

References

- Blayo, Y., *The High Male-Female Sex Ratio and the One-Child Policy in China*, Paper presented at the IUSSP International Population Conference, Montreal, August 24 ~ 1 September 1993.
- Cain, M., "Perspectives on Family and Fertility in Developing Countries." *Population Studies* 36(2), 1982.
- , "The Consequences of Reproductive Failure: Dependence, Mobility and Mortality among the Elderly of Rural South Asia", *Population Studies* 40, 1986.
- Caldwell, J. C., "Towards a Restatement of Demographic Transition Theory", *Population and Development Review* 2: No.3~4, 1976.
- , "A Theory of Fertility: From High Plateau to Destabilisation", *Population and Development Review* 4: No.4, 1978.
- Chahnazarian, A., "Determinants of the Sex Ratio at Birth: Review of Recent Literature", *Social Biology* Vol.35, No.3~4, 1988.
- Coale, A. J., "Excess Female Mortality and the Balance of the Sexes: An Estimate of the Number of "Missing Females"", *Population and Development Review* 17: No.3, 1991.
- Das Gupta, M., "Selective Discrimination against Female Children in Rural Punjab", *Population and Development Review* 13: No.1, 1987.
- D'Souza, S. and Chen, L., "Sex Differences in Mortality in Rural Bangladesh", *Population and Development Review* 6: No.2, 1980.
- Greenhalgh, S. and Li, J., *Engendering Reproductive Practice in Peasant China: The Political Roots of the Rising Sex Ratio at Birth*, Research Division Working Papers, New York: The Population Council, 1993.

- Hull, T. H., "Recent Trends in Sex Ratios at Birth in China", *Population and Development Review* 16: No.1, 1990.
- Hull, T. H. and Wen, X., *Rising Sex Ratios at Birth in China: Evidence from the 1990 Population Census*, Paper prepared for the International Seminar on China's 1990 Population Census, 1992.
- James, W. H., "The Human Sex Ratio. Part 1: A Review of Literature", *Human Biology* 59: No.5, 1987.
- Johansson, S. and Nygren, O., "The Missing Girls of China: A New Demographic Account", *Population and Development Review* 17: No.1, 1991.
- Jones, G., *Marriage and Divorce in Islamic South-East Asia*, Kuala Lumpur: Oxford University Press, 1994.
- Klasen, E., "'Missing Women' Reconsidered", *World Development*, 22: No.7, 1994.
- Leete, R. and Alam, I., (eds.), *The Revolution in Asian Fertility: Dimensions Causes and Implications*, Clarendon Press: Oxford, 1993.
- Mhloyi, M., *Status of Women Population and Development*, IUSSP Paper Presented at the International Conference on Population and Development, Liege, 1994.
- Muhuri, P. K., and Preston, S., "Effects of Family Composition on Mortality Differentials by Sex Among Children in Matlab, Bangladesh", *Population and Development Review* 17: No.3, 1991.
- Nandan, G., "India to Ban Prenatal Sex Determination", *British Medical Journal*, February 1993.
- Park, C. B. and Cho, N. H., "Consequences of Son Preference in Low Fertility Countries in East Asia: Rising Imbalance of Sex Ratio at Birth", *Population and Development Review* 21: No.1, 1995.

Shaw, C., "The Sex Ratio at Birth in England and Wales", *Population Trends*, No.57, Government Statistical Service, HMSO, London, 1989.

United Nations, *The Health Rationale for Family Planning: Timing of Births and Child Survival*, Population Division, ST/ESA/SER.A/141, New York, 1994.

Yi, Z., Tu, P., Gu, B. C., Yi, X., Li, B. H. and Li, Y. P., "Causes and Implications of the Recent Increase in the Reported Sex Ratio at Birth in China", *Population and Development Review* 19: No.2, 1993.

PART II.

COUNTRY STUDIES - EAST ASIA

2. Sex Ratio at Birth and Son Preference in China

Gu Bao Chang, *China Population Information and Research Centre, Beijing*

Li Yong Ping, *Institute of Population Research, Peking University, Beijing*

China's population and family planning programme has been successful. Women's fertility as measured by the total fertility rate (TFR) declined from 5.8 per woman in 1970 to 2.3 in 1990, bringing down the annual natural growth rate from 2.6 per cent in 1970 to 1.4 per cent in 1989 (Coale and Chen, 1987; State Statistical Bureau of China, 1991; Gu, 1994). This is an astonishing achievement for a major developing country. However, with the problem of high fertility solved some new issues arising from the rapid fertility decline have emerged that require careful study. One of these is the rising sex ratio at birth in China. The 1990 population census reported the sex ratio at birth in China of 114 boys per 100 girls in 1989, which is much higher than the normal sex ratio at birth which is around 106. China's high sex ratio at birth has been the subject of considerable national and international focus (Hull, 1990; Johansson and Nygren, 1991; Xu and Guo, 1991; Tu, 1993; Gu and Xu, 1994). This paper reviews the patterns and trends of the sex ratio at birth in China; considers the immediate causes of abnormal sex ratios at birth and their determinants, and concludes with a conceptual framework to help understand the phenomenon and the implications for policy.

Trends and Patterns in Sex Ratios at Birth

Table 2.1 and Figure 2.1 show the trend in the reported sex ratio at birth in China from 1970 and 1989. Before 1980, when China's fertility was relatively high, the sex ratio at birth was generally within the normal range. However, there was a clear

and marked tendency of increase after 1980. The small deviation to the uptrend, between 1986 and 1988 is probably due to underreporting of female births in the 1988 fertility survey. Overall, the sex ratio at birth in China has been rising over the decade of the 1980s, particularly since the late 1980s.

Figure 2.1 *Sex ratio at birth, China, 1970~1989*

Table 2.1 *Sex ratio at birth, China, 1970~1989*

Year	SRB ¹⁾	Year	SRB	Year	SRB
1970	105.9	1977	106.7	1984	108.5
1971	105.2	1978	105.9	1985	111.4
1972	107.0	1979	105.8	1986	112.3
1973	106.3	1980	107.4	1987	111.0
1974	106.6	1981	107.1	1988	108.1
1975	106.4	1982	107.2	1989	113.9
1976	107.4	1983	107.9		

Notes : 1) Sex ratio at birth

Source: 1970~1988 from SFPC (1990); 1989 from SSB (1991).

The rising sex ratio at birth in China may be further examined by decomposing it by parity of women. Table 2.2 and Figure 2.2 shows the sex ratio at birth by parity in China between 1981 and 1989, from which it can be seen that the observed sex ratio at birth for parity 1 is around the normally expected level of 106. This suggests that the increasing trend in the sex ratio at birth is actually a result of increases in the sex ratios at birth for parity 2 and above. Evidence to support this is clearly apparent in Table 2.2 which shows that the sex ratios at birth for parity 2 and above followed a marked upward trend during the 1980s. In general, the higher the order of birth the higher is the sex ratio at birth, although it should be remembered that there are relatively few births at third and higher orders. Thus the imbalance between male and female births, which has become progressively more marked, has been mainly occurring among births of high orders.

Figure 2.2 *Sex ratio at birth by parity, China, 1981~1989*

Table 2.2 Sex ratio at birth by parity, China, 1981~1989

Year	Parity of women				
	1	2	3	4	5+
1981	105.1	106.7	111.3	106.5	114.1
1982	106.6	105.2	109.4	112.9	109.9
1983	107.8	107.2	109.5	104.7	112.1
1984	102.5	113.3	113.0	115.3	127.3
1985	106.6	115.9	114.1	126.9	117.3
1986	105.4	116.9	123.1	125.3	123.5
1987	106.8	112.8	118.9	118.6	124.6
1988	101.5	114.5	117.1	123.1	108.7
1989	105.2	121.0	124.3	131.7	129.8

Source: As for Table 2.1.

According to the 1990 population census, first births in 1989 account for 50 per cent of total births, with a sex ratio at birth of 105 and second births for 31 per cent with a ratio of 121. The sharp jump between parity 1 and 2 can be assessed in more detail by examining the sex ratio at birth decomposed by the number and sex of the siblings as well as socio-economic variables (Table 2.3). The sex ratio of surviving children aged 0-1.5 years born during 1989 and the first half of 1990 is high at 115 surviving male children per 100 surviving female children. The sex ratios of surviving children for women with no children or one son tend to be in the normal and acceptable range, regardless of residence and education. This suggests that the majority of women that is those giving a first birth, and those with a son and giving a second birth, are not part of the group at risk for abnormally high sex ratios at birth. While the sex ratios of surviving children for women without a son but only a daughter(s) are all extremely high, even above 200, the sex ratios of surviving children for women with a son(s) but no daughter tend to be too low to be in the normal range. It is evident that a sex-selective process is

involved in childbearing. The imbalance between male and female births has been mainly occurring not only among the births of high orders but more specifically among women with a daughter(s) but without a son, which suggests interference in fertility behaviour under strong son preference. However, while all women without a son tend to have an extremely high sex ratio of surviving children, women with 6~8 years of education (junior high school) appear to have a sex ratio at birth that is relatively higher (Table 2.3).

Table 2.3 *Observed sex ratio of surviving children born in 1989 and the first half of 1990, by number and sex of surviving children, residence and education, China, 1990*

Surviving children	0		1		2		3+		Total	
Sex	0M	1M	0M	2M	1M	0M	3+M	1+M	0M	
	0F	0F	1F	0F	1F	2F	0F	1+F	3+F	
China SR	105.6	101.4	149.4	74.1	116.4	224.9	64.4	121.9	219.4	115.3
Residence:										
County SR	105.1	101.1	152.9	73.1	114.6	226.6	63.6	119.7	215.9	116.0
Town SR	106.0	100.1	143.6	79.4	120.4	215.2	71.7	125.3	215.6	115.5
City SR	106.0	103.8	147.7	69.7	116.4	233.5	52.1	125.4	237.0	113.8
Education:										
<1 Year schooling SR	99.2	99.2	129.5	74.8	115.0	209.2	66.8	119.0	186.0	111.9
1~5 Year schooling SR	104.3	99.5	148.0	74.3	116.9	223.7	62.8	117.0	237.3	115.0
6~8 Year schooling SR	107.5	105.3	159.9	73.5	118.2	239.2	68.8	146.7	245.8	117.4
9+ Year schooling SR	108.1	100.1	157.2	71.6	111.3	228.9	41.2	131.3	223.3	114.1

Notes : Twins are not considered due to poor sex identification.

M refers to males and F to females.

Source: Calculated from a 1% sample of China's 1990 census data.

The sex ratio at birth exhibits considerable regional variation among the 30 provinces, municipalities and autonomous regions (Table 2.4). In 1989, Guangxi and Zhejiang had the highest sex ratios at birth, at 117 boys per 100 girls, and Guizhou and Tibet had the lowest, at 103. Of the 30 provinces, 21 had a sex ratio at birth higher than 108, that is above the normal acceptable range. Among the other 9 provinces with sex ratios at birth of less than 108 are those that are socio-economically most advanced and with the lowest fertility levels in China, such as Shanghai and Beijing, but also some of the provinces which are socio-economically least developed with the highest fertility levels, such as Guizhou, Tibet, Xinjiang, Qinghai and Yunnan. The phenomenon of abnormal sex ratios at birth appears to be more prevalent in provinces that are in the process of socio-economic development and fertility transition.

Immediate Causes of High Sex Ratio at Birth in China

The abnormal sex ratios at birth observed in China during the 1980s could theoretically have been caused by either underreporting of female births relative to male births, sex-selective abortion after prenatal sex identification of the foetus, or infanticide and abandonment of female babies.

In order to examine the possible impact of the sex-differential in the underreporting of births on the increase in sex ratios at birth, a research group comprising the Institute of Population Research, Peking University (IPRPU) and China Population Information and Research Centre (CPIRC) applied a reverse survival technique to data from the 1990 Population Census, the 1987 one per cent Population Survey, the 1988 Two-Per-Thousand Fertility and Contraception Survey. The results of the analysis showed that the most important cause of the higher than normal sex ratios at birth reported was sex-differential underreporting

Table 2.4 *Sex ratio at birth by province and residence, China, 1989*

Rank	Province	Total	City	Town	County
	China	111.3	108.9	111.9	111.7
1	Guizhou	103.4	99.4	109.0	103.7
2	Tibet	103.6	112.4	106.0	102.8
3	Xinjiang	104.1	106.6	104.6	103.6
4	Shanghai	104.1	103.9	104.0	104.7
5	Qinghai	104.6	115.3	92.5	103.9
6	Beijing	107.1	106.1	105.8	108.9
7	Yunnan	107.3	103.9	105.3	107.6
8	Heilongjiang	107.3	105.5	106.4	108.6
9	Jilin	107.8	106.0	107.3	108.5
10	Gansu	108.4	106.6	112.6	108.5
11	Inner Mongolia	108.5	105.2	105.3	110.1
12	Hubei	109.5	108.8	115.0	109.4
13	Ningxia	109.7	111.8	110.0	109.4
14	Fujian	109.9	109.4	124.0	108.9
15	Shanxi	110.1	111.5	109.3	109.9
16	Hunan	110.1	105.6	111.1	110.5
17	Shaanxi	110.3	113.6	116.7	109.6
18	Tianjin	110.4	106.4	107.6	115.4
19	Jiangxi	110.4	112.8	112.1	109.9
20	Liaoning	110.5	107.5	107.0	113.2
21	Hebei	110.9	104.0	108.4	111.9
22	Anhui	111.3	108.9	107.8	111.0
23	Guangdong	111.3	114.0	120.5	109.1
24	Sichuan	112.1	108.9	106.0	112.8
25	Jiangsu	113.8	112.0	107.3	114.5
26	Shandong	115.0	113.3	117.2	115.2
27	Hainan	116.1	111.1	136.2	114.7
28	Henan	116.2	113.0	113.9	116.6
29	Zhejiang	116.7	107.5	119.2	118.2
30	Guangxi	117.4	113.2	110.4	118.1

Source: State Statistical Bureau of China (1991).

(Zeng et al., 1993). The analysis indicated that the underreporting rates of female births was more than double the underreporting rates of male births in most years between 1983 and 1988. For example, with the birth statistics of 1989 and the first half of 1990 from the 1990 census data, it was estimated that the underreporting rate for male births is 2.2 per cent, while it is as high as 5.6 per cent for female births (Tu, 1992). Zeng and colleagues have further shown that the underreporting of female births accounts for about one half to three-quarters of the difference between the reported sex ratios during the second half of the 1980s and the values expected under normal circumstances (Table 2.5). The levels of the sex ratios at birth were reduced substantially after adjustment for underreporting. Gao, in another study, also showed similar results whereby among the underreported births in 1989 more than two thirds were female births (Gao, 1993).

Table 2.5 *Estimated contribution of the underreporting of female births to the increase in the reported sex ratio at birth, China, 1983~1990*

Year (1)	Reported SRB (2)	Excess over 106 (3)	Estimated SRB (4)	(2)-(4) =(5)	(5)/(3) =(6)
(1988 2 Per-thousand fertility survey)					
1983	107.7	1.7	106.2	1.5	88.2%
1984	108.3	2.3	106.5	1.8	78.3%
1985	111.2	5.2	107.8	3.4	65.4%
1986	112.1	6.1	108.8	3.3	54.1%
1/1987~6/88	110.0	4.0	107.0	3.0	75.0%
(1990 Census 10% tabulations)					
1989	113.8	7.8	109.8	4.0	51.3%
(1990 Census 1% sample)					
1/1989~6/90	115.4	9.4	111.4	4.0	42.6%

Source: Zeng et al. (1993).

So far the analysis has suggested that the underreporting of female births relative to male births, rather than female infanticide or other causes, is primarily responsible for the abnormal high sex ratio at birth in China. However, the sex ratio at birth after adjustment for underreporting is still higher than the normal level of 106. While the reported sex ratio at birth has been increasing overtime, the proportion of the higher than normal value of the sex ratio at birth explained by the sex-differential in underreporting tends to be decreasing over the decade (Table 2.5). This means that other factors are responsible for the high sex ratio at birth observed in China in the late 1980s.

An alternative explanation of the abnormal sex ratio at birth in China is sex-selective abortion. The sex of a foetus can be detected during pregnancy by either chorionic villus sampling, amniocentesis, or ultrasound B. Chorionic villus sampling and the amniocentesis method can be applied to determine the sex of a foetus at a relative early stage of pregnancy but they require more sophisticated technology and are subject to risks of side effects; the ultrasound B machine identifies the sex of a foetus at a relative late stage of pregnancy and it became increasingly available and accessible in China over the decade of the 1980s.

Hospital birth records can be used to examine whether, and to what extent, the sex-selective abortion is responsible for the abnormal sex ratio at births in China, since it is very unlikely that there are reporting errors of the new born in a hospital setting. Hospital birth records from a large-scale survey of birth defects organised by Western China Medical University showed the sex ratio of live births delivered in 945 hospitals throughout the country in 1988 through 1991 ranged between 108 and 110. Not only are these values higher than the expected value of 106, but they also show a steadily increasing trend over time. From another similar surveillance survey for birth defects, the sex ratios

of aborted foetuses were reported to be 95 and 97 in rural and urban areas respectively (Zeng et al., 1993; Li, 1994). The evidence thus tends to suggest the occurrence of prenatal sex identification of the foetus prior to induced abortion.

A survey on the sex ratio of aborted foetuses was conducted jointly by China's Population Information and Research Centre and Zhejiang Family Planning Commission among ten counties in Southern Zhejiang in 1993. Zhejiang is the province with the highest sex ratio at birth (117) and most of the counties had a sex ratio at birth higher than 120 in 1989, according to the 1990 census. Table 2.6 shows that among the more than 10,000 cases recorded in the ten counties for the year of 1993, the sex ratio of foetuses was 87, much lower than the normal value for sex ratio of foetuses, a figure that is normally higher than 106. The sex ratio of aborted foetuses for women with one child is the lowest (72), which suggests strong interference following sex determination.

Table 2.6 *Sex ratio of the aborted foetus by surviving children, Southern Zhejiang, 1993*

Surviving children	Total	Male foetus	Female foetus	Sex ratio
0	4,518	2,345	2,173	107.9
1	5,683	2,384	3,299	72.3
2	443	218	225	96.9
3	98	41	57	71.9
4+	40	19	21	90.5
Total	10,782	5,007	5,775	86.7

The sex-selective nature of abortion becomes more evident when the sex ratio of aborted foetuses is examined according to the number as well as the sex of surviving children (Table 2.7). The sex ratio of aborted foetuses for women with one daughter

but without a son is the lowest (51). For women who have at least one son, the sex ratio of aborted fetuses tends to be around the normal level. But for women without a son, the sex ratio of aborted fetuses is much lower than normal, which is most likely to be due to the practice of sex identification of foetus before induced abortion. Comparison of the figures in Table 2.7 with those in Table 2.3 shows that the trend of sex ratios of aborted fetuses is consistent with the trend of sex ratio of surviving children. The weight of the statistical evidence thus suggests that in addition to the underreporting of female births, sex-selective abortion following sex identification of the foetus by ultrasound B machines or other diagnostic methods, is likely to have been increasingly responsible for the increase in the sex ratios at birth in China during the 1980s.

Table 2.7 *Sex ratio of the aborted foetus by number and sex of surviving children, Southern Zhejiang, 1993*

Surviving children		Total aborted	Male foetus aborted	Female foetus aborted	Sex ratio of aborted
Male	Female				
0	0	4,518	2,345	2,173	107.9
1	0	2,559	1,329	1,230	108.0
0	1	3,124	1,055	2,069	51.0
2+	0	81	40	41	97.6
0	2	105	38	67	56.7
0	3+	15	4	11	36.4
1+	1+	380	196	184	106.5
Total		10,782	5,007	5,775	86.7

The abnormal sex ratios at birth in China in the late 1980s were mainly due to underreporting of female births and sex-selective abortion; infanticide and abandonment play a relatively minor role. Both modern contraceptives and methods of

sex identification of the foetus have become more available and affordable in China, and so it has become less necessary for parents to resort to infanticide or abandonment if the pregnancy is undesirable, particularly in relatively more developed areas, and among the relatively more educated and well-off couples. But infanticide and abandonment do occur in some remote rural areas, and among the abandoned babies it tends to be more frequently girls than boys. For example, in one county of Southern Zhejiang, among the 2,928 babies abandoned between 1982 and 1991, 95 per cent were girls, abandoned boy babies account for less than 5 per cent.

There has been a rise in female infant mortality rates in China during the 1980s as shown in Table 2.8 (Sun et al., Li, 1994). During the 8 years between 1982 census and 1990 census, while the infant mortality for boys declined by 3.3 per thousand, the infant mortality for girls rose by 3.5 per thousand. While the infant mortality rate for girls was lower than that for boys in 1981, which is consistent with the international trend, the infant mortality rate for girls was higher than that for boys in 1989. This trend, according to the estimate, is even more marked in the rural areas where as noted above, the sex ratio at birth is also exceptionally high. An infant death is an event which occurs after the time of birth and should, therefore, not be part of the calculation of the sex ratio at birth. However, often in China when the baby dies immediate after birth it is neither registered in birth statistics, nor in death statistics, and when more girls than boys die in the infant period it will inevitably cause a small upward bias in the reported sex ratios. As a result, infant mortality trends need to be taken into account as part of the study of the sex ratios at birth. The higher incidence of female infant deaths than of males is likely to be the result of neglect and mistreatment, and of gender discrimination in health care, parental affection,

food and nutrition.

Table 2.8 *Comparison of estimated infant mortality rates (per 1000) by sex and residence, China, 1981 and 1989*

Year	China		City		Town		County	
	M	F	M	F	M	F	M	F
1981	38.88	36.87	25.05	25.85	24.27	22.60	41.41	39.37
1989	35.54	40.40	25.33	29.36	27.83	32.17	43.42	49.41

Source: Adopted from Sun et al. (1993).

Underreporting of female births, sex-selective abortion, and infanticide and abandonment are the immediate causes of the abnormal sex ratios at birth in China observed in the 1980s. Sex-differential underreporting of births and sex-selective induced abortion after prenatal determination are the main factors responsible for the increase of the reported sex ratio at birth in China during the late 1980s (Zeng et al., 1993). Field surveys indicate, however, that after the efforts to improve birth statistics, sex-selective abortion may become the more significant factor. Moreover, local experience suggests that the relative importance of the three immediate causes to the abnormal sex ratios at birth may vary by areas. For areas where the family planning programme is less effectively implemented, the underreporting of female births may be the main factor. Whereas in relatively developed areas, the knowledge and technology of prenatal sex determination of foetus are more available, accessible and affordable, sex-selective abortion becomes the main factor. Infanticide and abandonment are relatively more frequent in remote and poor rural areas.

Determinants of Son Preference in China

Underreporting of female births, sex-selective abortion, and

infanticide and abandonment are to differing extents the immediate causes of the abnormal sex ratio at birth in China. Though the implications differ, all these causes reflect strong son preference in people's childbearing. Son preference has long been traditional in agrarian China. Over the past twenty years fertility has declined dramatically in terms of number of children per woman. Son preference appears to become more prominent with rapid fertility decline, 'even though the attitudes of sex preference in that population remain constant over time' (Pong, 1994). When fertility is high people may satisfy their son preference by increasing the number of children that they have. When fertility declines, however, people will not be able to have the number of children they would like simply because of China's population policy, or because of social and economic constraints (Gu and Peng, 1992; Gu, 1992). In a socio-cultural setting with a strong son preference but experiencing rapid fertility decline, couples will be more conscious of their preference and are likely to seek various means to ensure the realisation of their preference. Modern technology, such as ultrasound B, and other sex-detectable methods, increasingly help to facilitate the achievement of son preference in childbearing. The determinants of son preference in China are fourfold.

Family Labour

Among peasant households, family prosperity is mainly dependent on the availability of physical labour, particularly males for heavy work in agricultural production. The necessity of having at least one became even stronger after the adoption of the household responsibility system in rural areas in the 1980s, when the household became the basic unit of production and distribution in rural areas. Experience suggests that families without a son will be more likely to lead an austere life and have difficulty in overcoming poverty. Families with only daughters

encounter a variety of daily difficulties, such as carrying water from far away, guarding the fruit-yard over night in the harvest season and so on.

Elderly Support

With economic growth and improvements in income, some couples may not find it necessary to have son(s) for employment in family production. However, they worry about who is going to take care of them when they get old since daughters will sooner or later marry and are not supposed to support their own parents according to local tradition and culture, while the social welfare system is only at its preliminary stage in the rural areas of China.

Women's Status

Though women's status in China has greatly improved in the past several decades, women, particularly those living in the remote rural areas, still rely on sons to secure their status, as well as their position at home and in the community. Women without a son may encounter various day to day problems and feel inferior to those with sons: a son can be a crucial indicator of women's status in rural areas. The strong aspiration for improving women's status among those with only daughters, becomes a strong motive to have more children to try to give birth to a son. Alternatively such women have to prevent the birth of additional female children. In a focus group survey conducted in a county of Guangdong province in 1993, a rural woman with only daughters said, 'Sons rather than daughters are the real property of parents, and therefore, even a stupid son is better than a daughter. I have been even dreaming of having a son' (Gu and Xie, 1994).

Family Line

Traditionally the family line in China is continued through

sons rather than daughters. In the focus group survey in a county of Ningxia in 1993, a village leader said, 'One may be looked down upon by others if he or she does not have a son. When quarrelling with neighbours, the feelings of a couple with only daughters are often likely to be hurt by others'. For example, people sometimes say, 'May you be the last of your family line!' Chinese couples find such curses much more intolerable than being beaten (Gu and Xie, 1994). Moreover, among those who prosper in the booming rural economy, there is increasing concern about who is going to inherit their property if they do not have a son.

All of the above mentioned factors may be associated with people's preferences for sons, but their relative importance differs according to the level of socio-economic development of the area. For people in more remote and poor areas, son preference may be more motivated by economic reasons, such as the need for male labour to run daily farming operation. When the local economy grows, people rely more on capital, technology or knowledge rather than physical labour to get prosperous, male children while not immediately needed for the household economy become necessary to take care of parents in their old age. Among families in rapidly economically growing communities, both family labour and elderly support become less crucial in the determinants of son preference. For such people, social and cultural factors, such as security of women's status and position at home and in the community, and continuation of the family line, dominate people's attitude of son preference.

In a nationwide survey of women's status conducted by the All-China Women's Federation in 1990, male and female respondents were asked questions concerning their perception on gender inequality (Table 2.9). The responses are ranked according to the degree of seriousness perceived by the respondents

concerning gender inequality - 1 means most serious and 8 least serious. The non-response rate for males is relatively higher than that for female, which suggests that the gender inequality is more of a concern for women than for men. The proportion of respondents perceiving no gender inequality for males is higher than that for females, more so among rural respondents. This indicates that women, particularly rural women, are more sensitive and more concerned about gender inequality. Nevertheless the majority of respondents perceived inequality but to differing extents. Among urban respondents, gender inequality is more perceived in terms of opportunities for employment and being discriminated against due to not having a son: among rural respondents, it is most perceived in terms of having no son. It is evident that for women, particularly those in rural areas, their

Table 2.9 *Degree of seriousness of gender inequality according to perception of respondents, China, 1990*

Types of gender inequality perceived	Total		Urban		Rural	
	M	F	M	F	M	F
Higher score for school admission	6	7	3	3	7	7
Less opportunity for employment	3	3	1	1	3	4
Lower job payment	5	6	5	7	5	6
Higher likelihood to be fired	8	8	8	8	8	8
More difficult for remarriage	7	5	6	5	6	5
More vulnerable to be insulted	4	4	7	4	4	3
More discriminated due to no son	1	1	2	2	1	1
Less qualified for inheritance	2	2	4	6	2	2
None of the above perceived (%)	23.9	20.6	17.5	16.2	25.3	21.6
Non-response rate (%)	28.2	26.2	22.4	20.0	29.5	27.6

Notes : The scale of 1~8 refers to the degree of seriousness of the gender inequality perceived by the respondents, 1 being highest and 8 lowest.

Source: Adopted from Tan (1994).

status and position at home are to a significant degree dependent upon their ability to bear children, particularly whether they are able to bear a son. Many women feel that they are discriminated against because they fail to have a son, which is by far the most seriously perceived gender inequality. Following that is the lesser qualification of women for inheritance, indicating that they are not equally regarded as successors in the family line. Clearly, son preference is associated with issues relating to women's status, and traditional culture influences son preference, which in turn affects people's fertility behaviour.

A Conceptual Framework of Abnormal Sex Ratio at Birth by Development

Having reviewed the pattern of sex ratios at birth in China, and their causes, a conceptual framework is now. Given an understanding of the three immediate causes of abnormal sex ratios at birth and the underlying socio-economic and cultural mechanisms of son preference, it is instructive to consider how people choose one of three immediate options. An hypothesis is advanced with three thresholds that correspond to the three immediate causes - an underreporting threshold, a sex-selective-abortion threshold, and an infanticide-mistreatment threshold. It is suggested that until the threshold, or intensity for the choice is reached, people are assumed not to choose the method.

A mother of a live born child has experienced a full term of pregnancy of 9 months as well as delivery traumas, the physiological and psychological stress caused by killing this infant or mistreating it so that it dies, is extremely high. By comparison, a sex-selective abortion during the middle of pregnancy can be stressful for the pregnant woman, but generally less so and less costly than infanticide.

The threshold of underreporting measures the courage and determination of a person who has a female birth but omitted it in survey or census, say, for the chance to have a male birth in the future. This threshold is mainly decided by a combination of the prevalence of son preference, various administrative factors such as the economic cost of underreporting and legal responsibility, and the social pressure and individual attitude of dishonesty. The underreporting threshold is definitely lower than the infanticide-mistreatment threshold, for it is only a problem of conscientiousness of individuals, and has low costs. Compared with the sex-selective-abortion threshold, the underreporting threshold is, however, indecisive and it could be either higher or lower. This is mainly determined by the period of gestation at which the pregnancy terminates in a sex-selective abortion, and by different mental feelings prior to an induced abortion. In general, with low prevalence of modern sex-selective techniques, the three thresholds may follow the order: underreporting < sex-selective abortion < infanticide. But with high prevalence of modern technology, such as Ultrasound B machines the order changes to sex-selective abortion < underreporting < infanticide.

From the point of view of maximising utility, an individual should choose the method, at which the threshold is the lowest. The dynamics of the choice of a population, beyond a simple average, lies in the fact that it is determined by its overall developmental level. The concept of development used in conjunction with the above framework, implies a combination of economic, social and the cultural development. The degree of industrialisation, and the advancement of science and technology indicates the degrees of economic development. The institutional settings and social structure, community construction, and education level of society, all adjust to economic development. The inertia of traditional society and the prevalence of traditional

ideology and preference, in turn determine culture development.

The proposed conceptual framework to explain changes in sex ratios at birth is that, for a population in which fertility declines to a low level, particularly at a rapid pace, as developmental level increases from low to high level, the sex ratio at birth changes from a normal level, to an abnormal level with boy preference, and finally to a normal level again later in time when son preference diminishes along with development. The persistence of abnormally high sex ratios at birth by time is considered as an outcome of the time adjustment of cultural development for economic and social development.

The magnitude of abnormal sex ratios at birth is determined by the thresholds of population in an aggregate sense, by the selection of desired sex of children, and, more importantly, by the speed of fertility decline. If the aggregate threshold is low, and the decline of fertility rapid, the abnormal sex ratio will be highest for strong son preference. By contrast, if all individual thresholds are high, and fertility decline is slow, the sex ratio at birth will be normal. An important fact implicit in this framework is that development presupposes the time flow. Namely, the conversion from the increment in development to the increment in time is linked through the speed, or growth rate, of development. Moreover, developmental level also affects the magnitude of sex ratios at birth through the change in the aggregate threshold, which is in turn a function of cultural development, measured particularly by the intensity of sex preference.

The assumption made in this framework is that while fertility declines, people with boy preference will stress on the quality of children, that is the desired sex, for an exchange of the quantity of children through allowable thresholds. However, when development rises to a high level, the various reasons for sex

preference will diminish and the exchange of 'quality' for 'quantity' will gradually disappear, and the sex ratio at birth will return to normal. The first stage of normal sex ratios at birth is one with traditional setting and high fertility. The second stage of abnormally high sex ratios at birth is transitional in nature and with relatively low fertility. And the final stage of normal sex ratio is of post-modernisation and low fertility.

The proposed conceptual framework can be illustrated by means of typical cases. The first case is where the sex ratio at birth rises gradually to a high level. This is a typical case for places where (I) fertility decline is rapid and son preference strong and persistent; (II) the time of cultural development to adjust to economic development through social development is short. This is applicable in populations with strong son preference, rapid fertility decline, and sluggish development.

The second case, in contrast to the first, shows a sharp and rapid rise in sex ratios at birth for a short period of development. It occurs when fertility decline is dramatic, and son preference is extremely strong, while the adjustment period of development is also extremely short. This happens in populations with good awareness of the rise in sex ratios at birth due to, on one hand, the decline in fertility and a strong son preference and, on the other, the profound understanding and regulation of the various thresholds for increase in sex ratio at birth. This case may also be applicable in countries with perfect legal systems and sound administrative regulations and mechanism.

If the proposed conceptual framework is adequate, what conclusions can we draw from it? First, it appears that the increase in sex ratios at birth will disappear, sooner or later, and return to normal after social adjustment for ideology and practice. Second, the framework describes explicitly the transition of

people's attitude and practice from family-oriented considerations to individual-oriented considerations. This transition characterises virtually the progression from family planning with normal and then abnormal sex ratios under high and low fertility schemes, to the reproductive health of normal sex ratios under low fertility. From this point of view, the increase in sex ratios at birth should not simply be viewed as an unlucky result of family planning programmes. It seems more appropriate to consider it as an outcome of the biased balance of the social good and the individual right under high prevalence of individual right and choice. As society and culture evolve, so does the mind of an individual. Strengthened economically, people will liberate themselves from various family duties, such as considerations of old-age support and dowry, and increasingly pay more attention to themselves and their reproductive health.

Policy Implications

The imbalance of the sex ratio at births has a number of potential consequences for society. One is the so-called 'marriage squeeze'. If the phenomenon of abnormally high sex ratios at birth remains in a society for long, males will be in excess of females in numbers, which will inevitably result in a distorted age-sex structure of China's population. Many men of marriageable ages could find themselves in a situation where it is difficult to find a spouse of compatible age. The counter-argument is that society and the marriage market will have a way to adjust to the changing demographic situation.

A more serious implication is related to the status and well-being of females at home and in society at large. Gender discrimination against female births and infants is a serious violation of the fundamental human rights of women and children.

It does not conform to the principle of gender equality in modern civilisation, and must be taken seriously by the government and society at large. Given China's comparatively high population growth, a strict population policy is necessary, but this does not mean that negative effects on women's status and well-being can be ignored. This issue has not received adequate attention in China's population and family planning programme. Conceptually fertility transition has long been viewed as a single dimensional process from high fertility to low fertility, with focus almost solely on changes in the level of fertility. If fertility transition is regarded as an integral part of the overall transition from traditional society to modern society, it can be understood as a multi-dimensional process, which includes not only the level of fertility, but also the timing of childbearing, and the sex at birth (Gu, 1992; Ng and Gu, 1994). When fertility declines rapidly, the tradition of strong preference for sons over daughters will probably become more salient, and socio-cultural factors will be more influential than economic factors in determining people's fertility behaviour. This is probably why the patterns of abnormal sex ratios at birth are not only observed in China, but also in some other Asian populations with similar culture and rapid fertility decline. For example, the imbalance of males and females at birth and young ages in the Republic of Korea is, in part, attributable to the fact that the pace of fertility reduction had been faster than the pace at which the parental male preference has been weakening' (Lee and Cho, 1992).

Accordingly, the population and family planning programme should be implemented not only to lower fertility but also to ensure balanced sex ratios of births. The performance of the programme should be evaluated not only in terms of fertility level, growth rate, and contraceptive prevalence, but also the degree of son preference in fertility behaviour. In recent years, the Chinese government has begun to pay great attention to this issue.

Mm. Peng Peiyun, the State Councillor and Minister of State Family Planning Commission of China, has often reiterated the importance of raising the awareness of having a balanced sex ratio of births as part of the population and family planning programme. In Zhejiang province, where the sex ratio at birth is one of the highest in China, since 1993 the Provincial Family Planning Commission has adopted sex ratio at birth as one of the criteria in the evaluation of performance of the programme, which greatly raised the attention of local leaders to the issue.

More fundamentally, to curb population growth and meanwhile have a balanced sex ratio at birth, the strategy of 'beyond family planning' should be recalled. Family planning programme should be implemented with close incorporation with improvement of women's status and MCH programme. They should be regarded as three major components of the concept of reproductive health, which requires the population and family planning programme to be implemented as 'service oriented, people concerned, women sensitive, and rural emphasised'. The study of abnormal sex ratios at birth, as one of the emerging issues along with rapid fertility decline, is at its early stage. More systematical field investigations with combination of qualitative and quantitative methods are required to further our understanding of the various social, economic, and cultural factors which determine people's son preference in childbearing, particularly in the low fertility setting of developing societies.

References

- Coale, A. and Chen, S. L., *Basic Data on Fertility in the Provinces of China, 1940~82*, Papers of the East-West Population Institute, No.104, Honolulu: East-West Centre, 1987.
- Gao, L., "An Analysis of the Sex Ratio at Birth of the Chinese Population", *Population Research*, No.1, in Chinese, 1993, pp.1~6.
- Gu, B. C., "Fertility and Fertility Transition: Quantity, Timing and Sex", *Population Research*, No.6, in Chinese, 1992, pp.1~7.
- , *Fertility in China: From the 1970s to the 1990s*. In *The Interaction of Social, Economic, and Demographic Change in China*, edited by Alice Goldstein and Wang Feng, Denver, Colorado: Westview Press, 1994.
- Gu, B. C. and Peng, X., *Consequences of Fertility Decline: Cultural, Social and Economic Implications in China, Impact of Fertility Decline on Population Policies and Programme Strategies*, Seoul: KIHASA, 1992, pp.49~66.
- Gu, B. C. and Xie, Z., "Women's Status and Family Planning: Results from a Focus Group Survey", *China Population Today*, No.1, 1994, pp.12~14.
- Gu, B. C. and Xu, Y., "A Roundup of the Study on the Sex Ratio at Birth in China", *Population Science of China*, No.3, in Chinese, 1994, pp.41~48.
- Hull, T. H., "Recent Trends in Sex Ratios at Birth in China", *Population and Development Review* 16, No.1, 1990, pp.63~83.
- Johansson, S. and Nygren, O., "The Missing Girls of China: A New Demographic Account", *Population and Development Review* 17, No.1, 1991, pp.35~51.

- Lee, H. T. and Cho, N. H., Consequences of Fertility Decline: Cultural, Social and Economic Implications in Korea, *Impact of Fertility Decline on Population Policies and Programme Strategies*, Seoul: KIHASA, 1992, pp.27~48.
- Li, B. H., "Recent Trends of Sex Ratio at Birth In China: Evidence from Hospital Birth Records", *Population Research*, No.4, in Chinese, 1994, pp.1~9.
- Li, S. Z., "Changes of Mortality Levels and Patterns in the 1980s in China", *Population Research*, No.2, in Chinese, 1994, pp.37~44.
- Ng, S. M. and Gu, B. C., *Dimensions of Fertility Transition in the Third World: Level, timing and Quality*, Paper prepared for the 1995 Annual Meeting of Population Association of America, April 6~8, San Francisco, 1994.
- Pong, S. L., "Sex-Preference and Fertility in Peninsular Malaysia", *Studies in Family Planning* 25, No.3, 1994, pp.137~148.
- State Family Planning Commission of China (SFPC), *Analytical Data of China Fertility and Contraception Survey*, Beijing: China Population Press, 1993.
- State Statistical Bureau of China (SSB), *10 per cent Sampling Tabulation on the 1990 Population Census of the People's Republic of China*, Beijing: China Statistical Press, in Chinese, 1991.
- Sun, F. B., Li S. Z. and Li, N., "A Study of the Underreporting of Deaths for the Whole Country and Selected Provinces with 1990 Census Data", *Population Science of China*, No.2, in Chinese, 1993, pp.20~25.
- Tan, L., "Life Quality of Chinese Women and Family Planning", *Population Research*, No.3, 1994, pp.2~9.
- Tu, P., "An Evaluation of the Quality of the Enumeration of Infant Deaths and Births in China's 1990 Census", *Population Science of China*, No.4, in Chinese, 1992, pp.23~26.

-----, "An Exploration of the Sex Ratio at Birth in China", *Population Research*, No.1, in Chinese, 1993, pp.6~13.

Xu, Y. and Guo, W. M., "A Discussion on the Current Sex Ratio at Birth and Related Issues in China", *Population and Economics*, No.5, in Chinese, 1991, pp.9~13, 54.

Zeng, Y., Tu, P., Gu, B. C., Xu, Y., Li, B. H. and Li, Y. P., "Causes and Implications of the Recent Increase in the Reported Sex Ratio at Birth in China", *Population and Development Review* 19, No.2, 1993, pp.283~302.

3. Sex Ratio at Birth and Son Preference in Taiwan Province of China

Ming-Cheng Chang, *Taiwan Provincial Institute for Family Planning, Taiwan*

This paper examines the possible determinants of the rise of the sex ratio at birth in Taiwan, from 106 to 110 during the decade up to the early 1990s. The main hypothesis used to explain this sudden and unexpected rise is that it was due to a combination of prenatal sex determination and sex-selective abortion. The reasoning involves three types of considerations - motivation, norms and access. The hypothesis is evaluated by analysing civil registration data on trends in the sex ratio at birth, and the results from a large and representative KAP sample survey of Taiwanese women of childbearing ages that was canvassed in 1992.

Theoretical Framework

The theory for the sudden rise in the sex ratio at birth in Taiwan involves three types of considerations - motivation, norm and access. The motivation for prenatal sex examination and sex-selective abortion stems from boy preference. Norms about family size refer to the probability of having a son. Access pertains to knowledge, and subjective considerations, about the appropriateness of new medical technologies for prenatal sex screening and sex-selective abortion, and the costs in time and money resulting from availability of such services and supplies. In general, prenatal sex termination and sex-selective abortion are a function of the degree of motivation, family size preference and extent of access.

More specifically, two factors affecting the motivation for prenatal sex determination and sex-selective abortion are sex preference of desired family size (D) and actual fertility, or number of children (C). For couples who want at least one son, if the children already born are girls (C_g) and close in number to the desired family size, the motivation for prenatal sex determination and sex-selective abortion is already established. Such motivation will become stronger if the actual number of girls is greater than the desired number of girls (D_g). The greater the excess of the actual number of girls over the desired number, the stronger the motivation will be.

Although motivation is a necessary condition for prenatal sex screening and sex-selective abortion, it is not a sufficient condition. Prenatal sex screening with sex-selective abortion imposes costs on those who want at least one son. There are the psychological costs related to the displeasure associated with the idea, or practice, of prenatal sex examination and sex-selective abortion, and market costs, that is the time and money necessary to learn about and use specific techniques. These costs depend on the availability of information and specific techniques. Typically, a genetic health programme for prenatal genetic diagnosis lowers market costs by increasing information and provides subsidised services.

Whether prenatal sex screening and abortion of a female foetus will actually be used in the face of a given balance or excess supply of female children ($C_g \geq D_g$) depends on how the costs of the medical services compare with the motivation to have a son. Given the strength of the motivation, the lower the costs of prenatal sex screening and sex-selective abortion, the greater the use of these medical services.

Following this model, fecund women who have a preference for sons, but who are unable to have a boy, can be grouped on

the basis of demand for children with family composition preferences, and number of surviving girls, as below:

$C_g < D_g < D$ or $(D_b + D_g)$	Deficit fertility
$C_g = D_g < D$ or $(D_b + D_g)$	Actual girls = desired girls < desired fertility
$D > C_g > D_g$	Excess girls but still less than desired fertility
$D = C_g > D_g$	Excess girls and actual girls equal to desired fertility
$C_g > D > D_g$	Excess fertility and girls

Where: D is desired family size;
D_b is desired number of sons;
D_g is desired number of daughters and,
C_g is number of surviving daughters.

There are several categories of situation needed that can be noted. One of these is a couple in a 'deficit fertility' situation, that is, where the couple has not produced as many children wanted. Theoretically, such a situation can arise due to a short marriage duration in which the fecund women is unable to produce her desired family size, or where deficit fertility arises as a result of infant and child mortality. In such circumstances there is clearly no motivation among pregnant women to resort to prenatal sex screening and sex-selective abortion in order to have a son. In contrast to the deficit fertility situation, a couple with a positive value of $C_g > D > D_g$, or with excess family size but no son may try for a son, if the couple feels must have one. In this case, when the woman becomes pregnant and is aware of medical techniques and services for placental biopsy and abortion, she will ask for prenatal sex screening and sex-selective abortion, if the cost is lower than the disadvantages of an having unwanted female child. Other things being equal, the larger the excess family size, the greater is a couple's motivation for prenatal sex screening and sex-selective abortion.

Desired family size, or the demand for children, is the

number of surviving children a woman would like to have in a perfect contraceptive society (Bumpass and Westoff, 1970). In such a society, a couple is not only able to achieve its desired family size, but also its desired sex composition through prenatal sex screening and sex-selective abortion, provided the associated market and psychological costs are negligible. In this case, women who achieve their desired number of daughters but have not got a son, or $C_g = D_g < D$ (group 2), may ask for prenatal sex screening and resort to sex-selective abortion if they become pregnant.

Given the above, it is likely that pregnant women will not request prenatal sex screening and sex-selective abortion until they achieve their desired number of daughters. Consequently, prenatal sex screening and sex-selective abortion will generally occur in higher birth orders determined by the desired family size and family composition preferences. In other words, a woman with a larger desired family size is more likely to have prenatal screening and sex-selective abortion at a higher birth order than is a woman with a smaller desired family size, if she has a strong boy preference but is unable to have a son.

If it is assumed that prenatal sex screening and sex-selective abortion will occur among women with higher parity, it is interesting to know what proportion of women of a given parity will have prenatal sex screening and sex-selective abortion because of not bearing a son, and the extent of its effect on the sex ratio at birth in a population. In general, the larger the desired family size, the lower the probability of women without a son, the smaller the proportion of women who will have prenatal sex screening and sex-selective abortion, and hence the effect on the sex ratio at birth is also smaller. For example, if the average desired number of children is five with preference for at least one son, and given a perfect contracepting society where the market

and psychological costs associated with prenatal sex screening and sex-selective abortion are negligible, the probability of women with four daughters but no son is roughly 1 in 16. If all women with four daughters have prenatal sex screening and sex-selective abortion in their fifth pregnancy, the effect on the sex ratio at birth will be 1 in 16 during a certain period of time. However, if the average number of desired children is reduced to three children with preference for at least a son, the probability of getting two daughters but no son will increase to 1 in 4. If all of these women have prenatal sex screening and sex-selective abortion during their third pregnancy, the effect on the sex ratio will be greater than that in the earlier example of women with four daughters. Therefore, other things being equal, the effect of prenatal sex screening and sex-selective abortion on the sex ratio of a population will be greater the smaller is the desired family size.

Towards an Explanatory Hypothesis

Taiwan experienced a fairly rapid transition from high to low fertility. The net reproduction rate (NRR) fell to 1.0 (population replacement level) in 1983, and has since fallen well below replacement level. In 1964, when the island-wide family planning programme began, the NRR was 2.3; it had been 2.8 when fertility first started to decline around 1955. At that time Taiwanese couples had an average of 6.6 children. During the three decades or so since family planning was first officially promoted, Taiwan has become an almost perfect contracepting society with universal contraceptive use among currently married women.

In the process of Taiwan's fertility transition, traditional Chinese values emphasising large numbers of children, especially sons, have changed markedly. A wide range of data on trends in

family size preferences and practice of family planning are available to document these changes from six island-wide KAP surveys conducted in 1965, 1970, 1976, 1980, 1986, and 1992. Each of these surveys was based on a probability sample chosen to represent all married women of childbearing ages in Taiwan. However, the results of the surveys are strictly comparable over time only for women in the age range 22~39, so the analysis below is generally limited to this age range.

The first island-wide KAP survey conducted in 1965 indicated that the desired number of children for currently married women aged 22~39 was 4.0, declining slightly to 3.8 in 1970, and subsequently more sharply to 2.8 in 1980, and to 2.6 in 1985 (Chang, Freedman, and Sun, 1987). The most recent KAP survey of 1992 indicated a further downward shift to 2.4 - a figure which is, nevertheless, rather larger than the expected achieved fertility based on currently prevailing levels.

Accompanying the decline in desired number of children, there has been a marked decrease in the preference for sons. Between 1965 and 1991, the proportion of women wanting only one son increased significantly, especially among younger women, 52 per cent of women aged 22~29 wanted only one son in 1991, compared with 6 per cent in 1965. There was a decrease in the proportion wanting two sons, from 72 per cent in 1965 to 24 per cent in 1991 (Table 3.1). Nevertheless, the continuing preference for sons was evident in the mean preferred numbers of sons and daughters in 1991 among women aged 22~29, 1.4 compared with 1.0 respectively.

Table 3.1 *Per cent distribution of preferred number of sons for married women aged 22~39, Taiwan area, 1965~1991*

Wife's age and survey year	Per cent distribution by preferred number of sons					Total	N
	<2	2	3+	Either sons or daughters ¹⁾	Indeterminate ²⁾		
22~29							
1965	6	72	18	3	1	100	(1,355)
1970	7	77	11	4	1	100	(1,107)
1976	29	57	2	12	1	100	(790)
1980	35	55	1	9	0	100	(1,764)
1985	49	36	1	11	3	100	(3,545)
1991	52	24	0	22	0	100	(1,693)
30~39							
1965	4	61	32	2	1	100	(1,694)
1970	5	71	21	2	0	100	(1,385)
1976	19	65	5	10	1	100	(895)
1980	25	66	3	6	0	100	(1,845)
1985	35	49	2	10	5	100	(4,792)
1991	42	24	0	23	1	100	(4,011)

Notes : 1) No special preference; either sex is alright.

2) Answers 'up to the God,' 'up to Fate,' or not ascertained.

Source: Taiwan KAP Surveys.

In 1991, only 40 per cent of the respondents expressed a preference for one son, but 64 per cent were satisfied with one daughter (Table 3.2). The modal preference (40 per cent) was for two children - one son and one daughter - a shift from the modal preference for two sons and one daughter in 1980. In the KAP survey of 1965 only 4 per cent of women had chosen one son and one daughter.

Table 3.2 *Per cent distribution of family composition preferences, Taiwan area, 1965~1991*

Preferred number of children	Preferred number of sons	Per cent distribution					
		1965	1970	1976	1980	1985	1991
2	1	4	5	23	28	37	40
3	2	23	30	40	41	30	24
4	2	40	41	20	17	11	7
4	3	6	5	1	1	0	0
5	3	13	8	1	0	0	0
6	3	4	0	0	0	0	0
Other combinations	-	6	8	3	3	8	7
Either sex alright	-	2	3	11	8	11	23
Indeterminate ¹⁾	-	1	1	1	1	3	0
Total		100	100	100	100	100	100

Notes : 1) Answers of 'up to God,' 'up to Fate,' or not ascertained.

Source: Taiwan KAP Surveys.

Significant behavioural evidence of a continuing preference for sons among Taiwanese couples is found in the 1991 KAP survey. Thus, among couples with similar numbers of children, both the desire for additional children and the practice of contraception were related to the number of sons they had (Table 3.3), although differentials were smaller compared with the results of surveys in earlier years. For example, in 1991, among couples with two children, the proportion who wanted no additional children was 56 per cent among those with no sons, but 84 per cent among those with no daughters. Similarly, among those with two children, the proportion practising contraception was 76 per cent among those with no sons, but 90 per cent among those with no daughters.

Table 3.3 *Per cent of married women aged 22~39 who want no additional children and per cent who are currently practising contraception, by number of living children and living sons, Taiwan area, 1965~1991*

Number of living children and living sons	Per cent wanting no additional children					Per cent currently practising contraception ¹⁾					
	1965	1970	1976	1985	1991	1965	1970	1976	1980	1985	1991
0 children	6	6	0	0	3	0	6	8	16	20	27
1 child											
0 sons	3	1	14	12	17	4	6	21	32	47	52
1 son	5	6	17	17	25	6	9	29	44	52	60
2 children											
0 sons	9	5	50	50	56	11	20	48	54	73	76
1 son	19	31	67	80	85	12	29	53	68	81	88
2 sons	22	37	63	78	84	13	34	70	80	85	90
3 children											
0 sons	14	12	46	82	71	9	10	49	58	80	81
1 son	29	51	87	85	94	17	40	65	74	88	93
2+ sons	69	79	99	94	98	31	55	83	84	92	95
4 children											
0 sons	42	2)	-	76	72	13	-	-	76	79	90
1 son	54	54	88	90	96	20	43	80	83	91	93
2+ sons	91	93	97	98	98	40	63	75	90	93	96
5+ children											
0 sons	61	58	-	100	92	21	36	-	36	76	93
1 son	78	77	92	98	100	27	43	75	78	90	87
2+ sons	96	97	98	100	98	36	63	74	87	90	95
Total	57	61	74	71	71	24	44	63	70	78	81

Notes : 1) Includes sterilisation.

2) Fewer than 20 cases in base.

Source: Taiwan KAP Surveys.

Son preference has been related to the excess of births over preferred number of children, or excess fertility, in Taiwan. Thus, for example, research by Chow (1983) indicated that the factors causing the excess fertility included contraceptive failures, son preference, sex composition, and child mortality perceptions; these factors were negatively correlated with the education level of mothers. In the context of universal contraceptive practice, excess fertility will be reduced as the use of prenatal sex determination and sex-selective abortion is extended and results in decreasing numbers of unwanted births. Whether the use of prenatal sex determination and sex-selective abortion can be extended, depends on psychological costs associated with the displeasure with the idea, or practice, of prenatal sex determination and abortion, and the market costs in the terms of the time and money necessary to learn about, and use, specific techniques.

Prenatal sex screening can be made through either chorionic villus sampling (CVS) or amniocentesis. These two techniques have been in use in Taiwan for some years, although they have been more readily available since the late 1980s. (Bruno, 1992; Sherman and Simpson, 1992). Formally these techniques were used the prenatal diagnosis of genetic disorders, although the CVS is used at an earlier gestational period than amniocentesis. The generally accepted lowest gestational age for CVS is between 8 and 9 weeks, whereas amniocentesis has traditionally been performed at about 15 and 16 weeks of gestation (menstrual weeks). Therefore, women who intend to perform prenatal sex determination and abortion usually choose CVS for sex screening simply because of the associated lower risk of induced abortions performed at lower gestational periods.

It is hypothesised here that women who have a strong son preference but who are without a son are more likely to perform CVS for prenatal sex screening providing that they are aware of

this technique and psychological and market costs are low. In general, therefore, women who perform CVS will be those of higher parity.

Evaluating the CVS Hypothesis

The above stated hypothesis is examined using data from two sources - Taiwan's civil registration birth statistics, and the 1992 KAP survey mentioned above. Data from civil registration are used to obtain the sex ratios at birth, by birth order and age of mother for Taiwan in 1987 and 1990. The 1992 KAP survey canvassed some 13,000 currently married women aged 20~44, of whom 91 per cent were successfully interviewed. In addition to information on each woman's fertility and contraceptive status, her desired and expected number of children, and her attitudes toward and knowledge of family planning, the 1992 KAP survey included a question about prenatal sex screening through CVS for each woman's pregnancies occurring from 1987 to the date of interview, and which ended in live births, stillbirths or miscarriages.

Two variables used in the analysis below, IN and IS scales or Coombs scales, require clarification. The Coombs scales have been well tested and are described in detail elsewhere (Coombs 1979a, 1979b; Coombs, Coombs, and McClelland 1975). The IN scale measures the number of children desired with the usual single desired number statement as only one element in a continuum of an underlying preference distribution. Similarly, the IS sex preference scale measures the underlying tendency to prefer males, females, or a balance of the two. Both measures have been found to predict reproductive behaviour, net of the effect of first preference statements and other demographic controls, in cross-sectional longitudinal studies in Taiwan, the United States and elsewhere.

Up to 1986 birth statistics for Taiwan indicate a moderate but consistent excess of boys over girls at birth. Thus for the period 1960 to 1986 the average annual sex ratio of registered births was 106.7 (Table 3.4). The series has a standard deviation of only 0.3 and the difference in the sex ratio between the observed and the mean value is only 0.2 or less for many years indicating stable sex ratios at birth. However, the sex ratio at birth increased from 107 in 1986 to 108 in 1987 and further jumped to 110 in 1990. In order to examine possible reasons for the sudden rise the ideal approach would be to compare corresponding cross-classified data when the sex ratio was stable and when it was increasing. Unfortunately data on the sex ratio at birth by age of mother and birth order are only available for 1987 through 1990, that is for the period when the rise in the sex ratio was already underway.

Table 3.4 *Sex ratio at birth for Taiwan area, 1960~1990*

Year	Sex ratio	Year	Sex ratio	Year	Sex ratio
1960	106.5	1973	106.8	1986	107.2
1961	106.4	1974	106.8	1987	108.3
1962	106.4	1975	106.0	1988	108.2
1963	106.2	1976	106.4	1989	108.6
1964	106.5	1977	106.4	1990	110.2
1965	105.8	1978	107.3	1991	110.0
1966	105.7	1979	107.1	1992	110.0
1967	107.2	1980	106.4	1993	108.5
1968	106.8	1981	107.0		
1969	106.6	1982	106.9	Mean	106.7
1970	106.4	1983	106.7	(1960~1986)	
1971	106.2	1984	107.3	Standard	0.3
1972	105.9	1985	106.6	deviation	

Source: Taiwan Demographic Fact Book, published by the Ministry of Interior.

Table 3.5 shows how the sex ratio at birth increases with successive births. In 1987, the sex ratio at birth for first births was 107; this figure increased to 108 for second births, and further rose to 110 and 114 for third and fourth births respectively. The sex ratio at birth for third births and above, or fourth births and above, was similar to that of third births or fourth births, reflecting a negligible effect from fifth births and above - mainly due to the very small proportion of births of fifth order and above, just 1 per cent in 1987. In 1990 the sex ratio at birth for the

Table 3.5 *Sex ratio at birth by birth order and age of mother for Taiwan area, 1987 and 1990*

Age	Parity						Total
	1	2	3	4	3+	4+	
1987							
~20	108	116	91	42	87	54	109
20~24	107	108	109	108	109	106	108
25~29	107	108	109	109	108	107	108
30~34	108	109	114	121	116	119	111
35~39	105	109	116	119	118	119	113
40~44	120	130	114	156	107	105	113
45+	186	129	133	67	96	90	119
Total	107	108	110	114	111	113	108
1990							
~20	108	105	117	57	113	57	108
20~24	105	108	115	110	114	110	107
25~29	107	108	117	120	117	120	109
30~34	111	112	121	135	125	135	117
35~39	105	109	132	147	135	140	120
40~44	118	113	136	134	128	124	122
45+	108	117	175	400	147	136	138
Total	107	109	119	128	121	128	110

Source: Taiwan's birth registration data tabulated by the Ministry of Interior.

first and the second births was similar to that observed in 1987, but increased sharply for births of higher orders.

For example, the sex ratio at birth for fourth births was 128 in 1990, compared with 114 in 1987.

Since parity is positively associated with increasing age of mother, the sex ratio at birth increases as mother's age advances. Thus the sex ratio at birth is significantly higher for married women aged above 30 than below that age. For those aged below 30 it was less than 110 but it was greater than 110 for those aged 30 and above (Table 3.5). Further, for any given age group above 30, the sex ratio at birth was higher in 1990 than in 1987. For example, for the age groups 30~34 and 35~39, the sex ratio at birth was 111 and 113 in 1987 compared with 117 and 120 in 1990. Furthermore, the sex ratio at birth for older women increased more than that for younger women, as shown by the parity figures among different age groups. Another way to show that the age effect on the sex ratio at birth is to control for parity, and compare the sex ratios at birth among different age groups. Table 3.5 shows that the sex ratio for third births and fourth births was higher for older married women than for younger ones.

The sex ratio at birth is also related to area of residence. Table 3.6 shows that the sex ratio at third and fourth births in 1990 was highest for Taipei City and tended to decrease with decreasing levels of urbanisation. Nevertheless, with the exception of Taipei City, the overall sex ratio at birth for the urbanised Kaohsiung City and all other cities was slightly lower than that of all counties (Table 3.6). This could be due to the higher concentration of first and second births in urban areas than in rural areas. Taking the distribution of live births by birth order for Taipei as a standard, the standardised sex ratio at birth is 112 for Taipei City, 110 for Kaohsiung City, and 109 for provincial

Table 3.6 Sex ratio at birth by birth order, age of mother and type of administrative district for Taiwan area, 1990

Age	Parity						Total
	1	2	3	4	3+	4+	
Taipei City							
~20	89	123	100	-	100	-	93
20~24	111	108	133	220	137	200	111
25~29	106	110	119	100	116	101	109
30~34	112	109	142	160	145	161	117
35~39	104	116	153	221	167	214	128
40~44	81	148	100	271	149	255	126
45+	200	100	100	-	167	-	150
Total	108	110	134	156	138	159	112
Births	18,711	15,265	4,718	775	5,712	994	39,688
Kaohsiung City							
~20	111	117	67	-	67	-	112
20~24	105	108	96	129	97	113	105
25~29	105	107	122	104	119	102	108
30~34	110	107	124	143	128	148	114
35~39	104	109	133	161	140	160	121
40~44	111	325	157	120	119	89	145
45+	0	-	-	-	-	-	100
Total	106	107	122	130	123	130	109
Births	9,231	7,871	2,879	490	3,462	583	20,564
Provincial City as a Whole							
~20	107	82	114	-	114	-	103
20~24	104	108	107	90	104	82	105
25~29	105	105	116	132	118	126	107
30~34	112	117	121	143	125	143	119
35~39	103	101	141	130	133	121	116
40~44	75	104	125	29	77	52	86
45+	100	0	-	-	-	-	150
Total	105	108	119	131	121	128	109
Births	16,766	13,965	5,883	1,206	7,508	1,517	38,239
Counties Total							
~20	110	106	120	57	115	57	109
20~24	105	109	115	110	115	111	107
25~29	108	108	116	121	117	120	110
30~34	111	113	117	132	121	132	116
35~39	105	107	123	139	128	133	117
40~44	149	85	157	156	136	128	128
45+	114	233	400	100	125	100	136
Total	107	109	117	121	119	126	110
Births	99,423	84,089	41,528	9,652	54,303	12,883	237,815

Source: Taiwan's birth registration data tabulated by the Ministry of Interior.

cities or counties. Clearly the sex ratio at birth for third and fourth births is positively associated with degree of urbanisation in Taiwan. The statistical evidence seems to support the basic hypothesis of this study, - that is that the sudden rise in the sex ratio at birth in 1990 in Taiwan is due to a combination of prenatal sex determination and abortion. From the extremely higher sex ratios among births at the third and fourth orders in 1990, it is apparent that some of the women at their third or fourth pregnancies had prenatal sex screening and selective abortion. In other words, pregnant women who on the basis of prenatal sex screening expected to have sons at their third or fourth pregnancies were more likely to allow their pregnancies to come to term, than if the prenatal sex screening detected a female foetus.

What does the evidence from our 1992 KAP survey data tell? Out of some 12,000 respondents aged 20~44, 83 reported that they performed prenatal sex screening through CVS for pregnancies which ended in live births, miscarriages, or stillbirths between 1987 and the date of interview. When analysed by year of occurrence of CVS, the survey data showed that the number tended to rise in successive years since 1987. As expected, most of the 83 women who had pregnancies with prenatal sex determination through CVS went on to deliver male live births.

The results of the analyses made here suggest that the majority of women with prenatal sex screening through CVS expect to have sons. These women have a strong son preference, but were unable to achieve their desired number of sons (Table 3.7). For example, prior to performing prenatal sex screening through CVS, the average number of living children of such women was 2.1, but out of these children only 0.3 were sons. Furthermore, the average number of desired children and sons for these women was 2.4 and 1.3 respectively. Obviously, there is an

excess of girls among the children of these women which can be expressed in terms of the theoretical framework sketched above, that is $D (2.4) > Cg(1.8) > Dg(1.1)$. In contrast to this situation, there is a son deficit, that is, these women were unable to produce as many sons as they had wanted. The average number of sons desired were 1.3, compared with only 0.3 achieved before prenatal sex screening was performed. In addition, these women have very strong preference for sons, as measured by the IS scale (Table 3.7). It is clear, therefore, that the motivation for prenatal sex screening among these women stems from a preference for sons.

Table 3.7 *Fertility measures for married women aged 20~44 who performed prenatal sex determination through cvs for live births, stillbirths, and miscarriages, Taiwan area, 1987~1992*

Fertility measures	Mean
Desired number of children	2.4
Desired number of sons	1.3
Number of living children prior to prenatal sex determination through CVS	2.1
Number of living sons prior to prenatal sex determination through CVS	0.3
IN scale (1 ~ 7)	2.4
IS scale (1 ~ 7)	5.1
N (weighted sample)	56

Conclusions

This study examined the possible determinants of the rise in the sex ratio at birth from 106 to 110 in Taiwan in the decade to the early 1990s. It was hypothesised that the sudden rise of the sex ratio at birth was due to a combination of prenatal sex

determination and sex-selective abortion. The reasoning involves three types of considerations - motivation, norms, and access. The empirical data support the theoretical preposition and the basic hypothesis concerning the rise of the prenatal sex determination and sex-selective abortion. There is strong evidence of son preference in the rise of the sex ratio at birth in higher order births. In 1990 the sex ratio was 119 for third births and 128 for fourth births and above, compared with the expected level of 106. The most recent birth statistics for 1991 show that the level and pattern of the sex ratios at birth were the same as in 1990. Further, the 1992 KAP data indicated that women who had only daughters but no sons were more likely to perform prenatal sex screening and deliver male live births at higher birth orders. Obviously, genetic diagnosis through chorionic villus sampling (CVS) which has become more readily available in recent years has been misused for prenatal sex determination and sex-selective abortion.

Whether sex ratios at birth will change in the future will depend on changes in desired family size, son preferences, and access to CVS or other medical techniques for prenatal sex determination. The declines in desired family size coupled with greater awareness and availability of CVS appear to foreshadow a rise in the sex ratio at birth as continuing son preferences persists. However, the diffusion of knowledge about complications of prenatal sex screening through CVS, such as preterm births, small-for-dates neonates, low birth weight, and disabled newborns caused by improper medical techniques of CVS, may increase the displeasure associated with the idea or practice of prenatal sex screening, and thus cancel some of the favourable effects. Moreover, a continuing decline in son preference and effective government policies to prevent prenatal sex determination through CVS should help to reduce sex-selective abortions and thereby help the sex ratios at birth return to normal levels.

References

- Bruno, B., *Genetic Diagnosis through Chorionic Villus Sampling*, Aubrey Milunsky, ed., Genetic Disorders and the Foetus, Baltimore, Maryland: The Johns Hopkins University Press, 1992.
- Bumpass, L. A. and Westoff, C. F., "The Perfect Contraceptive Population", *Science*, 169, 1970, pp.1177~1182.
- Chang, M. C., Freedman, R. and Sun, T. H., "Trends in Fertility, Family Size Preferences, and Family Planning Practice: Taiwan, 1961~85", *Studies in Family Planning*, Vol.18, No.6, November/December 1987.
- Chow, L. C., "A Study of Excess Fertility in Taiwan", *Research Report No.16*, Taichung, Taiwan Provincial Institute of Family Planning, in Chinese, 1983.
- Coombs, C., Coombs, L. C. and McClelland, G., "Preference Scales for Number and Sex of Children", *Population Studies* 29, 1975, pp.275~298.
- Coombs, L. C., "Reproductive Goals and Achieved Fertility: A Fifteen-Year Perspective", *Demography*, 16, 1979a, pp.523~534.
- , "Underlying Family Size Preferences and Reproductive behaviour in the United States", *Studies in Family Planning*, 10, 1976b, pp.25~36.
- Sherman, E. and Simpson, J. L., "Amniocentesis", Aubrey Milunsky, ed., *Genetic Disorders and the Foetus*, Baltimore, Maryland: The Johns Hopkins University Press, 1992.

4. Effects of Induced Abortion and Son Preference on Korea's Imbalanced Sex Ratio at Birth

Nam-Hoon Cho, *Korea Institute for Health and Social Affairs(KIHASA), Seoul*

Moon-Sik Hong, *Population and Family Research Division, KIHASA*

Since the beginning of the 1960s the Republic of Korea has experienced rapid fertility decline. The total fertility rate which was around 6.0 per woman in 1960 had dropped to 1.6 by the late 1980s, a figure far below population replacement level. Use of effective contraception has increased tremendously due to the changing socio-economic factors affecting childbearing and the continuous promotion of the official family planning programme. It has long been evident that induced abortion has also played a significant role in reducing Korean fertility. Although the absolute number of abortions has been declining recently, it is still at a very high level compared to most western countries, and when taken as a proportion of total pregnancies, the rate continues to increase. It rose steadily from 21 per cent in the five year period centred on 1974 to reach 49 per cent during the five year period centred on 1988.

This paper examines the trend and the determinants of pregnancy outcomes in Korea during the period from the early 1960s to the early 1990s using data from a series of retrospective fertility surveys, in particular data from the 1991 National Fertility and Family Health Survey. The primary focus is on the interaction between son preference and Korea's imbalanced sex ratio at birth. Pregnancy outcomes are compared between subsamples of the 1991 survey which are divided by the year of pregnancy and by the number of existing children. Within each subsample, comparisons are also made according to premarital pregnancy, sex composition

of existing children, women's education and the place of residence. Pregnancy outcomes are also assessed in relation to the contraceptive method used at pregnancy. Finally, the implications of son-preference are considered.

Study Approach

This study relies mainly on data obtained from the 1991 National Fertility and Family Health Survey of Korea conducted by the Korea Institute for Health and Social Affairs (KIHASA). The survey was based on a stratified nationwide probability sample using the sampling framework provided by the 1985 Population Census (Kong et al., 1991). The 1991 survey data are based on interviews with some 7,400 married women aged between 15~49. The women's fertility history serves as the main source for this study, although the survey also collected information on respondents' marriage history, family planning and work status. The analysis in this paper also draws on several earlier KAP and fertility surveys conducted since the mid-1960s.

The pregnancy outcomes of all women canvassed in the 1991 survey are analysed according to parity. Since the effects of socio-economic variables may vary over time, the total sample of women is divided into four cohorts according to the year of pregnancy viz.: up to 1974, 1975~79, 1980~84, and 1985 or later. Women in the 1991 survey had a total of some 25,500 pregnancies, excluding those which started less than 9 months prior to the date of the survey. Of these 8,500 pregnancies were at parity zero, 8,000 at first parity, 5,400 at second parity, and 3,400 at third or higher parities.

Pregnancy Outcome

Any pregnancy results in either a live birth, stillbirth,

spontaneous abortion or induced abortion. While stillbirths are rare (less than one per cent of total pregnancies), spontaneous abortions are not so negligible and appear to be on the increase. According to the 1991 survey data there has been a sharp increase in the reported proportion of pregnancies ended by spontaneous abortion since 1985. The increase is shown to be particularly conspicuous among women with all-girl children at second and higher parity - for example at parity two the figure is around 10 per cent, but only 3 per cent among those with one or two male children. However, this apparent increase in spontaneous abortions might be due to a tendency among mothers who aborted a female foetus, determined by prenatal screening, to misreport gender-selective induced abortions as spontaneous abortions. So for the purposes of this study, spontaneous abortions, induced abortions and still births have been included together under the single category of abortions.

In general, the 1991 survey data showed that the abortion rate increases with parity and time. Of the total pregnancies since 1985, 27 per cent of those occurring to childless women were aborted, while the corresponding figures among mothers with one child and those with two children were 46 per cent and 81 per cent respectively. For pregnancies among childless women the abortion rate has increased from 10 per cent before 1975, to 30 per cent since 1985. This rise is probably attributable to increased premarital pregnancies among the more recent cohorts. The more liberal social environment in Korea coupled with delayed age at first marriage are likely to have increased the chances of an unmarried woman being exposed to sexual activity and pregnancy.

Premarital Pregnancy

The 1991 survey results showed that a considerable proportion of first pregnancies in Korea start before marriage, the

level varying according to the socio-economic characteristics of women. Thus there is a higher premarital first pregnancy rate among high- or middle-school graduates, than among primary or college educated women. However, while more than half of premarital pregnancies among women with better than primary education were conceived within 4 months prior to marriage, among primary or lower educated women pregnancies conceived earlier than 5 months before marriage are relatively more common. The earlier the pregnancy starts prior to marriage the higher is the chance for the pregnancy to end in an abortion. The abortion rate among first pregnancies is 55 per cent for pregnancies started at least 8 months before marriage, while it is 25 per cent and 15 per cent for those started respectively at 5 to 7 months and less than 5 months before marriage. The abortion rate was found to be particularly high for pregnancies started earlier than 7 months before marriage among higher educated women.

Sex Composition of Existing Children

Traditionally Korean parents have shown strong son preference due to various reasons, such as old-age support, provision of farm labour, carrying on the family line, and the practice of ancestor worship. Since a child's gender is not controllable, a problem facing parents at each parity is to decide what kind of contraceptive methods (or no method) to use and, when pregnant, whether to carry the pregnancy to term or have an abortion. From the 1991 survey results it was possible to compare pregnancy outcome by the sex composition of existing children for each parity and cohort.

After parity zero, the sex composition of existing children stands out as the most important factor in the determination of pregnancy outcome. The 1991 survey data showed that at first parity, the existence of a son increases the abortion probability by

3 per cent for the earliest cohort, but it grows to 9 per cent for the most recent cohort. The strengthening gender effect at low parities indicates the changing preferences toward smaller families and the maintenance of son preferences. The effects are much larger at the second and third parities, and they remain substantial for all cohorts. The probability of abortion is particularly high among mothers with at least one son, more so in recent years. Among the pregnancies conceived since 1985, less than 10 per cent among mothers with a son were carried to term, while more than 40 per cent of those to mothers with two daughters became live births. At the third parity, mothers with two or more boys among the earliest cohort are 33 per cent more likely to end the subsequent pregnancy by an abortion than those without a son. In recent years, while high parity pregnancies have become increasingly uncommon, there is nevertheless a large difference in the abortion rate when mothers are classified by the sex composition of their previous children. Differentials in the abortion rate by sex composition are also becoming larger among mothers of low parity.

Women's Education

Women's education is divided into 4 categories according to the number of years of schooling viz.: less than 9, 9~11, 12~13, and more than 13. The negative effect of woman's education on fertility is well documented (Cochrane, 1983; Jain, 1981; Kim, 1987). This relationship is often believed to be mainly due to the higher opportunity costs of bearing children and the better knowledge of effective contraceptive methods of more educated women. However, the likely effect of education on the probability of abortion is less intuitive. If education improves the knowledge of effective contraception, better educated women would be less likely to have unwanted pregnancies, and therefore a lower likelihood of abortion. Conversely, better educated women in Korea are less

likely to use the most effective contraception method, sterilisation, therefore raising the risks of contraception failure.

The 1991 survey results showed that education had different effects on pregnancy outcome between parity zero and higher parities. Among the earliest cohort in the study the probability of abortion at parity zero increases by about 8 per cent as women's education moves up from primary level to a higher level. This effect disappears for pregnancies between 1975 and 1984, but returns for those after 1984 with reversed effect, whereby mothers with education level higher than primary have a 12 to 18 per cent lower probability of abortion. Since aborted first pregnancies are generally premaritally conceived, this reversal of the education effect indicates the higher likelihood of premarital pregnancy among the women with primary or less education than those with a higher education.

For the pregnancies at parities beyond zero, woman's education has significant positive effects on the probability of abortion. The effect is particularly large among the early cohorts. Among the pregnancies conceived before 1975, the abortion rate is 25 per cent higher for college graduate and 13 per cent higher for high school graduates compared with primary or lower educated women. Similar differences are also observed at higher parities. The higher abortion rate among better educated women indicates that they desire to stop childbearing earlier, or they desire longer birth intervals, compared with less educated women.

Place of Residence

Place of current residence, which is often closely related to modernisation variables, has consistently been shown to be an important factor which affects fertility. It is often contended that abortion rates are higher in urban areas on account of the greater

knowledge and easier access to abortion services. The 1991 survey results showed that in general women living in metropolitan areas had a higher probability of having an abortion. The difference by residence is minimal at parities zero and one, but is more noticeable thereafter. However, the impact of residency on abortion appears to be diminishing in Korea. For example, among the pregnancies conceived before 1975 at parity two, the abortion rate was 20 per cent higher in the metropolitan areas than non-metropolitan areas, but the difference is reduced to 11 per cent among those conceived since 1985.

Contraceptive Failure and Abortion

In general, the greater is the desire to avoid pregnancy, the more couples will use effective contraceptive methods. It is probable, therefore, if contraceptive failure occurs, the pregnancy is more likely to be aborted among women using more effective contraceptive methods. Conception after male or female sterilisation is very rare, and of pregnancies that do occur almost all are terminated by abortions. The 1991 survey found that 15 per cent of pregnancies conceived while women were using an IUD or the pill were carried to term, and 18 per cent among couples who were using a condom, gelly or rhythm methods. By contrast, among pregnancies occurring to women not contracepting, 68 per cent were carried to term. The probability of a pregnancy resulting in a live birth has been decreasing over time, and the decrease has been particularly large among those conceived while the mother was using an IUD or the pill. Since more than 80 per cent of pregnancies that occur to women who are contracepting are terminated, it is apparent that more careful use of contraception would reduce the number of abortions in Korea. Yet, of course, in absolute terms, much larger numbers of abortions are performed on pregnancies conceived while no method is being employed. Hence to reduce the number of abortions it is also necessary to

promote effective contraception among non-users.

Selective Abortion, and the Sex Ratio at Birth

The modern technology which gives parents the ability to prenatally determine the sex of a pregnancy has added a new dimension to the problem of fertility choice (Bennett and Mason 1983; Bloom and Grenier 1983; Kobrin and Potter, Jr. 1983; Ahn 1991). For parents who prefer to have children of a particular sex, this ability can lead to sex-selective abortions. Frequent sex-selective abortions will result in distortions of natural sex ratio at birth. According to the 1992 Korean Vital Statistics Report (National Statistical Bureau, 1991), the sex ratio at birth in Korea increased dramatically in the decade up to 1990 such that in that year there were 117 male births for every 100 female births (see below). The rise in the sex ratio at birth appears to be due to gender-selective abortions and can be verified by comparisons of the sex ratio at birth by parity. Thus, in 1990, among children born of third or higher birth orders, the sex ratio exceeds two.

Selective abortions seem to occur mostly at high birth orders. In general, mothers tend to leave the sex of the first, and to a lesser extent the second child to chance. Those who are 'unlucky' in their first two births and who have a strong son preference increasingly practice sex-selective abortion. One factor operating here is the high costs of prenatal screening tests (and abortions) relative to income. Women who already have two children and who are most likely to become pregnant are those with two girls, and are likely to have prenatal sex detection and sex-selective abortion. In order to estimate the number of gender-selective abortions, we can assume that among the pregnancies which are tested for gender, only female foetuses are aborted. If the chance of any pregnancy resulting in a girl is 0.485 (106 boys per 100 girls), the number of gender-selective abortions performed was

about 30,000 in 1990. In other words, half of all pregnancies occurring to women who already had two living children were terminated because of their gender. Although the demographic impact of the sex ratio imbalance of third or higher parities is relatively low in Korea, it is, however, certain that unless gender-selective abortions are effectively controlled at first and second parities there will be serious problems in the future.

Extent of Son Preference

Over the last 30 years or so, during which time the Korean population control policy has been implemented, considerable attention has been given to the study of son preference on family size and fertility level (Lee, 1987; Suh, 1992; Cho and Ahn, 1993; Park and Cho, 1994; Cho, 1990). Many researchers reported that son preference was a barrier to reducing fertility, if parents continued to have children until they reached their desired number and sex composition (Han and Lee, 1977; Cho, 1982; Lee, 1982; Kim et al., 1990; Lee, 1982). However, in general, couples have relatively less control over the sex of their children than they do over the number, since the sex of a child is largely determined through biological rather than behavioural factors. As a consequence there has been an upsurge in sex-selective induced abortions in Korea to accommodate son preference which has led to distortions in the sex ratio at birth. A rapidly rising sex ratio with birth order is reported in many studies (Lee, 1989; Kim et al., 1990; Park and Cho, 1994). We now turn to examine the level and trend in son preference. Their impact on the sex ratio at birth will be considered in the following section.

Ideal Number of Children

Several surveys in Korea have indicated the level of son preference by reporting the ideal number of children desired by

married women according to gender. When the reported ideal number of boys exceeds the ideal number of girls, one can safely assume that it reflects the prevailing boy preference. Results from four rounds of the National Fertility and Family Health Surveys conducted by KIHASA between 1968 and 1991 relating to the ideal number of children by sex are summarised in Table 4.1. The ideal number of children of Korean women was 2.1 in 1991, a figure slightly higher than in 1988 but considerably lower than in earlier years. Throughout the period the ideal number of boys wanted by married women is persistently shown to exceed the ideal number of girls, although the gap has narrowed over time. While son preference is still prevailing in Korea it may be weaker than it was formerly in traditional Korean society.

Table 4.1 *Changes in ideal number of children among married women aged 15~44, Korea, 1968~1991*

Variable	1968	1978	1988	1991
Ideal number of children (A)	3.9	2.7	2.0	2.1
Ideal number of boys (B)	2.4	1.6	1.2	1.2
Ideal number of girls (C=A-B)	1.5	1.1	0.8	0.9
Ideal sex ratio (B/C*100)	160.0	145.5	150.0	133.3
Total fertility rate (TFR)	4.2	2.7	1.6	1.6

Source: KIHASA, Fertility and Family Health Surveys, Various Years.

Degree of Son Preference

The results from a series of surveys conducted since 1976 appear to show that the degree of son necessity has fallen over time, from 61 per cent in 1976 to 41 per cent in 1991, although this latter figure represents a big increase on the 1988 level. While the data in Table 4.2 are subject to a number of limitations and are merely reflective of orders of magnitude, the important

message is that even in a context of low fertility a significant proportion of women still consider it necessary to have at least one son.

Further analysis of the 1991 survey data (not presented here) show that rural women have significantly greater son preference than urban women. The reason may be that women residing in cities have greater exposure to new ideas about sexual equality, employment opportunities, new roles and freedom from family influence: rural women are much more steeped in traditional values. Son preference tends also to increase with advancing age. This pattern may be explained by the fact that in countries like Korea, where structural transformation has been very rapid, modernisation is more likely to have had a greater influence on younger women since they have more opportunities to participate in modern sector activities.

Table 4.2 *Degree of son necessity for ever married women aged 15~49, Korea, 1976~1991*

Extent	1976	1985	1988	1991
Definitely necessary	61.0	38.7	29.8	40.5
Daughter is better than no son	11.0	21.6	20.3	30.7
No matter	28.0	38.5	49.4	28.0
Don't know	0.0	1.2	0.5	0.8
Total	100.0	100.0	100.0	100.0
Number	6,020	7,005	6,511	7,448

Source: KIHASA, Fertility and Family Health Surveys, Various Years.

Values of Boys

Motivation towards childbearing is directly influenced by the perceived non-economic as well as economic benefit derived from having children. For example, the rituals of ancestor worship have a very strong impact on the perceived non-economic utility of children. According to tradition it has been observed that the

greater the value respondents place on ancestor worship ceremonies, the more likely they are to perceive the utility of children. This section examines selected values that Korean parents attach to sons, including reasons for having sons, such as carrying on the family name, economic support, old age security, rituals of ancestor worship, prestige, and family harmony. The reasons given for boy preference as recorded in five surveys between 1964 and 1991 are listed in Table 4.3. Direct comparison over time are limited because of discontinuities in the codes to the questions asked in the different surveys. The main features shown by the data are first, the declining proportion citing support in old age as the reason for son preference, and second, the increasing prominence given to family lineage, and most recently to family prestige.

Table 4.3 *Percentage distribution of women by reason for boy preference, Korea, 1964~1991*

Reason for boy	1964 Seoul ¹⁾	1965 Town ¹⁾	1966 Rural ¹⁾	1985 National ²⁾	1991 National ³⁾
Support in old age	48.3	61.3	62.2	26.1	6.8
Family lineage	27.9	19.3	28.2	37.3	42.2
Ancestor worship	na	1.5	5.0	9.1	na
Economic assistance	na	na	na	6.6	na
Family harmony	na	na	na	15.6	16.8
Prestige	na	na	na	20.3	34.2
Others	23.8	17.9	4.6	-	-
Total	100.0	100.0	100.0	100.0	100.0

Notes: 1) KIPH, Population and Family Planning in the Republic of Korea, Vol.II. 1974. p308;

2) Lee, S. S., 1989, Determinants of Son Preference, Cairo;

3) Kong, et al., 1991 National Fertility and Family Health Survey, 1992.

Source: As for Table 4.2

Looking more closely at the results of the 1991 survey, it is seen that the most pronounced reason for son preference is family lineage (42 per cent) which is important in Korean society - long influenced by Confucian tradition. Prestige (34 per cent), implying that emotional ties between generations are important, is also a major factor in son preference in Korea. Support in old age appears no longer to be a major factor in son preference. This finding implies that boys are wanted more for emotional or traditional reasons rather than for economic considerations. It appears that parents may consider the economic utility of a son less important following the economic development that has occurred in Korea over the last three decades.

Table 4.4 *Percentage distribution of ever-married women aged 15~49 by reason for boy preference, Korea, 1991*

	Total	Family lineage	Old age support	Family harmony	Prestige
Urban	100.0	35.8	5.4	20.3	38.5
Rural	100.0	55.1	11.6	9.8	25.5
Age of women					
15~24	100.0	51.4	3.7	15.0	29.9
25~29	100.0	38.0	4.6	25.1	32.3
30~34	100.0	36.3	6.5	22.0	35.2
35~39	100.0	37.0	8.3	18.3	36.4
40~44	100.0	45.4	6.2	12.7	35.7
45~49	100.0	51.2	8.4	9.0	31.4
Level of education					
Primary school	100.0	51.9	10.1	7.9	31.1
Middle school	100.0	39.1	7.0	16.1	37.9
High school	100.0	36.7	4.8	23.0	35.5
College and over	100.0	29.0	3.4	38.6	29.0
Total	100.0	42.2	6.8	16.8	34.2

Source: Kong, et al., 1991 National Fertility and Family Health Survey, 1992.

Reasons for son preference are shown to vary by area (Table 4.4). In urban areas, the most important reason for preferring boys is prestige, followed by family lineage, while the most pronounced reason in rural areas is family lineage (55.1%). Women with low education expressed family lineage as the most important reason for valuing sons, followed by prestige. Women with middle- or high-school level of education expressed almost equal value of boys for family lineage and prestige. However, women with college level of education or more expressed the happiness or harmony in a family as the most important reason for son preference. Thus higher educated women emphasise the importance of boys for the happiness or harmony of the family, while lower educated women seem to place greater emphasis on the traditional value of family lineage.

Implications of Son Preference

Sex Ratio at Birth

The sex ratio at birth in Korea has been positively associated with birth order in recent years as shown in vital statistics over the period 1980 to 1994 (Table 4.5). In the early 1980s the mean sex ratio at birth was within an acceptable range, but from the mid-1980s increased dramatically, such that by 1990 there were 117 male births for every 100 female births. The overall, or mean, sex ratio at birth conceals markedly differing patterns according to birth order. For first births, the sex ratio at birth remained within the range of 105 to 109 throughout the period 1980 to 1994 (Table 4.5). By contrast the sex ratio of second births jumped from 106 to 117 in 1990, but then fell back to 114 in 1994. While the proportion of third and higher order births in Korea is not large, the sex ratios at these orders are shown to be markedly distorted. For example, since 1990 there has been about two male births for

every female birth at these orders. These figures clearly indicate the phenomenon of son preference among some Korean couples. The sex ratio at birth in 1990 shows a considerably higher than in 1992, down to 114.0 from 116.8. The decline in the 1992 sex ratio has been attributed to the Year of the Horse. In Korea girls born in that year are popularly believed to be destined for an unhappy life misery. Thus, many girls born in 1990 which was a Horse Year have been registered as born in 1991 to avoid suffering the stigma of being born under the zodiac sign of the Horse. One may note that the 1992 sex ratio of 114 lies between the rates of the previous two years (Park and Cho, 1994).

Table 4.5 *Changes in sex ratio at birth by birth order, Korea, 1980~1994*

Birth order	1980	1982	1984	1986	1988	1990	1992	1994
All births	103.9	106.8	108.3	111.8	113.4	116.8	114.0	115.4
First	106.1	105.4	106.1	107.3	107.4	108.7	106.4	106.1
Second	106.5	106.0	107.2	111.3	113.3	117.2	112.8	114.3
Third	106.3	109.2	116.9	138.7	166.3	191.9	195.6	205.6
Fourth and over	110.2	113.7	128.1	150.6	185.7	218.9	229.0	237.7

Source: NSO, Annual Report on the Vital Statistics, Various Years.

It is highly likely that many Korean women who are about to bear a second or higher order birth have prenatal sex detection and then resort to sex-selective induced abortion if they are not going to deliver a male child. In other words, the increasing sex ratio with birth order can be explained as follows. If family size must be limited in society where there is a strong boy preference, potential female births must be suppressed by sex-selective abortion, so that the desired number of boys may be attained within the small family size norm. In Korea, where family size

desires are low prenatal sex identification currently tends to take place after the first birth. Sex identification techniques which became widely available in clinics as well as in hospitals in Korea from the mid-1980s, when ultrasonic equipment was first mass produced locally. The induced abortion rate among married women also rose in the mid-1980s (Table 4.6).

Table 4.6 *Total marital induced abortion rate by strata, Korea, 1968~1991*

Area	1968	1971	1976	1979	1985	1988	1991
Urban	26	37	46	53	55	54	46
Rural	10	19	29	40	48	47	52
Total	16	26	39	48	53	52	47

Source: NSO, Social Indicators in Korea, 1993.

Hong and Oh (1992) analysed the relationship between pregnancy order and outcome, and showed that just 15 per cent of first order pregnancies were terminated by induced abortion. This proportion increased significantly with order of pregnancy; rising to 49 per cent for third order pregnancies and 54 per cent for fourth order pregnancies (Table 4.7). It may be reasonably assumed that among the many induced abortions performed on married women a significant proportion occur to women who have undergone prenatal sex detection and discovered the sex of the foetus is not consistent with their desired family sex composition.

Data relating sex identification test are available from the 1988 National Fertility and Family Health Survey (Table 4.8). However, since use of the prenatal test for sex identification purposes has been illegal in Korea since 1987 the data are likely to be subject

to some underreporting. According to the data, 1.2 per cent of pregnancies (275 out of 22,094) were reported to have been sex tested. Of these, the results showed 169 cases as boys, 87 cases as girls, and 18 cases were not known because the doctor did not reveal the sex of the foetus to the mother. The vast majority of the pregnancies tested as boys were delivered normally.

Table 4.7 *Pregnancy outcome (per cent) for married women by pregnancy order and year of pregnancy, Korea, 1985~1991*

Variable	Birth order				
	1st	2nd	3rd	4th	5th+
Total live birth	74.3	57.6	42.4	38.0	21.4
Still birth	0.1	0.9	0.1	0.1	0.2
Spontaneous abortion	10.8	10.3	8.7	7.8	8.9
Induced abortion	14.9	14.9	48.8	54.1	69.5
No. of pregnancies	1,693	1,639	1,302	827	919

Source: Hong and Oh, Trends of Induced Abortions in Korea, A Special Analysis on 1991, National Fertility Survey, KIHASA, 1992.

Table 4.8 *Sex identification test and pregnancy outcome, Korea, 1988*

Pregnancy outcome	Total pregnancy	Test results outcome				
		Total	Boy	Girl	Twin	Don't know
Live birth	13,650	227	154	56	1	16
Induced abortion	6,494	31	3	27	-	1
Still birth	157	1	1	-	-	-
Spontaneous abortion	1,416	3	-	2	-	1
Pregnancy	377	13	11	2	-	-
Total	22,094	275	169	87	1	18

Source: Moon, et al., 1988 National Fertility and Family Health Survey, KIPH.

However, almost one third of the pregnancies tested as girls were terminated by induced abortion. Kim and Joo (1994)

estimated the proportion of pregnancies that experienced sex identification tests during the period 1989~1991 at 3.6 per cent, which is higher than the 1988 survey result. However, although the levels from the 1988 survey may be underestimated the pattern of outcomes may be less affected.

Marriage Squeeze

One implication of the rising sex ratio at birth could be a marriage squeeze in the future, that is a situation where males will not be able to find sufficient females in the customary age range to marry. According to the official population projection data there are unlikely to be problems in the marriage market before 2000, since the sex ratio of persons of peak marriage age are relatively well balanced. However, after the year 2000, males aged 25~29 could face difficulties in finding marriage partners in the age range of 20~24 since the shortage of females increases sharply.

Table 4.9 *Actual and projected population (000s) at peak marriageable ages, Korea, 1970~2010*

Year	Male 25~29	Female 20~24	Sex ratio
1970	1,207	1,254	96.2
1975	1,290	1,504	85.8
1980	1,584	2,015	78.6
1985	2,093	2,089	100.2
1990	2,181	2,083	104.7
1995	2,184	2,155	101.3
2000	2,263	1,896	119.4
2005	2,009	1,823	110.2
2010	1,946	1,513	128.6

Source: NSO, Future Population Projection, 1991.

Conclusions

Fertility transition in Korea took place in a context of rapid socio-economic development and where there was a strongly promoted family planning programme. Despite the fact that the nation's contraceptive prevalence rate had reached 79 per cent in 1991, the induced abortion rate is still high, particularly at high parity pregnancies. After first parity, the sex composition of previous children is the most important predictor of pregnancy outcome. The probability of a pregnancy ending in an abortion increases substantially when parents already have a son. The decline in desired family size and sustained strong son preference have made the sex of a child a much more important factor in the determination of pregnancy outcome. One recent effect of son preference in Korea has been the increasing resort to prenatal sex determination and sex-selective abortions, which in turn has led to rising masculinity ratios at birth. What are the implications for family planning programme policy?

First, the Government's intervention to prevent sex-selective abortions should be strengthened. The present study has found that son preference has become a very important factor in the increase of the sex ratio of population through the sex-selective abortions. Selective abortion has become a grave social, demographical, and ethical issue, and future trends in the sex ratio at birth will need careful monitoring. The strong son preference in Korea has a significant impact on a wide range of social spheres in Korea. The government has already taken action to forbid prenatal sex identification by revising the medical laws in 1987 and 1994 which led to strengthening of the disciplinary code. Physicians who provide such medical services for identifying prenatal sex can be punished with imprisonment, or a substantial fine, or have their medical licences cancelled. However, these

legislative measures do not appear sufficient to eliminate sex-selective abortions and the support of the public must be gained by encouraging parents to avoid using prenatal identification methods.

Second, existing institutional and social support policies should be further strengthened to weaken the high value attached to sons, and to prevent sex-selective abortions. In particular, Korea has to reform its patriarchal family laws and traditional customs which hinder the achievement of equality of the sexes. Information, education and communication activities will need to be strengthened so as to emphasise the importance of sexual equality, and to make people understand the adverse impact of the sex ratio imbalance on society.

Third, the ethos at medical schools as well as education of existing health and medical personnel need to be strengthened, to eliminate gender biases. In addition, monitoring of sex determination procedures for fetuses should be strengthened, particularly through medical and social organizations.

Lastly, the current family planning management system with its emphasis on sterilization for fertility termination should be reformulated, so that better quality services and a wider choice of reversible, safe, convenient and easily affordable methods can be made available for birth spacing. The recent situation where young women have been practising less contraception but using more abortions is a cause for concern. The family planning programme needs to target new contraceptive accepters in their 20s, who should be recruited for birth spacing and offered greater contraceptive choice than is currently on offer. Also, information, education, and communication campaigns on ethical and medical problems relating to illegal induced abortions should be systematically implemented.

References

- Ahn, N., *Measuring the Value of Children Using a Life Cycle Model of Fertility*, Discussion Paper No.640, Economic Growth Centre, Yale University, 1991.
- Bennett, N. E. and A. Mason., Decision Making and Sex Selection with Biased Technologies, *Sex Selection*, ed. by N.G. Bennett, New York: Academic Press, 1983, pp.101~112.
- Bloom, D. E. and G. Grenier., The Economics of Sex Preference and Sex Selection, *Sex Selection*, ed. by N. G. Bennett, New York: Academic Press, 1983, pp.113~128.
- Cho, D. H., "Changes in Boy Preference and Attitudes Toward Children", *Journal of Population and Health Studies*, Korea Institute for Population and Health, 1982.
- , "Changes of Ideal Number of Children in Korea", *Population Changes in Korea*, Korea Institute for Health and Social Affairs, 1990.
- Cho, N. H. and M. H. Suh, *Imbalance of Sex Ratio at Birth and It's Policy Implications in Korea*, KIHASA, 1994.
- Cho, N. H. and N. K. Ahn, "Changes in the Determinants of Fertility in Korea", *Journal of Population, Health and Social Welfare*, Vol.13, No.1, KIHASA, 1993.
- Cochrane, S. H., "Effects of Education and Urbanisation on Fertility", in Bulatao R. A. and R. D. Lee (eds.), *Determinants of Fertility in Developing Countries*, Vol.II, New York: Academic Press, 1983, pp.587~626.
- Han, S. H. and S. B. Lee, "An Analysis for Factors Affecting Parity Progression", *Journal of Family Planning Studies*, KIFP, 1977.

- Hong, M. S. and Y. H. Oh, "Trends of Induced Abortions in Korea", *A Special Analysis on 1991 National Fertility Survey*, KIHASA, 1992.
- Jain, A. K., "The Effect of Female Education on Fertility: A Simple Explanation", *Demography* 18, 1981, pp.577~96.
- Kim, Doo-Sub, *Socio-economic Status, Inequality and Fertility*, The Population and Development Studies Centre, Seoul National University, 1987.
- Kim, I. H., B. H. Choi, and S. S. Lee, "Determinants and Consequences of Son Preference", *Journal of Population, Health and Social Welfare*, KIHASA, 1990.
- Kim, T. H. and H. J. Joo, *The Imbalance in Sex Ratio and Its Implications*, Population Problem Institute, 1994.
- Kobrin, F. E. and R. G. Potter, Jr., Sex Selection through Amniocentesis and Selective Abortion, *Sex Selection* ed. by N.G. Bennett, New York: Academic Press, 1983, pp.47~71.
- Kong, S. K., A. J. Cho, S. K. Kim, and S. H. Son, *Family Formation and Fertility Behaviour in Korea: 1991 National Fertility and Family Health Survey Report*, KIHASA, 1992.
- Lee, H. T., "Prevalence and Strength of Son Preference in Korea", *The Journal of the Population Association of Korea*, Vol.5, No.1. Population Association of Korea, 1982.
- , *Causes of Son Preference in Korea: A Socio-Demographic Analysis*, A Research Report to WHO, 1982.
- , "An Exposition on Sex Preference and Its Effect on Fertility Behaviour and Family Size", *Fertility Changes in Korea*, KIPH, 1987.
- Lee, S. S., *Determinants of Son Preference; The Case of Korea*, 1985, Cairo Demographic Centre, 1989.

Moon, H. S., I. J. Im, Y. H. Oh and S. Y. Lee, 1988 *National Fertility and Family Health Survey Report*, Korea Institute for Population and Health(KIPH), 1989.

National Statistical Office, *Future Population Projections*, 1991.

-----, *Social Indicators in Korea*, 1993.

-----, *Annual Report on the Vital Statistics*,
December, 1995.

Park, C. B. and N. H. Cho, "Gender Preference and Sex Imbalance in the Population and Their Implications in Korea", *The Journal of Population Association of Korea*, Vol.17, No.1. PAK, 1994.

Suh, M. H., *A Study on Factors Affecting Boy Preference in Korea, A Special Analysis on 1991 National Fertility Survey*, KIHASA, 1992.

PART III.

COUNTRY STUDIES - SOUTH ASIA

5. Son Preference and Excess Female Mortality in India's Demographic Transition

Monica Das Gupta, *Center for Population and Development Studies, Massachusetts*

Leela Visaria, *Gujarat Institute of Area Planning, Ahmedabad*

The rapid fertility decline experienced in much of Asia in recent decades has been accompanied in several settings by heightened discrimination against female children: manifested in sex-selective abortion and/or sex-selective neglect. This has generated wide concern on many grounds including, amongst others, a concern for women's status and well-being, as well as for future problems for societies with increasingly masculine populations.

We are at present in a weak position to even begin to consider how to devise effective policies to counter these trends because of the lack of basic information critical to designing appropriate policies. For example, in the Indian context, little is known about the extent of the problem, amongst which groups it is most severe, and how far the problem is heightened by fertility decline. It is essential to understand the reasons underlying gender bias in order to avoid formulating ineffectual policy prescriptions.

This paper attempts to answer some of the complex questions relating to gender bias using a range of data from primary and secondary sources. It reviews how son preferences may be affected by fertility decline; how fertility decline has affected sex differentials in child and adult mortality rates; and what evidence there is about the practice of female foeticide in India.

Demographic Transition in India and Son Preference

There has been a dramatic decline in both fertility and mortality levels in India in recent years. The total fertility rate (TFR) fell from 5.2 per woman in 1971 to 4.5 in 1981, and to 3.6 in 1991 (Table 5.1). The pace of fertility decline was sharpest during the decade 1981~91, when the TFR fell by some 20 per cent. In 1991 the TFR in the urban areas of India was 2.6,

Table 5.1 *Total fertility rates, major States of India, 1970~1991*

State	1971	1981	1991	% decline 1971~81	% decline 1981~91	% decline 1971~91
South						
Andhra Pradesh	4.6	4.0	3.0	13.0	25.0	34.8
Karnataka	4.4	3.6	3.1	18.2	13.9	29.6
Kerala	4.1	2.8	1.8	31.7	35.7	56.1
Tamil Nadu	3.9	3.4	2.2	12.8	35.3	43.6
Centre						
Bihar	na	5.7	4.4	na	22.8	na
Madhya Pradesh	5.6	5.2	4.6	7.7	11.5	17.9
Rajasthan	6.3 ¹⁾	5.2	4.6	17.5	11.5	27.0
Uttar Pradesh	6.6	5.8	5.1	12.1	12.1	22.7
Northwest						
Haryana	6.7	5.0	4.0	25.4	20.0	40.3
Punjab	5.2	4.0	3.1	23.1	22.5	40.4
West						
Gujarat	5.6	4.3	3.1	23.2	27.9	44.6
Maharashtra	4.6	3.6	3.0	21.7	16.7	34.8
East						
Orissa	4.7	4.3	3.3	8.5	23.3	29.8
West Bengal	na	4.2	3.2	na	23.8	na
India	5.2	4.5	3.6	13.5	20.0	30.8

Notes : 1) Relates to 1972.

Source: Sample Registration System 1970 to 1975, 1981, 1991.

considerably lower than the rural rate of 3.8. There is also a marked regional pattern in fertility levels. The two southern States of Kerala and Tamil Nadu have already attained near or below replacement level fertility. The Central States (Uttar Pradesh, Madhya Pradesh, Rajasthan and Bihar) registered the slowest pace of decline, which is consistent with the fact that they are the laggards in terms of most indicators of development. Nevertheless, their TFR declined by 17 per cent between 1971 and 1991.

Mortality rates in India have also been improving. The infant mortality rate per 1,000 live births fell from above 130 in the period 1970~75 to 80 in 1991 (Sample Registration System 1970 to 1975, 1987). Life expectancy at birth rose from 50 years in 1970~75 to 57.5 years in 1986 to 1990 (Table 5.2). Here, too, regional differentials are strong: the infant mortality rate in Kerala in 1991 was 16, compared with a high of 117 in Madhya Pradesh (Sample Registration System 1991).

Table 5.2 *Life expectancy at birth by sex and place of residence, India, 1970~1990*

Years	Total			Rural			Urban		
	Male	Female	All	Male	Female	All	Male	Female	All
1970~75	50.5	49.0	49.7	48.9	47.1	48.0	58.8	59.2	58.9
1976~80	52.5	52.1	52.3	51.0	50.3	50.6	59.6	60.8	60.1
1981~85	55.4	55.7	55.4	54.0	53.6	53.7	61.6	64.1	62.8
1986~90	57.7	58.1	57.7	56.1	56.2	56.1	62.0	64.9	63.4

Source: Office of the Registrar-General, India, (1994).

There is, then, considerable demographic diversity within India, and not all regions or States are at the same stage of demographic transition. Nevertheless, it is evident that the demographic transition in India is well under way, as it is in

many other countries in Asia. It is interesting to note that the Indian experience does not substantiate the widely-held view that the demographic transition is preceded or accompanied by high levels of urbanisation, industrialisation and education. In most regions of India, both fertility and mortality have declined with relatively low levels of these indicators of 'modernisation'.

Son Preference

Son preference can have various demographic consequences. It can slow the pace of fertility decline by acting as an obstacle to the adoption of family limitation (Cain, 1984). It can also lead to excess female child mortality if the son preference is translated into actual behaviour discriminating against female children.

There is considerable evidence of son preference in India. It emerges clearly in attitudinal surveys. The Operations Research Group collected data in 1980 and 1988 on whether a couple wanted more children, and analysed this by the number and sex composition of children already in the family (Table 5.3). The most striking feature of both the 1980 and 1988 data is that respondents with no sons overwhelmingly want more children. Having one son mitigates this need considerably, though many would like to have a second son. There is some slight indication that amongst those with a two-child family, there may have been a small reduction in son preference, but there is no sign of this amongst the much larger group of people with three children.

Data collected from women in four districts of Gujarat by Visaria show a pattern very similar to that found by the Operations Research Group (Table 5.3). (Visaria, Visaria and Jain, 1992). This study also collected data on the preferred sex composition of children if the total number of children were limited to two or three children only (Table 5.4). The data show

that when presented with the possibility of having only two children, somewhat more women (40 to 60 per cent) preferred a balanced sex composition, than those wanting two sons (40 to 50 per cent). When those preferring a balanced sex composition were asked what combination they would prefer if it could not be balanced, they almost unanimously preferred to have two boys. Given the possibility of having three children, 75 to 82 per cent of the respondents expressed a preference for two sons and one daughter, the ideal number and sex composition of children expressed by Indian couples in many attitudinal surveys. The next most popular preference (10 to 13 per cent) was for all three children to be sons.

Table 5.3 *Sex combination of existing children and desire for additional children, all India, 1980 and 1988 and four districts of Gujarat state, 1989*

Sex combination	Percent desiring additional children					
	ORG		Districts in Gujarat			
	1980	1988	Bharuch	Panchmahals	Kheda	Rajkot
No child family	100	100	100	100	100	100
One child family						
One son no daughter	83	78	71	84	81	82
No son one daughter	90	87	79	76	93	89
Two child family						
No son two daughters	75	66	69	81	91	86
One son one daughter	44	37	33	48	39	45
Two sons no daughter	48	31	27	34	21	18
Three child family						
No son three daughters	65	66	56	80	73	77
One son two daughters	28	28	17	40	28	41
Two sons one daughter	11	11	6	14	7	10
Three sons no daughter	23	13	13	18	11	10

Source: Operations Research Group (1983, 1990).

Table 5.4 *Percentage of respondent women indicating preference for specified sex combinations of children, four districts of Gujarat, 1989*

Sex combination	Bharuch	Panchmahals	Kheda	Rajkot
Preferred sex combination with two children				
Two sons	39.7	52.6	35.4	44.1
One son one daughter	54.6	39.7	61.9	52.8
Two daughters	1.6	0.3	0.7	1.0
Does not know	1.8	5.7	1.9	2.1
God knows	2.2	1.6	0.1	0.1
Two sons, if a son-daughter combination is not possible	90.5	91.6	91.3	94.1
Preferred sex combination with three children				
Three sons	10.0	9.0	13.2	10.6
Two sons one daughter	79.6	82.0	75.3	80.0
One son two daughters	5.9	1.7	8.7	5.6
Three daughters	0.5	0.1	0.6	0.8
Others	4.0	7.1	2.2	3.0
Number of respondents	2657	2737	3715	3576

There are substantial inter-district variations in the data from Gujarat. Bharuch district, which is characterised by lower fertility and higher contraceptive prevalence, showed a preference for smaller families and less strong son preference than the other districts. It is necessary to study this further to understand whether the greater fertility decline in this district is a cause or a consequence of the decline in son preference. Except in Bharuch district, there was virtually no use of contraception before at least one son was born, and even women with two sons were far more likely (56 per cent) to use contraception than those with two daughters (21 per cent) as is shown in Table 5.5¹). This illustrates how son preference can operate as a barrier to fertility reduction.

Table 5.5 *Percentage of women accepting sterilisation after having the stated number and sex composition of children, Gujarat, 1989*

Sex combination	Bharuch	Panchmahals	Kheda	Rajkot
No child	3.5	0.2	2.5	1.0
One son	3.6	6.3	4.4	1.6
Two sons	55.8	33.1	59.3	43.4
Two daughters	21.1	0.0	2.1	1.0
One son one daughter	41.9	17.3	25.3	12.6
Two sons one daughter	82.9	59.9	76.1	68.8
One son two daughters	64.1	28.3	39.3	25.3
Three sons	79.7	59.6	77.9	59.6
Three daughters	25.8	0.0	13.0	7.0
More than three children	71.0	50.5	70.3	59.9
Total	51.1	34.7	45.3	41.6

Why Should We Expect Increased Discrimination Against Female Children with Fertility Decline?

In societies which show no particular preference for children of either sex, we would not expect to find increased gender bias with fertility decline. It is in societies which show a preference for boys that we would expect to find a female disadvantage in survival, and to find this disadvantage sharpened by fertility decline. The reason this should be expected is because total number of children desired is likely to decline more rapidly than the total number of sons desired. The difference in the pace of decline in the two trajectories (of the desired number of children

1) According to the survey undertaken by the Gujarat Institute of Development Research with the collaboration and financial support of the Population Council the use of reversible methods reported by respondents was negligible, and ranged between 2 to 8 percentage points in contraceptive prevalence rates of 38 to 58 per cent.

and of sons) makes for reduced scope for tolerance of daughters. For example, it is widely known that Indian couples report that they would like to have around 2 sons. If people were prepared to have 5 children, this leaves plenty of scope for daughters to be accepted in the family while still meeting this desired number of sons. When people do not want to have more than 2 or 3 children, this poses more of a problem. Even if a greater number of families are prepared to make do with only 1 son, many families will be harder pushed to meet their twin goals of desired number of sons and maximum number of children without reducing the tolerance for daughters.

This difference in the velocity of decline in the two trajectories is illustrated in Table 5.6. While the TFR in India declined by 20.0 per cent between 1981 and 1991, the average number of sons desired by women who had no sons declined by 7.4 per cent.

Table 5.6 *Decline in total fertility rate and in number of sons desired, India, 1980~1991*

Total fertility rate ¹⁾	<u>1981</u> 4.5	<u>1991</u> 3.6	<u>% decline</u> 20.0
Number of sons desired by women with no sons ²⁾	<u>1980</u> 1.48	<u>1988</u> 1.37	<u>% decline</u> 7.4

Source: 1) Derived from the Sample Registration System, 1981 and 1991.

2) Derived from the Operations Research Group surveys, 1980, 1988.

In Punjab, which exhibits very strong son preference, the desire for daughters is very low to begin with. Amongst the educated women in the Khanna Study villages in Punjab²⁾, who

have smaller completed family sizes than the uneducated women, the desire for daughters falls even more rapidly than that for sons (Table 5.7). This is quite remarkable because the average number of daughters desired was already so low. Amongst uneducated women who had not yet borne a daughter, 1 out of 2 women wanted to have no daughters at all: in the case of educated women, who had smaller families, this rose to 2 out of 3 women preferring to have no daughters. Fertility decline in this setting is clearly associated with a reduced tolerance of daughters.

Table 5.7 *Decline in desired family size and sex composition of children, women aged 15~29, Khanna, Punjab, 1984*

<u>No. of children desired of each sex by women with no children of that sex</u>			
	Uneducated women	Educated women	% decline with education
Boys	1.48	1.18	20
Girls	0.49	0.32	35

Source: Maternity histories, based on 572 women aged 15~29.

The reduced desire for daughters associated with fertility decline is reflected in heightened discrimination. Figure 5.1 reflects the increased discrimination against daughters by educated women in the Khanna villages. Education is used here as a proxy for smaller desired family size. While the child mortality rates of boys and of firstborn daughters are far lower amongst educated women than amongst uneducated women (who have larger completed

2) These data are derived from a longitudinal study of the eleven villages around Khanna in Ludhiana District, Punjab, conducted by Das Gupta at the National Council of Applied Economic Research, New Delhi, in 1984-88. This was a restudy of the villages studied in the 1950s in the well-known Khanna Study (Wyon and Gordon, 1971).

family size), the child mortality rate of higher-parity daughters rises sharply to a level similar to that of uneducated women.

Source: Based on Das Gupta, (1987).

Figure 5.1 *Fertility decline and sex differentials in child mortality, Khanna Punjab, mid-1980s*

Sex Differentials in Mortality

Masculinisation of the Sex Ratio

India is one of the few countries in the world which apparently discriminates so heavily against women that it succeeds in reversing women's normal biological advantage in survival over men³). This is reflected in the excessively masculine sex ratios of the population throughout this century (Visaria, 1969). Moreover, the trend seems to be towards a steady worsening of the sex ratio over the past century, as shown by successive Indian population censuses. It seems that as health conditions and health services have improved, men have benefited more than women⁴).

The 1971 census of India had an especially high level of underenumeration, and females tend to be underenumerated in greater numbers when this happens (Dyson, 1981; Raju and Premi, 1992). Thus the sex ratio in the 1971 census was more masculine than it should have been. The 1981 census had more complete coverage, as also did the 1991 census. Dyson's (1995) analysis shows that except in the case of Bihar State, the level of female underenumeration has remained unchanged between the 1981 and 1991 censuses. Overall levels of underenumeration were similar in 1991 as in 1981, as established by the post-enumeration survey. Therefore the trend in sex ratios between the 1981 and 1991

-
- 3) One way to understand the cumulative demographic effect of discrimination against women is to estimate how many additional females would be alive today in the absence of gender discrimination. Such an exercise gives a global estimate of between 60-100 million 'missing women', of which nearly 90 per cent are located in India and China (Sen, 1990; Coale, 1991; Klasen, 1994).
 - 4) Mortality improvement by itself would generally produce a rise in the masculinity of a population in countries like India because typically males obtain a greater share of the benefits from improvements in the health sector.

censuses can be treated as reliable.

The overall trend in sex ratios in India has been towards increasing masculinisation. Disaggregating the overall sex ratio between children and adults, we find that it is the juvenile sex ratio which has worsened over this period, while the sex ratio of those aged 7+ has remained more stable (Figure 5.2). There has been substantial worsening of the juvenile sex ratio between 1981 and 1991 in the country as a whole, and this is reflected in the data for every State (Table 5.8).

Table 5.8 *Trends in sex ratios, females per 100 males, major states of India, 1981~1991*

State	Juvenile sex ratio (age 0~6)		
	1981	1991	% change(1981~91)
South:			
Andhra Pradesh	992	974	-1.8
Karnataka	975	960	-1.5
Kerala	970	958	-1.2
Tamil Nadu	967	948	-2.0
North centre:			
Bihar	981	959	-2.2
Madhya Pradesh	978	952	-2.7
Rajasthan	954	916	-4.0
Uttar Pradesh	935	928	-0.8
Northwest:			
Haryana	902	879	-2.6
Punjab	908	875	-3.6
West:			
Gujarat	947	928	-2.0
Maharashtra	956	946	-1.1
East:			
Orissa	995	967	-2.8
West Bengal	981	967	-1.4
Indiaa	962	945	-1.8

Notes : Excludes Assam, Jammu and Kashmir.

Source: Census of India (1991).

Note : The 1971 Census underenumerated the number of women to a greater extent than men in India.
Source: TFRs, Sample Registration System 1970~1975, 1981 and 1991: sex ratios Census of India 1961, 1971, 1981 and 1991.

Figure 5.2 *Fertility and sex ratio trends, India, 1961~1991*

Child versus Adult Sex Differentials in Mortality

This difference for young children and for older people is also reflected in trends in life expectancy at birth, as compared with life expectancy at age 5 (Table 5.9). In the early 1970s life expectancy at birth of females was lower than that for males, although it was higher than that of males at age 5. By 1990/91, overall levels of life expectancy had risen considerably, and the expected 'crossover' of male and female life expectancy had taken place, such that females have a higher life expectancy at all ages.

However, the female advantage in life expectancy at age 5 was larger than that at birth even in 1990/91 (Table 5.9). This goes counter to the 'normal' pattern of differentials in life expectancy by age in populations not characterised by strong gender bias, where we find that the female advantage in life expectancy at birth is much higher than that at age 5. This is because, in the absence of gender bias, boys have higher mortality than girls in early childhood.

Table 5.9 *Change in life expectancy by sex, India, 1972/76 to 1990/91*

Life expectancy	1972/76			1990/91		
	Males	Females	F-M	Males	Females	F-M
e0	49.47	48.61	-0.86	59.17	60.63	+1.46
e5	57.28	57.84	+0.56	61.68	64.12	+2.44

Source: Based on Sample Registration System age-specific death, Mari Bhat, personal communication.

Thus the Indian data strongly suggest that despite gains in life expectancy, there continues to be a clear pattern of discrimination against female children, which does not seem to

extend to (or is substantially mitigated in) the case of older females.

Fertility decline would be expected to reduce female mortality during the reproductive years, by reducing the effect of reproductive stress on women. Thus fertility decline should work towards improving female mortality relative to that of males at the reproductive ages. This is one reason why fertility decline has been associated with improved female longevity relative to males in India.

The direct connection between fertility decline and improvement in the gender gap in mortality during the reproductive ages is illustrated well by data provided on Sri Lanka by Nadarajah (1983), showing the shift in age-specific death rates by sex during the period 1952 to 1974, when fertility declined sharply in Sri Lanka. This analysis shows how the gender gap in mortality at the reproductive ages was removed as fertility declined. Females had a clear advantage in survival at all ages other than the reproductive years. As fertility declined, excess female mortality during the reproductive years declined such that females came to have a survival advantage during these years as well.

Deaths directly attributed to maternal mortality are, of course, only a part of all deaths caused directly or indirectly by reproductive stress. Thus maternal mortality rates provide very conservative estimates of the effect of reproductive stress on gender differentials in mortality. Less narrowly-defined measures of mortality associated with reproduction would provide a more comprehensive and accurate picture.

The beneficial effect of fertility decline on adult female mortality in the Indian context can be seen in Figure 5.3. In the early 1970s, women had higher mortality than males until the age of 40, that is until their fecundability dropped. Around 1990, this disadvantage was no longer in evidence beyond the age of 30

years, and even during the peak childbearing years of 20~29 the female disadvantage was substantially reduced. This shift appears to be primarily due to the reduction of higher order births and earlier termination of childbearing so that women are at a lower risk of mortality related to maternity.

It is notable in Figure 5.3 that there is no evidence of reduction in excess female child mortality, despite the fact that at all other ages women's mortality relative to males has improved over time. The greatest gains in longevity have been at ages 30~39, but substantial gains continue to be made at older ages as well.

Female Foeticide

Indications of Female Foeticide

The evidence for female foeticide in India is increasing, with the spread of modern techniques for sex determination in the late 1980s⁵⁾. Data on hospital births from several parts of the country show that sex ratios at birth have become more masculine over time, reaching a level of 112 males per hundred females in the decade 1981 to 1991 (Census of India 1991 : 11). As might be expected, data from Punjab show even more pronounced trends. The sex ratio at birth in 1988 in hospitals in Punjab was 122, and in a rural community sample it was 119 (Sachar et al., 1990). It seems, then that some of the gap between the trends implied by the child mortality rates and those implied by the juvenile sex ratios may be explained by a rise in female foeticide, or unreported infanticide. However, the currently available data are inadequate for estimating how much of the gap can be attributed to such factors.

5) The chorionic biopsy is a relatively simple and inexpensive test. It is available through private clinics, which have mushroomed in India, especially in the Northern States. It can be conducted on pregnancies of about 8 weeks and is considered to be 90-95 per cent accurate.

Figure 5.3 *Ratio of male to female age-specific death rates, India, 1970~72, 1980~82 and 1989~91*

The possibility of female foeticide is also raised by an apparent contradiction between the worsening trends in juvenile sex ratios with no concomitant rise in excess female infant and child mortality. The worsening of juvenile sex ratios seems to coincide with the period during which the pace of fertility decline has been most steep. On the other hand, the data from the Sample Registration System do not reflect a worsening of female child mortality relative to that of males in India as a whole. If anything, the trend seems to be towards a slight reduction in the female disadvantage in child mortality in India between the early 1970s and the early 1990s (Table 5.10). The same appears to be the case with sex differentials in infant mortality (Table 5.11). In the absence of discrimination against girls the expected sex differentials in infant and child mortality would be far greater because of their biological disadvantage. The figures suggest only a slight reduction in the female disadvantage brought about by discriminatory practices.

Table 5.10 *Child mortality rates (per 1,000) by sex, India, 1970/75 and 1990/91*

Sex	Age-specific death rates of children aged 0-6	
	1970/75	1990/91
Male	50.1	25.2
Female	56.7	27.7
M/F	0.88	0.91

Note : The mortality rates are shown for grouped years because of considerably year to year fluctuations.

Source: Sample Registration System, 1970 to 1991.

The reasons for the difference in the direction of trends between juvenile sex ratios and sex differentials in child mortality need to be further studied. One reason could be that some

amount of female foeticide is taking place, removing girls before they can be counted as live births. This explanation is consistent with finding fewer girls and at the same time no evidence of worsened sex differentials in mortality.

Table 5.11 *Infant mortality rates per 1,000 live births by sex, India, 1979~1991*

Year	Males	Females	All
1979	119	121	120
1980	113	115	114
1981	110	111	110
1982	na	na	na
1983	na	na	na
1984	104	104	104
1985	96	98	97
1986	96	97	96
1987	95	96	95
1988	95	93	94
1989	92	90	91
1990	78	81	80
1991	81	80	80

Source: Sample Registration System, 1970 to 1991.

Extent of the Problem

The possibility that the use of sex-selective foeticide has become widespread has attracted a great deal of attention in the media and in many other circles in recent years. It is often claimed that the new technology of sex-selective foeticide is another form of discrimination which has been added to the existing methods of discrimination deployed against female children in India. Studies suggest that women from all strata of society avail of this facility (Patel, 1988; Jeffery and Jeffery, 1983),

although these studies do not indicate the extent of the practice of female foeticide. On the other hand, sceptics have argued that the use of sex-selective technology is highly limited because it is an urban phenomenon and the tests are not easily accessible to people living in rural areas. They argue further that only limited classes of people even within the urban areas resort to this technology (Rajan et al., 1986; Vishwanath 1983). The sceptics' view is contradicted by the data from the rural community sample discussed above.

It is necessary to move away from the exaggerated views of the prevalence of sex-selective foeticide, to a more plausible view of the extent of its use. While we do not know the extent of the use of female foeticide, it is possible to estimate that its use would be limited to a small proportion of pregnancies. This is based on what is known about the relationship between gender-based discrimination and the sex composition of children (Das Gupta, 1987). This would suggest that women are unlikely to use sex-selection for the first pregnancy. Women who have one or two male children are also more likely to resort to simple abortion than sex-selective abortion. The greatest pressure to undergo sex detection tests will fall on women whose first living child is a girl and who do not want to have more than 2~3 children, therefore needing the next child to be a boy. Similar pressures may also fall on higher-parity women who do not have as many sons as desired.

A simulation exercise would suggest that only a small proportion of Indian couples would resort to sex detection tests and female foeticide, given that women are having on average 3.6 children. A further decline in fertility may increase the pressure on couples to resort to this practice in order to reach the culturally desired sex composition of the family. It is important to emphasise, however, that even if only a small percentage of

pregnancies are subjected to these tests, the very existence of female foeticide reinforces the low evaluation and status of Indian women.

Conclusions

India has undergone fairly rapid demographic transition in recent years. There is considerable evidence that this has been accompanied by heightened discrimination against female children. Since the 1980s, when the pace of fertility decline accelerated in the country, the sex ratios of the juvenile population have worsened considerably. Moreover, data from studies of hospital births and one-community based study support the commonplace observation that sex-selective foeticide is being practised to some extent.

There is no evidence in the Sample Registration System data of an increase in excess female child mortality in the country: if anything, this has decreased. Yet the juvenile sex ratios indicate a decrease in the proportion of female children. This apparent contradiction may be partly explained by the practice of female foeticide, whereby female children are removed without being reflected in the mortality statistics. There is little reason to believe, however, that large proportions of pregnancies are being subjected to sex-testing: It is likely that such tests would not even be desired except in a relatively small proportion of total pregnancies.

Of course, fertility decline does not have an unambiguously negative effect on women's health and survival, even where female children are most strongly discriminated against. In our concern about the situation of female children, we can sometimes forget that fertility decline has a positive effect on the health of adult women by reducing the stresses of reproduction. The data on sex-specific mortality rates show clearly that fertility decline has

helped bring about a substantial reduction in excess female mortality at young adult ages. There thus appear to be countervailing tendencies at work: fertility decline has improved the health and survival of adult women, while in some respects worsening the health and survival of female children.

References

- Cain, M., "Women's Status and Fertility in Developing Countries: Son Preference and Economic Security", World Bank Staff Working Paper No.682, *Population and Development Series* No.7, Washington D.C.: The World Bank, 1984.
- Census of India 1991, Paper 2 of 1992, India: Final Population Totals.
- Coale, A. J., "Excess Female Mortality and the Balance of the Sexes: An Estimate of the Number of Missing Females", *Population and Development Review*, 17, 1991.
- Das Gupta, M., "Selective Discrimination Against Female Children in Rural Punjab, India", *Population and Development Review*, 13(1), 1987.
- Dyson, T., "The Preliminary Demography of the 1981 Census", *Economic and Political Weekly*, Vol.XVI, No.33, 1981.
- , "On the Demography of the 1991 Census", in M. Das Gupta, T. N. Krishnan and L. C. Chen (eds.), *Health, Poverty and Development in India*, Oxford University Press, 1995.
- Jeffery, R. and Jeffery, P., "Female Infanticide and Amniocentesis", *Economic and Political Weekly*, 1983.
- Klasen, S., " 'Missing Women' Reconsidered", *World Development* 22(7), 1994.
- Nadarajah, T., "The Transition from Higher Female to Higher Male Mortality in Sri Lanka", *Population and Development Review*, 9(2), 1983.
- Office of the Registrar-General, India, Occasional Paper No.1, *SRS Based Abridged Life Tables 1986~90*, New Delhi, 1994.

Operations Research Group, Baroda, *Second All-India Survey of Family Planning Practices*, 1983.

-----, *Third All-India Survey of Family Planning Practices*, 1990.

Patel, V., "Sex Determination and Sex Pre-Selection Tests: Abuse of Advanced Technologies", in R. Ghadially (ed.), *Women in Indian Society*, Sage Publications, 1988.

Rajan, I. S., Misra, U. S. and Navaneetham, K., "Decline in Sex Ratio: Alternative Explanation Revisited", *Economic and Political Weekly*, 1992.

Raju, S. and Premi, M. K., "Decline in Sex Ratio: Alternative Explanation Re-examined", *Economic and Political Weekly*, 1992.

Sachar, R. K. et al., "Sex Selective Fertility Control: An Outrage", *The Journal of Family Welfare*, 30, 1990.

Sample Registration System of India, 1970~75: 1981; 1990; 1991.

Sen, A. K., "More than 100 million women are missing", *New York Review of Books*, 1990.

Visaria, P. M., "The Sex Ratio of the Population of India", *Census of India 1961, Vol.1, Monograph No.10*, 1969.

Visaria, P. M., Visaria, L. and Jain, A., *Contraceptive Use and Fertility in Gujarat*, Ahmedabad: Institute of Development Research, forthcoming, 1992.

Vishwanath, 1983.

Wyon, J. B. and Gordon, J. B., *The Khanna Study*, Harvard University Press, 1971.

6. Son Preference in Pakistan's High Fertility Setting

Zeba A. Sathar, *Pakistan Institute of Development Economics, Islamabad*

Mehtab S. Karim, *The Aga Khan University, Karachi*

Pakistan has yet to experience demographic transition and fertility remains at a significantly higher level than in almost all other countries in Asia (Friedman and Blanc, 1992). Pakistan's contraceptive prevalence rate at 12 per cent is also one of the lowest in the region (UNFPA, 1993). Many reasons have been advanced as to why fertility change has been slow in Pakistan, prominent among which are the low status of women and the persistence of son preference (Sathar, 1993; Rukunuddin, 1982). However, other neighbouring countries, such as India and Bangladesh, which have many similar characteristics as Pakistan, have experienced fertility decline despite continuing son preference.

Will the strong preference among couples for having two living sons diminish much slower than elsewhere? Is Pakistan's fertility transition likely to be more gradual with less reliance on prenatal sex selection and sex-selective abortions? Currently abortion is not widespread due to deep religious and public condemnation. Will Pakistan experience the serious imbalances in sex ratios at birth as appear to be emerging in some other Asian countries? This paper examines the evidence relating to son preference in Pakistan and how it affects fertility and family composition. It begins by considering recent fertility trends and then reviews trends in sex ratios at birth, sex differentials in mortality and other evidence of sex-selective behaviour related to fertility, mainly on the basis of data from the 1990/91 Pakistan Demographic and Health Survey (PDHS).

Recent Fertility Trends

Fertility in Pakistan has remained high and unchanging for some three decades (Alam, 1984; Casterline, 1984; Sathar, 1993). While the raw data from the 1991 PDHS appeared to show a significant decline in the total fertility rate (TFR) in the five year period before the survey, this finding has not been widely accepted by Pakistan's demographers. Pakistan has a long history of fertility surveys. But despite an abundance of data, reporting of ages, dates of events and numbers of children ever born are so defective that it is difficult to arrive at any consistent picture of levels and patterns of reproductive behaviour. The various data sets do not provide reliable signals of significant fertility change. Estimates of the TFR from various surveys starting from 1962, show fertility ranging between 5 to 7 births per woman (Table 6.1).

Keen expectations of fertility decline have been based on the anticipated impact of the official family planning programme that was initiated in 1965. Pakistan was one of Asia's pioneer countries to start an official family planning programme and an anti-natalist policy has been pursued since the Third Five Year Plan (1965~70). Former president Ayub Khan made a public speech in relation to this anti-natalist policy stance as far back as 1959 (one of two such speeches in Pakistan's 46 year history). Nevertheless, the evidence from the fertility surveys relating to fertility levels and contraceptive prevalence suggests that the family planning programme has had only a very minimal impact.

Contraceptive use remains low and has been increasing at a slow pace, from 5 per cent in 1975, to 9 per cent in 1985, and reaching just 12 per cent in 1991. Furthermore, the major impact of the programme has been restricted to urban areas, although the bulk of the population live in rural areas. The latest figures from

Table 6.1 *Total fertility rates from various surveys and 1960s to 1980s, Pakistan*

Source	Year	TFR
1960's		
PGE ¹ LR	1963~1965	6.1 ¹¹⁾
PGE ¹ -CD	1963~1965	8.0 ¹¹⁾
PFS ²⁾	1960~1965	7.1 ¹¹⁾
PFS ²⁾	1965~1970	7.1 ¹¹⁾
NIS ³⁾	1968~1969	5.0
PGS ⁴⁾	1968~1971	6.0 ¹¹⁾
1970's		
PFS ²⁾	1970~1975	6.3 ¹¹⁾
PLM ⁵⁾	1970~1975	7.1
PLM ⁵⁾	1975~1979	6.5
PGS ⁶⁾	1976~1979	6.9
PDHS ⁷⁾	1976~1981	7.1 ¹²⁾
1980's		
PCPS ⁸⁾	1984~1985	6.0
PDS ⁹⁾	1984	7.0 ¹³⁾
PDS ⁹⁾	1985	7.0 ¹³⁾
PDS ⁹⁾	1986	6.9 ¹³⁾
PDS ⁹⁾	1987	6.5 ¹³⁾
PDHS ⁷⁾	1981~1986	7.6 ¹²⁾
PDHS ⁷⁾	1986~1991	4.9 ¹²⁾
PIHS ¹⁰⁾	1986~1991	7.4 ¹²⁾

- Notes :
- 1) Population Growth Experiment, 1962~65.
 - 2) Pakistan Fertility Survey, part of the World Fertility Survey Programme.
 - 3) National Impact Survey, 1969.
 - 4) Population Growth Survey, 1968, 1969, 1971.
 - 5) Population Labour Force and Migration Survey, 1979.
 - 6) Population Growth Survey, 1976~79.
 - 7) Pakistan Demographic and Health Survey, 1990~91.
 - 8) Pakistan Contraceptive Prevalence Survey, 1984~85.
 - 9) Pakistan Demography Survey, 1984~88.
 - 10) Pakistan Integrated Household Survey, 1991.
 - 11) Alam and Dinesen, 1984.
 - 12) Estimates of the authors (unadjusted).
 - 13) Blacker, 1990.

Source: Brass, Juarez and Sathar 1994.

the PDHS indicate that contraceptive use in major cities has risen to almost 30 per cent, a proportion which stands out in comparison with the rest of Pakistan. Another feature found in most fertility surveys is the substantial gap between women who say they do not want more children yet do not practice contraception. This group of women is estimated to be 28 per cent according to the PDHS, and includes women who want to space their children but are currently not using any contraception. This situation reflects problems in contraceptive supply and in adequate knowledge about the means to control fertility. However, the vast majority of women who stated reasons for not using contraception do not indicate lack of supplies as a major hindrance. In fact, social reasons like family opposition, fear of side effects, religious objection dominate non-use in Pakistan (NIPS/IRD 1992).

In the context of the controversy about the 1991 PDHS a thorough evaluation of the results was carried out including an internal consistency check and a comparison with other surveys including the 1975 Pakistan Fertility Survey, the results of which have particular relevance to this paper. Various direct and indirect estimation techniques were utilised and it was unequivocally found that fertility had not fallen (Brass, Juarez and Sathar 1994). The application of the Gompertz Relational Model yielded a fertility rate of about 5.9 for the period 1985~91 which is in greater conformity with other recent estimates of fertility from different data sources, such as the Pakistan Demographic Surveys of 1984~88; the Pakistan Integrated Household Survey of 1991, and the most recently released PDHS Reinterview Survey (Curtis and Arnold 1994).

In order not to totally dismiss the 1991 PDHS data some measures of fertility were used to test for any indications (other than period fertility and contraceptive use) that couples were beginning to modify their family building process. The Parity

Progression Ratios Truncated Approach, developed by Brass and Juarez, is suited to capture the onset of fertility decline through any changes in family formation patterns, as reflected in the reduction of the parity progression ratios (Brass and Juarez 1983). Such changes, although critical in what they reflect in terms of family limitation, may not be so readily prominent in changes in the TFRs. These truncated parity progression ratios also help to identify women who are experiencing changes in family formation, and also the parities at which these changes are occurring.

Table 6.2 presents adjusted fertility estimates from the 1991 PDHS and the 1975 PFS surveys. The findings suggests that while changes in family formation were absent in 1975, 15 years later there is evidence of a fall in fertility through the alteration in the build up of families and a greater inclination towards smaller families. The indices of parity progression from the 1975 birth histories indicate a negligible change over time (Brass and Juarez 1983). By contrast, the 1991 PDHS birth histories provide results which are consistent with the pattern observed in the initial stages of fertility declines through family limitation. Parity progression from marriage to first birth and first to second births remains constant over the cohorts, but there are regular falls in the progression from second to third parities and upwards. Comparisons with other countries also show that the 1975 PFS birth progression are closer to averages over populations with little or no family planning impact. The PDHS adjustments are bigger than for the PFS measures and similar to the averages of populations which are being influenced by family planning. The main intervals contributing to fertility decline are the fourth and fifth. That is, there are less women with a fourth or fifth birth who go on to have a fifth or sixth child.

Table 6.2 B_{60} 's adjusted using indices of relative change, truncation approach, 1975 PFS and 1991 PDHS, Pakistan

Cohort	~1	1~2	2~3	3~4	4~5	5~6	6~7	7~8	8~9	9~10
1975 PFS										
20~24	0.845	0.922	0.903	0.877						
25~29	0.844	0.894	0.889	0.875	0.864	0.806				
30~34	0.846	0.901	0.910	0.903	0.869	0.827	0.739	0.698	0.668	
35~39	0.778	0.885	0.898	0.892	0.877	0.827	0.818	0.674	0.651	0.601
40~44	0.807	0.912	0.919	0.903	0.869	0.835	0.833	0.691	0.663	0.635
45~49	0.809	0.896	0.874	0.878	0.886	0.818	0.798	0.744	0.679	0.616
1991 PDHS										
20~24	0.818	0.897	0.794	0.751						
25~29	0.867	0.924	0.833	0.778	0.679	0.586				
30~34	0.841	0.928	0.889	0.837	0.730	0.695	0.562	0.456	0.514	
35~39	0.857	0.919	0.911	0.879	0.809	0.725	0.611	0.610	0.573	0.438
40~44	0.832	0.928	0.923	0.854	0.835	0.786	0.707	0.665	0.651	0.592
45~49	0.802	0.921	0.913	0.871	0.865	0.785	0.743	0.778	0.632	0.624

Source: Brass, Juarez and Sathar, (1994).

Two further points of interest are that the pattern is stronger for younger cohorts, and that the change is observed in rural as well as urban areas. Women of the birth cohort 1951~56, who are currently aged 35~39 in 1991, are the pioneers in portraying this new reproductive behaviour (Table 6.2). In the decade of the 1980s these women had lower parity progression ratios at the fifth, sixth and higher order births. Younger women are estimated to be following the same pattern but in a more accelerated way - in a period of 15 years, women aged 25~29 have managed to markedly reduce their probability of achieving a fifth or higher order birth.

The urban-rural differential in fertility, largely non-existent in the 1970s has emerged quite strongly in Pakistan recently, and is expected given that the impact of the family planning programme

is concentrated in cities and towns. Further, because educated women (who have significantly lower fertility) are concentrated in urban areas. However, some changes in family formation have also occurred in rural Pakistan, implying some fertility control within marriage outside the purview, or impact, of the official programme. This finding suggests that populations can, in some instances, control their fertility even without the necessity of access to official programmes. The evidence suggests that Pakistani women/couples are beginning to plan their families according to some considerations about desired family size or composition.

Evidence of Son Preference

Son Preference By Family Size Composition

Parents in many Asian societies show greater preference for sons over daughters, for a variety of reasons, particularly old-age security. Several studies have also shown that son preference also affect the desire for additional children (Amin and Mariam, 1987; Das, 1987; Khan and Sirageldin, 1987; Ali, 1989; Li and Cooney, 1993). The 1991 PDHS confirmed the continued existence of a significantly greater desire for sons than daughters among Pakistani women (Table 6.3). Among women with no children, about two thirds said the sex of their first child was unimportant, about one-third wanted a son for their first child, while stated preferences for a daughter were negligible. Further, among women who had two children both of whom were girls, 93 per cent preferred that their next child should be a boy, whereas among those who had two boys just 38 per cent wanted their next child to be a girl.

Table 6.3 *Per cent distribution of currently married non-pregnant women aged 15~49 who want another child and using contraceptives, by preferred sex of next child and number of living children and sons, Pakistan, 1991*

Number of Living Children and Sons	Preferred Sex		
	Male	Female	Does Not Matter
No. Children	31.7	0.2	67.6
One Child	49.5	4.3	46.2
No sons	78.6	- ²⁾	21.4
One son	21.6	8.5	69.9
Two Children	47.5	11.0	41.5
No sons	93.0	-	7.0
One son	44.4	-	55.6
Two sons	12.7	38.1	49.2
Three Children	63.9	7.0	29.1
No sons	91.9	-	8.1
One son	78.7	0.1	21.2
Two sons	34.4	5.7	60.0
Three sons	a ¹⁾	a	a
Four Children	62.8	6.4	30.6
No sons	100.0	-	-
One son	95.4	-	4.0
Two sons	a	a	a
Three or more sons	a	a	a
Five Children	59.3	4.5	36.2
Less than two sons	95.8	-	4.2
Two or three sons	46.9	3.0	50.0
Four or more sons	a	a	a
Total	49.1	5.2	45.6

Notes : 1) Too few observations

2) Less than .05 percent

Source: Pakistan Demographic and Health Survey, 1990/91 NIPS, (1992).

Sex Ratios at Birth

In Pakistan abortion of a female foetus is currently rarely practised. Couples who desire to have male children do so by having successive births until they achieve their desired goal. In large cities, ultrasound has become an important means for predicting the sex of the foetus. However, according to the Secretary General of the society of ultrasound practitioners, abortions that take place in Pakistan are not usually related to the sex of the foetus.

Table 6.4 *Reported sex ratio at birth by birth order, Pakistan, 1986~1990*

Year	Birth Order				All Births
	1	2	3	4	
1986	1.37	0.91	0.91	0.94	1.03
1987	1.16	1.07	1.11	1.00	1.08
1988	1.33	1.14	1.08	1.01	1.09
1989	1.24	1.01	0.96	1.02	1.06
1990	1.17	1.16	0.94	1.03	1.07
All births in past 5 years	1.25	1.06	1.00	1.00	1.07

Source: Pakistan Demographic & Health Survey, 1990/91.

The sex ratio at birth in Pakistan in 1989 was 107 male births to every 100 female births, consistent with the accepted norm (Federal Bureau of Statistics, 1993). While the overall sex ratio at birth varied between 1.03 to 1.09, for births occurred during the period 1985 to 1990, the ratio at first birth is substantially higher (Table 6.4). However, this is probably the result of reporting biases in the survey data. Reporting biases are possible in view of the strong desire for the first child to be a male. Thus it is conceivable that some first born daughters are omitted, or reported

as younger than a later born male sibling, in the survey data. Similar high first birth order sex ratios have been reported in other countries, such as Indonesia and Sri Lanka. Arnold (1992) notes that 'if there is a strong preference for sons, one would expect to see relatively high sex ratios at the early parities and relatively low sex ratios for larger families, because couples would be more likely to discontinue childbearing if their early children were predominantly males'. It is likely that in high fertility societies such as Pakistan childbearing continues until the desired number of sons is born. In Pakistan, lower male sex ratios are reported at third and fourth order births (Table 6.4).

Sex Differentials in Mortality

Overall levels of mortality have been declining slightly with most improvements occurring at older ages. Infant mortality remains very high, in the range of 90-125 per 1,000 live births and constitutes the main component of mortality. Infant mortality according to the 1991 PDHS is about 90 per 1000, although other sources, such as the World Bank's Pakistan Integrated Household Survey and the Pakistan Demographic Surveys, yield much higher estimates for the early 1990's. The 1991 data do not reveal a drastic decline in infant and child mortality, such as that seen in the 1950s and 1960s, and since when the decline has been extremely gradual. This is rather unexpected given the strong health programmes implemented nationwide since the early 1980s for improving child survival.

A consequence of son preference could be discrimination against female children. While Alam and Cleland (1984) found no evidence in the 1975 Pakistan Fertility Survey of 'selective neglect' of female children in Pakistan, they reported that in families with no previous sons, when a boy is born infant mortality is lower, suggesting that 'a particularly precious child' receives special

parental care. They noted that although infant mortality among males is higher than among females, it is offset by substantially higher post-neonatal mortality among females. However, the more recent 1991 PDHS data show that not only has the gap between male and female infant mortality rates widened, but even in the post-neonatal period, boys have a higher rate than girls (Table 6.5). Hence the PDHS data are not consistent with the idea of preferential treatment being given to male infants. However, the 1991 PDHS data suggest that the differentials in child mortality by gender have apparently become wider at ages 1 and 5, implying that caution is necessary in drawing the conclusion that there has been a diminution of preferential treatment for male children.

Table 6.5 *Mortality rates, by sex of child for the 10 year period before the survey, 1975 PFS and 1991 PDHS, Pakistan*

Infant mortality type and sex	PFS ¹⁾ (1975)	PDHS ²⁾ (1990~91)
Infant Mortality Rate		
Male	141	102
Female	137	86
M/F Ratio	1.03	1.19
Neonatal Mortality Rate		
Male	89	60
Female	71	46
M/F Ratio	1.25	1.30
Post-neonatal Mortality Rate		
Male	52	42
Female	66	39
M/F Ratio	0.79	1.07

Source: 1) Pakistan Fertility Survey, 1975 (Alam and Cleland, 1984).

2) Pakistan Demographic & Health Survey, 1990/91.

Preferential Treatment of Sons

Information related to whether children of each sex received similar attention from the mother in terms of breast-feeding duration and treatment provided in cases of illness is given in Table 6.6. The data show no evidence that sons are preferred over daughters in terms of breast-feeding practices. Similarly, for three childhood diseases, no typical pattern of difference emerges by sex of the child and differences that appear to exist in the data are not statistically significant.

Table 6.6 *Breast-feeding patterns and reported illness and treatment provided by sex of children under five, Pakistan, 1991*

Variable	Male	Female	Both Sexes
Percent Ever Breast-fed	93.3	93.7	93.5
Median Duration of Breast-feeding	18.3	21.1	19.9
Percent with cough & fast breathing	15.8	16.2	16.0
Percent taken to a health facility or provider	67.5	65.2	66.4
Percent with fever	30.3	29.9	30.1
Percent taken to a health facility or provider	66.7	62.9	64.8
Percent with diarrhoea past 2 weeks	15.0	14.1	14.5
Percent taken to a health facility or provider	43.4	53.6	48.3
Total Number	2,942	2,883	5,776

Source: Pakistan Demographic and Health Survey, 1990/91.

The Demand for Children: Waning or Crystallising?

The demand for children as reported in desired and ideal family size has remained remarkably stable over time. In the 1968 National Impact Survey four children were considered ideal and the same is reported in the 1991 PDHS. Thus a decline in the demand for children over the last three decades is ruled out. Most

women have an average number of children over and above four since the TFR has been over 6 births for several decades, indicating a large gap between desired and actual fertility in Pakistan. While it is argued with some conviction that the family planning programme in Pakistan has failed due to problems of its chequered history, coupled with changes in management and strategy (Robinson et al, 1979; Rukunuddin and Cleveland, 1992) - a counter argument can be made that even though women may desire fewer births than they bear, they are still not prepared to adopt family planning as the next logical step (Sathar 1993).

Table 6.7 *Proportion of ever married women who want more children by number of living sons and daughters, Pakistan, 1991*

Number of living sons	Number of living daughters					Total
	0	1	2	3	4+	
0	.99	.94	.94	.86	.96	.96
1	.94	.81	.72	.63	.60	.78
2	.77	.58	.45	.33	.34	.50
3	.59	.50	.39	.34	.34	.42
4	.43	.37	.37	.31	.36	.36
Total	.88	.69	.56	.45	.44	.65

Source: Pakistan Demographic and Health Survey, 1990/91.

The reasons for the lack of fertility transition in Pakistan are linked both with the strong demand for children, and in particular for sons, as well as the lack of adequate family planning services. Women (and probably men) strongly desire at least two living sons and though they also would like to have one daughter the demand for girls is much weaker. The desire for additional children declines sharply after a woman has two living sons (Table 6.7). A similar decline in the demand for additional children does not occur when there are two living daughters and

no living sons. The contention is that families will continue to have, or at least want more children, until the requisite number of sons is born. Women in Pakistan are much more likely to decide to end childbearing after four children, or even three, if two of these are living sons.

Unmet need, as measured by women who do not want more children but are currently not using contraception (an unrefined measure of unmet need since it does not adjust for sterility nor pregnant status), varies significantly with the number of living sons. This is a measure of the combined condition of wanting no more children but not using contraception, an index of the gap between 'need' and use. This index too is strongly correlated to the number of living sons. Though the number of living daughters is important, it is the number of living sons which brings about the sharp increase in unmet need. (Table 6.8). More than half the women who have four or more living sons and no living daughters have an unmet need for contraception, while in the converse case of no sons and four or more daughters only 12 per cent have an unmet need.

Table 6.8 *Proportion of unmet need for contraception by number of living sons and daughters, Pakistan, 1991*

Number of living sons	Number of living daughters					Total
	0	1	2	3	4+	
0	.01	.05	.06	.09	.12	.03
1	.05	.16	.22	.31	.32	.18
2	.20	.33	.40	.54	.55	.40
3	.36	.42	.47	.57	.54	.48
4+	.52	.54	.57	.55	.56	.55
Total	.10	.26	.35	.45	.47	.29

Source: Pakistan Demographic and Health Survey, 1990/91.

A much more active family planning programme could be targeted to women who have achieved their ideal number of children but are 'unprotected'. It is likely that these women may be practising some form of birth prevention, either natural methods, especially abstinence, or have unreported abortions. The reason such a pattern is expected is because of the evidence discussed above which showed Pakistani couples are beginning to limit their families at parities 4 and above. Women in urban areas are likely to be able to achieve their family size desires more effectively since whatever little contraceptive use is reported, it is correlated with urban-rural residence and not with the number of living sons or daughters. While there may be a growing convergence towards a family size of four, the achievement of this desired family size will be strongly conditioned by the availability of effective means of spacing and curtailing fertility, as well as the achievement of two living sons.

Reasons for continuing son preference

'A family without daughters lacks laughter and colourfulness, but for a family without sons - the doors of their house are closed forever' (Quote from a Focus Group Interview in Beerbal, Khushab December 1993). The reasons for the persistence of son preference are that families continue to rely on sons for their lineage, and for financial and social support. Society reinforces this because of the limited scope for daughters to step into the shoes of what are considered the roles of sons. It is hard to change these attitudes. It is first necessity to improve the position of women so as to 're-educate' parents away from these traditional attitudes. Pakistani women hardly work for wages, especially in the rural sector, and the vast majority are illiterate, a pattern self-perpetuating because of the continuing gender gap in schooling between boys and girls. Further, traditional marriage patterns and family structures also reinforce the low status, or marginal worth,

of girl children because they leave the family homestead after marriage. Especially in rural households this differential valuation of sons and daughters is likely to be particularly acute. In rural Pakistan land ownership and inheritance are almost entirely a male domain and major economic transactions are done by men, while a large part of unpaid labour is performed by women.

While wide differentials are observed in the fertility of uneducated women and those with some education, especially those with post-primary education, the differentials in desired family size are much narrower. Once again educated women are more effectual in implementing their family size desires, both due to better access to contraceptive supply and better knowledge and greater autonomy. Does the demand for sons have as great a hold in the context of fertility control across major sub-groups? It seems that stated ideal family size though lower for urban areas, continues to have an inbuilt preference for sons (Table 6.9).

Table 6.9 *Ideal family size and ideal number of boys and girls by ever-married women who gave a numeric response¹⁾ by stratum, Pakistan, 1991*

Residence	Ideal family Size	Ideal boys	Ideal girls
Urban	3.7	2.02	1.6
Rural	4.3	2.56	1.61
Pakistan	4.0	2.31	1.61

Notes: 1) 61 per cent of ever-married women reported 'Up to Allah' in response to the question of what they considered an ideal family size.

The main reason for strong son preference in societies with extended and stem families is the reliance on sons for old age support and also the expectation that parents will live with one of their sons when they are old. Data recently collected in rural

Punjab, for the purpose of looking at asymmetry in expectations from children of either sex, show a continuing expectation, of over 80 per cent among women, that they will rely on sons for financial support and a slightly lesser proportion who expect to live with their sons.

Another indicator of differential behaviour is parents' investment in their children's schooling. Recent analysis of the Pakistan Integrated Household Survey show strong differentials by gender in primary schooling (Sathar and Lloyd 1993). The impact of the number of siblings is rather minimal, and it is not high fertility which affects parents' investment in their children's education but the gender of children. Although income has some influence it is the education of parents, particularly of mothers, which affects children's schooling. While income is expected to operate through constraints in paying the costs associated with schooling, in the case of schooling educated parents are more motivated to educate children particularly their daughters. Gender differences in schooling are also slighter in urban areas. These are important observations given that any change in the value of children is related to attitudes towards their schooling.

Conclusions

There is a strong desire among parents in Pakistan to have more sons than daughters and this is probably one of the many reasons for the country's high fertility level. However, 1991 PDHS data do not suggest a general neglect of daughters. Perhaps a change is occurring in Pakistan, whereby once girls are born they get as much attention as do boys. Since fertility level in Pakistan has yet to decline, especially among the groups where son preference is more prominent, such as those in rural areas and among families with lower socio-economic status, it is unlikely that son preference will seriously impact on the population's sex

ratio. There are no indications of serious distortions in the sex ratio at birth. Measures to counter strong son preference should be started through educational expansion so as to ensure universal coverage of basic education, the creation of paid employment opportunities for women, and consciousness raising by the media to improve the position of Pakistani women - objectives that are desirable in themselves and would inevitably contribute towards fertility reduction.

The demand for a family size of about 4 children, which has been in existence for some time, may be crystallising. Evidence from the 1991 PDHS indicates that important changes are underway in family formation and that these are particularly evident in the limitation of children after parity four. There is a strong reason to expect total fertility to decline rapidly from current levels of around 5.7 to around 4 children, if an aggressive policy is adopted to tap into the potential unmet demand for contraceptives. However, to expect that there will be declines after that level is much less readily acceptable because the tendency to curtail family size is strongly conditional on the demand for two living sons. The most urgent problem is to bridge the substantial unmet need for contraception, particularly among the large proportion of families that have achieved their desired family composition. The increasing desire to space children ought to be encouraged and addressed with suitable contraceptive methods. One of the criticisms of the Pakistan's family planning programme has been that it has focused far too much on terminal methods. While there has been a recent change in emphasis, greater focus should be given to the training of the new village family planning workers and health workers towards motivating clients and being sensitive to their needs.

Some important topics arising from this study that merit further research are first, to investigate the demand for children,

by sex, for different cohorts, to see if predictions can be made about likely trends in family formation. Secondly, simulation exercises to test for differences in cohort and period fertility as changes occur in family composition and in the total fertility rates, and to see how they impact on the population's sex ratio. Thirdly, more in depth analysis of the desire to space and to terminate childbearing among different groups. Finally, some appropriate qualitative data collection in different economic settings or groups to test for differences in the strength of son preferences as societal transformation proceeds.

References

- Alam, I. and Cleland, J., "Infant and Child Mortality: Trends and Determinants", in I. Alam and B. Dinesen, eds., *Fertility in Pakistan: A Review of Findings from Pakistan Fertility Survey*, Voorburg : International Statistical Institute, 1984.
- Alam, I., "Fertility Levels and Trends", in *Fertility in Pakistan. A Review of Findings from the Pakistan Fertility Survey*, ed. by I. Alam and B. Dinesen, World Fertility Survey, Voorburg: International Statistical Institute, 1984.
- Ali, S. M., "Does son preference matter?", *Journal of Bio-social Science*, 21(4), 1989.
- Amin, R. and Mariam, A. G., "Son preference in Bangladesh: An emerging barrier to fertility regulation", *Journal of Bio-social Science*, 19(2), 1987.
- Arnold, F., "Sex Preference and its Demographic and Health Implications", *International Family Planning Perspective*, Vol.18, No.3, 1992.
- Blacker, J., *Population Growth in Pakistan: New data and new methods*, Paper presented at the Training Workshop at the Population Studies Centre, Karachi, 1990.
- Brass, W. and Juarez, F., *Censored Cohort Parity Progression Ratios from Birth Histories*, Asian and Pacific Census Forum, Vol.10, No.1, 1983.
- Brass, W., Juarez, F. and Sathar, Z., *Changing Patterns of Family Limitation: Evidence of Fertility Fall in Pakistan*, Paper Presented at the Population Association of America, Miami, 1994.

- Casterline, J., "Fertility Differentials, in Fertility in Pakistan", *A Review of Findings from the Pakistan Fertility Survey*, ed. by I. Alam and B. Dinesen, World Fertility Survey, Voorburg: International Statistical Institute, 1984.
- Curtis, S. and Arnold, F., *An Evaluation of the Pakistan DHS Survey Based on the Reinterview Survey Occasional Papers 1, Macro International, Maryland, 1994.*
- Das, N., "Sex Preference Pattern and its Stability in India: 1970~1980", *Demography India*, 13, 1987, pp.1~2.
- Federal Bureau of Statistics, *Pakistan Demographic Survey: 1989*, Karachi: Statistics Division, Government of Pakistan, 1993.
- Friedman, R. and Blanc, A. K., "Fertility Transition: An Update", *International Family Planning Perspectives*, 18, 2, 1992.
- Khan, M. A. and Sirageldin, I., "Son preference and the demand for additional children in Pakistan", *Demography*, 14(4), 1987.
- Li, J. and Cooney, R. S., *Son Preference Government Control and the One-Child Policy in China: 1979~88*, The Population Council Working Paper, No.51, 1993.
- NIPS, *Pakistan Demographic and Health Survey 1990~1991*, Islamabad: National Institute of Population Studies, 1992.
- NIPS/IRD, *Pakistan Demographic and Health Survey 1990~1991*, National Institute of Population Studies, Demographic and Health Survey, IRD/Macro International Inc., Maryland, 1992.
- Robinson, W. C., Shah, M., and Shah, N., "The Family Planning Programme in Pakistan: What Went Wrong?", *International Family Planning Perspectives*, 7, No.3, 1981.
- Rukunuddin, A. R., "Infant Child Mortality and Son Preference as Factors Influencing Fertility in Pakistan", *The Pakistan Development Review*, XXI, 4, 1982.

Rukunuddin, A. R. and Cleveland, K. H., "Can Family Planning succeed in Pakistan?", *International Family Planning Perspectives*, Vol.18, No.3, 1992.

Sathar, Z., "Sex Differentials in Mortality: A Corollary of Son Preference?", *Pakistan Development Review*, Islamabad, 1987.

-----, "The Much Awaited Fertility Decline in Pakistan: Wishful Thinking or Reality?", *International Family Planning Perspective*, 1993.

Sathar, Z. and Lloyd, C., *Who gets primary schooling in Pakistan: Inequalities between and within families*, Population Council Working Paper No.52, New York: Research Division, 1993.

UNFPA, *The State of the World Population*, New York: United Nations Population Fund, 1993.

7. Impact of Demographic Change on Child Discrimination in Bangladesh

Rafiqul Huda Chaudhury, *UNFPA, Kathmandu*

Nurul Alam, *International Centre for Diarrhoeal Diseases Research, Dhaka*

Radheshyam Bairagi, *International Centre for Diarrhoeal Diseases Research, Dhaka*

It is often contended that in son preferring countries, demographic changes, particularly fertility decline, lead couples to pay greater care and attention to male rather than female children in matters of parental time, intra-familial distribution of food and utilisation of health care services, resulting in a worsening in the quality of life of female children. This paper examines whether Bangladesh's significant fertility decline during the period up to the early 1990s has led to increasing discrimination against female children. An assessment is made of changes in the quality of life of female children relative to that of male children employing time series data, and including a special focus on changes in sex differentials in child mortality in Matlab.

Prevalence of Son Preference in Bangladesh

There is a definite preference for sons over daughters in Bangladesh. Sons are considered essential for maximising economic and non-economic activities of households. They contribute to the family's resources by working on the family farm and eventually assume responsibility for the household and the farm. They are also expected to take care of their parents in old age, as daughters usually move away when they marry and are less likely to provide financial support (Chaudhury, 1982). Male children in Bangladesh start participating in productive activities as early as 6

or 7 years of age. Data from a micro study conducted in a rural area of Bangladesh reveal that male children become net producers as young as 12 years old, compensate for their own cumulative consumption by the age 15, and compensate for their own and one sister's consumption by the age 22 (Cain, 1977). Male children also constitute the most important source of financial support to their elderly parents. Over 85 per cent of elderly respondents in a recent survey identified a son as the single most important source of financial support (Kabir, 1991). The family name is also preserved through a son, and sons play a very important role in factional politics in rural Bangladesh.

While male children are economically valuable, female children are often considered a financial liability. According to a micro study conducted by Cain (1977) in rural Bangladesh, women were found to be mostly engaged in household activities while men were spending most of their working time in directly productive activities. Further, under the prevailing 'dowry' system, parents need to spend a considerable sum of money in cash or kind, on movables and immovables, to find the right match for their daughters. Although the institution of 'dowry' is not recognised by Islam, the main religion of the country, it is widely practised in Bangladesh. Under the 'dowry' system, a woman can be considered an economic burden and, from the parental point of view, a drain on family resources. A recent survey conducted among a section of rural men and women in Bangladesh found that 91 per cent of respondents agreed that girls are an economic burden to the family at the time of marriage (Barkat, 1976).

Parents in Bangladesh also underscore the multifarious values of a son while they feel pity for those who are not blessed with sons. A study conducted by Chaudhury and Latif in the mid-1970s among male heads of households in rural Bangladesh found that all respondents considered a son an economic asset, while none

expressed such an expectation from daughters. A similar finding was observed among a cross-section of middle class women in metropolitan Dhaka in 1974. In a study conducted in a rural area of Bangladesh, male respondents were asked whether they felt sorry for a person having no son and 97 per cent of them replied in the affirmative (Barkat, 1976).

Trend in Son Preference

An in depth Focus Group Study, conducted by Nag and Duza (1986) in 1986, noted the persistence of a definite son preference among the rural population of Bangladesh. Respondents indicated that they would like to have more sons than daughters, preferably two sons and one daughter, and also expressed their determination to continue to have children until their desired number of sons was born. However, analysis of time trend data suggests a decline, albeit modest, in son preference. A study conducted in a rural area of Bangladesh noted a moderate change in the sex composition of ideal family size, from 2.7 sons and 1.8 daughters in 1975 to 2.3 sons and 2.0 daughters in 1984 (Koenig, et. al. 1987). Fewer people now express sympathy for the couples having no sons than in the past. For example, in a study conducted in the mid-1970s, respondents were asked to say whether they felt sorry for a person without a son and 97 per cent replied in the affirmative. In asking the same question to the same group of people in late 1970s, only 80 per cent of them replied in the affirmative (Barkat, 1990). Various reasons could be advanced to explain this apparent downward shift in the son preference: less demand for child labour associated with increasing landlessness and declining job opportunities in the agricultural sector; rising cost of living, particularly the rising cost of food items and school education and increasing nuclearisation of families in which sons tend to move out of the parental households following marriage (Duza, 1990). Under such conditions

married sons find it increasingly difficult to support their own families and provide for their parents. This has been confirmed by remarks made by parents during the course of Focus Group interviews conducted by Nag and Duza in 1986, hereby scepticism was expressed by many as to whether they would eventually receive support in view of increasing separation of sons from their parental home after marriage and the rising cost of living.

Although parents in Bangladesh have a definite preference for sons, they would like to have at least one daughter. Almost all the respondents in the 1986 Focus Group Study, expressed their desire for a daughter and there was a growing 'tolerance' of daughters. This was partly attributed to educational expansions and employment opportunities for girls. Working women, even when are currently married, provide financial support to their parents and in some cases they constitute the principal bread-winners to their parents (Chaudhury, 1980). It thus appears that parents would like to have a mixed sex family composition including at least one daughter, and that they increasingly recognise the economic value of female children.

Degree of son preference

Sex Composition of Family and Willingness to Use Contraception

How committed are parents to realising their preferred number of sons? Do parents really translate their desires for having a given number of sons into actual behaviour? In son preferring countries one would expect to find use of contraception rising with the number of living sons. However, data from the 1989 Bangladesh Fertility Survey show no systematic relationship between the use of contraception and number of living sons (Table 7.1). The sex of the first child has no bearing on the use of contraception with the propensity to use contraception among

couples with a son being similar to those with a daughter. The effect of sex composition of the family on the use of contraception is apparent, although not large, among families with two children. Women with one or two sons are 1.4 times more likely to be using contraception than women with no son. However, women with two sons are equally likely as those with one son and one daughter to practice contraception. Son influence is still more prominent among families with three children. Women with at least one son are about twice as likely to practice contraception as those without a son. However, the data do not show ever increasing use of contraception as the number of son increases. The propensity to use contraception among women with three sons and no daughter is no more likely to be higher than women with one son and two daughters.

Table 7.1 *Percentage of currently married women of reproductive ages using contraception by sex of living children, Bangladesh, 1989*

Sex composition of family	Per cent using contraception
One-child families:	
No Son	23
One Son	25
Two-child families:	
No Son	27
One Son	38
Two Sons	38
Three-child families:	
No Son	19
One Son	38
Two Sons	46
Three Sons	37

Source: Bangladesh Fertility Survey, Main Report, 1989.

Sex Composition of Children and Desire for More Children

In strong son preferring countries one would expect couples desiring additional children to decrease monotonically as the number of living sons increases in a family. Data from the 1989 Bangladesh Fertility Survey only weakly support this hypothesis (Table 7.2). Among women with two children about half wished to stop childbearing if one or both of their children is a son. This proportion reduces to 21 per cent if both the children are daughters. However, among three children families, women with one son are almost as eager (69 per cent) to limit their family size as those with three sons (73 per cent). This is a significant finding in view of the fact that if couples strive for at least two sons, it would be difficult to bring the fertility rate below four births per woman. Nevertheless, it remains the case that at any given family size, the proportion wanting no more children is greater among those without a daughter than it is for those without a son (Table 7.2).

Table 7.2 *Percentage of currently married non-pregnant women who want no more children or have been sterilised by number of living sons and number of living daughters, Bangladesh, 1989*

Number of daughters	Number of sons						All
	0	1	2	3	4	5+	
0	3.1	9.9	49.9	72.5	85.4	97.9	21.8
1	6.8	54.3	82.5	87.8	91.6	91.0	54.5
2	21.1	69.4	89.7	93.2	96.1	91.3	73.0
3	36.7	78.4	92.9	94.1	94.1	93.5	81.8
4	47.6	85.5	94.0	97.2	100.0	100.0	88.6
5+	63.8	85.4	97.6	87.5	90.9	86.7	86.6
All	11.1	48.3	79.5	88.8	93.3	93.3	55.2

Source: As for Table 7.1.

Table 7.3 *Percentage distribution of women not contracepting because they desire additional children by the number and sex composition of their living children, Bangladesh, 1985*

No. of children	Number of children by sex composition	% of Total (N = 2015)
0	0 child	36.6
1	1 son	15.2
	1 daughter	13.2
2	2 daughters	3.2
	1 daughter and 1 son	7.5
	2 sons	4.4
3	3 daughters	2.3
	2 daughters and 1 son	3.3
	1 daughter and 2 sons	2.2
	3 sons	1.5
4	4 daughters	1.2
	3 daughters and 1 son	1.1
	2 daughters and 2 sons	1.0
	1 daughter and 3 sons	0.7
	4 sons	0.4
5	5 daughters	0.3
	4 daughters and 1 son	0.7
	3 daughters and 2 sons	0.5
	2 daughters and 3 sons	0.6
	1 daughter and 4 sons	0.2
	5 sons	0.2

Source: 1985 Bangladesh Contraceptive Prevalence Survey.

A finding that some women are ready to stop having children even if they have just one son is also shown by data from the 1985 Bangladesh Contraceptive Prevalence Survey (Table 7.3). The data show no significant effect of sex composition of living children on the desire for additional children among women who are not currently practising contraception. Women with one son are equally unlikely to practice contraception because of a

desire for additional children as those with one daughter. The proportion of women with one son and those with one daughter accounted for 15 per cent and 13 per cent of total women not practising contraception because of a desire for additional children, demonstrating a small effect of the presence of a son on limiting the family size. Although son preference definitely exists among couples in Bangladesh, it is not, however, as strong as it is often claimed to be. It may well be that in the early 1990s couples in Bangladesh would definitely like to have one son, but they are not so keen to have more than one, a finding contrary to the commonly held view that couples in Bangladesh definitely prefer two sons.

Hypothesis

In Bangladesh, where there is a marked preference for male offspring, female children may be given less care and attention in parental time, allocation of intra-familial distribution of food and utilisation of health care services. This discrimination against female children is likely to increase with the decline in fertility, resulting in further worsening in the quality of life of female children. This was posited on a *priori* assumption that in a situation of declining fertility, couples in son preferring countries will pay greater attention and care to male than female children to ensure survival of a minimum desired number of sons, thereby further affecting the quality of life of female children. Bangladesh has experienced a considerable decline in fertility in the last two decades. One would also expect to find deterioration in the quality of life of female children with the decline of its fertility. However, this hypothesis may not be validated in Bangladesh in view of increasing tolerance of daughters and recognition of economic value of female children by parents and growing scepticism among parents regarding actual possibility of receiving

support from sons during crisis, particularly during old age due to rapid nuclearization of families and rising cost of living.

Fertility Decline

The magnitude of the decline in fertility of Bangladesh over the two decades to 1990 is shown in Table 7.4. The total fertility rate per woman declined from 6.4 children per woman during 1964~68 to 4.1 during 1988~90, a decline amounting to 36 per cent.

Table 7.4 *Fertility rates by age of women, Bangladesh, 1964~1990*

Age group	Births per 1,000 women					
	1964~68 ¹⁾ (NIS) ³⁾	1971~75 ¹⁾ (BFS) ⁴⁾	1983 (CPS) ⁵⁾	1985 (CPS)	1986~88 ¹⁾ (BFS)	1988~90 ²⁾ (CPS)
15~19	258	168	256	256	311	208
20~24	342	320	284	279	267	258
25~29	303	316	246	214	216	217
30~34	252	276	200	173	141	161
35~39	159	219	124	129	86	101
40~44	73	136	60	58	44	63
45~49	20	49	8	27	6	22
TMFR	7.0	7.4	5.9	5.7	5.4	5.2
TFR ¹⁾	6.4	6.3	5.0	4.8	4.1	4.1

Notes : 1) Average rates for five or three years
 2) Standardised by the age distribution of women in the 1991 CPS
 3) National Impact Survey
 4) Bangladesh Fertility Survey
 5) Contraceptive Prevalence Survey
 Source: Amin, R. et. al, 'Reproductive change in Bangladesh: evidence from recent data', *Asia-Pacific Population Journal*, Vol.8, No.4, 1993.

Consistent with this decline in fertility, there has also been a

decline in the preferred number of children from 4.3 in 1969 to 3.2 in 1989, and an increase in the proportion of currently married women who desire no more children from 46 per cent in 1969 to 58 per cent in 1991. Has this reduction in fertility and desired family size been accompanied by a further deterioration in the quality of life of female children?

Discrimination Against Female Children

Has discrimination against female children changed with declining fertility? An assessment is made below of the changes in the quality of life of female children relative to that of male children employing national time series data. The measures of quality of life will include sex-ratios; neonatal, post-neonatal and infant mortality; nutritional adequacy utilisation of health services, and expenditure on health care. This section also includes a detailed analysis of child mortality in Matlab, using a higher quality data set.

Sex Ratio

If reductions in fertility are accompanied by a rise in female infant and child mortality one would also expect, other things being equal, to find a slow but steady increase in the sex ratio of the population aged 0~4. The national census data on child sex ratios for the period 1951 to 1991 do not support the hypothesis of rising female infant and child mortality following fertility decline. The sex ratios show a decline, casting some doubt on the claim of a recent deterioration in female mortality during infancy and childhood (Table 7.5).

Table 7.5 *Sex ratios of the population aged 0~4, Bangladesh, 1951~1991*

Year	Sex ratio ¹⁾	Year	Sex ratio ¹⁾
1951	99.1	1984	95.4
1961	98.3	1991	94.7
1974	99.3		

Notes : 1) Males/Females x 100

Source: ESCAP, Population Monograph of Bangladesh and publications of the Bangladesh Bureau of Statistics.

Trends in Infant Mortality

National level data on neonatal, post-neonatal and infant deaths by sex, based on data collected by Bangladesh Demographic Survey and Vital Registration System (BDSVRS), are shown in Table 7.6. No attempt has been made to assess the quality of these data which are likely to be subject to underregistration, particularly in the early years. Changes in the mortality situation of female infants relative to that of male infants can be assessed on the assumption that sex selectivity in the registration of infant deaths, if any, has remained the same.

The main features of the data shown in Table 7.6 are first, during the neonatal period mortality of the males generally exceeds that of females, while the reverse is generally true in the post-neonatal period. But since mortality levels in the neo-natal period are significantly higher, as are the differentials, male infant mortality generally exceeds that of females. Secondly, both male and female children are subject to excess deaths during the time of national disaster. However, the burden of this excess mortality is shared more by female than male children. For example, female mortality during the post-neonatal period increased over five-fold

in 1975 following the famine in 1973~74, compared with an increase for male children of about 2.5 times. Thirdly, the data suggest improvements in the quality of life for both male and female children, but that the reduction in mortality has been somewhat slower for female children, although the strength of this finding is weakened by annual variations in the data.

Table 7.6 *Neonatal, post-neonatal and infant mortality rates (per person) by sex, Bangladesh, 1981~1990*

Year	Neonatal			Post-neonatal			Infant Mortality		
	Male	Female	Odds Ratio ¹⁾	Male	Female	Odds Ratio ¹⁾	Male	Female	Odds Ratio ¹⁾
1981	.089	.072	1.259	.024	.037	0.640	.113	.109	1.041
1982	.085	.086	0.987	.039	.034	1.153	.124	.120	1.038
1983	.089	.075	1.205	.030	.041	0.723	.119	.116	1.029
1984	.083	.064	1.073	.047	.044	1.072	.130	.108	1.234
1985	.067	.060	1.125	.047	.049	0.957	.114	.109	1.052
1986	.090	.075	1.220	.032	.036	0.885	.122	.111	1.113
1987	.089	.070	1.298	.032	.035	0.912	.120	.105	1.162
1988	.079	.067	1.195	.036	.038	0.945	.116	.105	1.119
1989	.077	.068	1.144	.027	.031	0.867	.102	.099	1.034
1990	.071	.062	1.156	.027	.029	0.929	.098	.091	1.085

Notes : 1) $O_i = \frac{P_i 1 (1 - P_i 2)}{P_i 2 (1 - P_i 1)}$

Where O_i is the odd ratio of mortality of males ($P_i 1$) as compared to that of females ($P_i 2$) for the i th year.

Source: Bangladesh Demographic Survey and Vital Registration System.

Nutritional Status

An analysis of data collected by Nutrition Surveys of pre-school children aged 6~71 months, conducted in 1985/6 and 1989/90, shows improvement in the nutritional status for both male and female children, as well as a reduction in the excess

malnourished female children, resulting in narrowing the gender gap in the nutritional status of pre-school children over the years. Table 7.7 shows that there has been a reduction in the proportion of female children stunted, as well as a narrowing in the gap of the proportion of male to female children stunted during the survey periods 1985/6 and 1989/90.

Table 7.7 *Prevalence (per cent) of stunting by area, sex and year, Bangladesh, 1985/86 and 1989/90*

Sex	National		Urban		Rural	
	1985/86	1989/90	1985/86	1989/90	1985/86	1989/90
Both Sex	56.1	51.1	44.2	42.3	57.6	52.2
Male	54.8	50.8	42.4	42.5	56.3	52.0
Female	57.6	51.3	46.1	42.0	59.1	52.5
M/F Ratio	0.9514	0.9903	0.9197	1.01	0.9526	0.9905

Source: Bangladesh Bureau of Statistics, *Women and Men in Bangladesh, Facts and Figures*, 1992.

A similar pattern of overall improvement in the nutritional status of female children, particularly that of the improvement of their nutritional position compared to male children, was also noticed in the nutritional measure of 'wasting', that is the proportion of children, suffering from acute malnutrition.

Expenditure on Health Care

There is higher per capita expenditure on health care for male than female children. Chaudhury (1988) in a study conducted in a rural area of Bangladesh found strong evidence of sex discrimination in expenditure on health care. The average monthly expenditure on health care was found to be Tk. 77 for boys and Tk. 47 for girls, a difference of 64 per cent. This unequal

expenditure by sex of the child remained even when control was made for socio-economic characteristics of the household, measured by household characteristics. At each level of household characteristics, the health expenditure for a male child was higher than that for a female child. There may be two possible interpretations of these findings. First, the higher health expenditure for boys may mean that their exposure to disease is higher. Second, the difference may indicate different use of health services by sex. The latter seems to be the more plausible explanation, as there is no evidence of differential disease exposure by sex (Chen, et al., 1981; Horton, 1980). If this is indeed the case, the difference in health expenditure implies a greater use of health services by males than females.

Table 7.8 *Monthly expenditure on medical care (including services) per household by sex, types of expenditure and residence, Bangladesh, 1988~1989*

Types of expenditure	National			Rural			Urban		
	Total	Men	Women	Total	Men	Women	Total	Men	Women
Average expenditure (in Taka)									
Allopathy	42.2	23.8	18.4	40.3	22.9	17.4	55.4	29.9	25.5
Homeopathy	1.5	0.7	0.8	1.4	0.6	0.8	2.3	1.2	1.1
Unani	0.8	0.4	0.4	0.9	0.4	0.5	0.5	0.2	0.3
Other care & services	0.3	0.1	0.2	0.3	0.1	0.2	0.6	0.1	0.5
Total	44.8	24.9	19.9	42.8	24.0	18.8	58.8	31.3	27.5

Source: As for Table 7.7.

Existing national data on health expenditure by sex of household members suggest higher health care expenditure for males than for females (Table 7.8). These data in Table 7.8 show

substantial sex discrimination in expenditure on health care, particularly on the expensive modern medicine. Although data on health expenditure by sex of pre-school children are not available, the pattern of sex discrimination in expenditure on health care that is observed for the general population is also expected to hold for pre-school children of Bangladesh.

Evidence from Matlab

Matlab, a small rural area, is the field station of the International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B). A series of studies using ICDDR,B data and spanning some two and a half decades have shown the persistence of strong son preference and discrimination against female children in Matlab (Ahmed, 1981; Bairagi and Langsten, 1986). Chen et al. (1981) demonstrated bias in food distribution and use of health care facilities in favour of male children. Bairagi (1986) showed that nutritional discrimination was aggravated during crisis. Bhuiya and Streatfield (1991) noted that higher socio-economic status and higher mother's education did not reduce discrimination, although they helped to improve the mortality and nutritional status of children. Muhuri and Preston (1991) observed that discrimination against female children was selective: girls who had sister(s) at the time of their birth were discriminated against more than girls who did not have a sister.

Have the marked demographic changes that have occurred had any effect on discrimination against female children? An attempt to answer this question made by examining trends in sex differentials in child mortality, that is of children aged 1~4, and the relationship of excess female mortality with fertility and mortality decline, sex composition of older siblings and MCH-FP intervention - for a much more comprehensive account see Alam and Bairagi, (1994). The analysis uses longitudinal vital registration

data from the ICDDR,B's demographic surveillance systems (DSS). One half of the Matlab DSS area has received services from the MCH-FP project since 1977, while the other half, called the Comparison Area, has received the same governmental services as other rural areas of Bangladesh. The analysis focuses on three birth cohorts viz.: 1976~7, 1981~2 and 1986~7. The 1976~7 cohort reflects the pre-MCH-FP intervention period of high mortality and fertility, while the 1981~2 cohort reflects a period of little decline in mortality and fertility, and the 1986~7 cohort one of a large decline in fertility and mortality.

Child mortality rates of the three Matlab cohorts are shown in Tables 7.9 to 7.11. In the Matlab Comparison Area the sex ratio of child mortality declined and then increased during the period when demographic changes were most marked - the ratios for the three cohorts being 1.8, 1.6 and 2.0 respectively. By contrast, in the Matlab MCH-FP area the corresponding ratios were 1.8, 1.6 and 1.3. Thus in the MCH-FP area there is clear evidence of improvement overtime in child mortality sex ratios, although rates for girls still remain higher than for boys in sharp contrast to most other countries.

The sex ratio of child mortality ratio varies by sex composition of older siblings in all three cohorts and the pattern of variation is similar across cohorts. The sex ratio of child mortality is higher for children with older siblings of the same sex than for children with older siblings of the opposite sex. Number of older brothers is related to decreases in mortality risks of girls. Mortality risks of boys with older brothers is higher compared to those of only boys. Only girls with brother(s) are less discriminated against than other girls with sisters within a given birth order. The sex ratio of child mortality tends to be lowest for children born after two or more brothers. This is a similar finding to the results of Das Gupta (1987) and Amin (1990) in Punjab, India.

Table 7.9 Death rates of children aged 1~4 years by sex and family composition, Matlab, 1976~7 cohort

Characteristics	Birth cohort 1976~77				Relative risk (G/B)
	Person years		1000 x death rates		
	Boys	Girls	Boys	Girls	
Number of surviving older siblings at birth:					
None	5,134	4,808	12.9	23.7	1.8 ¹⁾
1 brother	2,529	2,319	17.0	24.6	1.4 ²⁾
2+ brothers	1,910	1,867	19.4	22.5	1.2
1 sister	2,230	2,102	10.3	31.9	3.1 ¹⁾
2+ sisters	1,752	1,541	10.8	35.0	3.2 ¹⁾
1 br, 1 sister	2,122	2,007	19.8	31.9	1.6 ³⁾
2+ brs, 1 sister	2,717	2,660	18.4	25.2	1.4
1 br, 2+ sisters	2,479	2,343	17.7	37.1	2.1 ¹⁾
2+ brs, 2+ sis	3,848	3,824	15.6	26.7	1.7 ¹⁾
Living children:					
None	5,134	4,808	12.9	23.7	1.8 ¹⁾
One	4,759	4,421	13.9	28.0	2.0 ¹⁾
Two	4,296	4,052	17.0	29.1	1.7 ¹⁾
Three	3,756	3,624	20.0	27.0	1.4 ²⁾
Four	2,786	2,803	16.5	27.5	1.7 ¹⁾
Five	1,993	1,813	15.6	36.4	2.3 ¹⁾
Six +	1,997	1,950	13.5	29.2	2.2 ¹⁾
Place of birth:					
MCH-FP area	12,511	11,901	14.6	25.9	1.8 ¹⁾
Comparison area	12,210	11,570	16.5	29.9	1.8 ¹⁾
All areas	24,721	23,471	15.5	27.9	1.8 ³⁾

Notes : χ^2 test used. Where 1) is $p < 0.01$, 2) $p < 0.1$ and 3) $p < 0.05$

In the MCH-FP area, both the level and the sex pattern of mortality are shown to have changed markedly (compare Table 7.9 with Table 7.11). In families with only one girl, mortality of girls is comparable to that of boys in the recent birth cohorts. But girls

with older sister(s) have higher mortality rates than boys with older sister(s). Thus MCH-FP services seem to have reduced sex differences in child mortality significantly, but not completely eliminated the consequences of selective discrimination against girls. The evidence suggests that a good integrated MCH-FP programme can bring about a change in the mortality effect of discrimination. In the MCH-FP area, a wide range of child health care services are provided at the doorstep to all children irrespective of their sex. However, even these services do not entirely eliminate the consequences of parents' intended discrimination.

Table 7.10 *Death rates of children aged 1~4 years by sex and family composition, Matlab, 1981~82 cohort*

Characteristics	Birth cohort 1981~82				
	MCH-FP area				Relative risk (G/B)
	Person years		1000 x death rates		
Boys	Girls	Boys	Girls		
Number of surviving older siblings at birth:					
None	2,837	2,759	15.2	19.6	1.3
1 brother	1,321	1,155	13.6	24.2	1.8 ³⁾
2+ brothers	698	762	21.5	15.7	0.7
1 sister	1,253	1,018	16.0	24.6	1.5
2+ sisters	881	675	14.8	32.6	2.2 ¹⁾
1 br, 1 sister	1,042	838	16.3	27.4	1.7
2+ brs, 1 sister	1,031	845	16.5	36.7	2.2 ¹⁾
1 br, 2+ sisters	920	999	8.7	30.0	3.5 ²⁾
2+ brs, 2+ sisters	1,276	1,181	18.0	23.7	1.3
Living children:					
None	2,837	2,759	15.2	19.6	1.3
One	2,574	2,173	14.8	24.4	1.6 ¹⁾
Two	1,977	1,707	17.2	24.6	1.4
Three	1,599	1,354	12.5	28.8	2.3 ²⁾

Table 7.10 continue

Characteristics	Birth cohort 1981~82				
	MCH-FP area				Relative risk (G/B)
	Person years		1000 x death rates		
Boys	Girls	Boys	Girls		
Four	967	1,020	15.5	34.3	2.2 ¹⁾
Five	654	624	18.3	16.0	0.9
Six +	651	595	18.4	33.6	1.8
Total	11,259	10,232	15.5	24.7	1.6 ²⁾
<Comparison area>					
Number of surviving older siblings at birth:					
None	2,582	2,624	19.4	28.2	1.5 ¹⁾
1 brother	1,311	1,081	32.8	40.7	1.2
2+ brothers	975	925	32.8	28.1	0.9
1 sister	1,327	1,091	22.6	49.5	2.2 ²⁾
2+ sisters	786	735	19.1	43.5	2.3 ²⁾
2+ br, 1 sister	1,069	921	17.8	57.5	3.2 ²⁾
2+ brs, 1 sister	1,300	1,375	35.4	44.4	1.3
1 br, 2+ sisters	1,233	1,123	20.3	46.3	2.3 ²⁾
2+ brs, 2+ sisters	2,065	1,620	30.0	43.1	1.4 ¹⁾
Living children:					
None	2,582	2,624	19.4	28.2	1.5 ¹⁾
One	2,638	2,172	27.7	45.1	1.6 ²⁾
Two	2,139	1,837	24.3	48.4	1.9 ²⁾
Three	1,665	1,858	27.6	43.6	1.6 ¹⁾
Four	1,539	1,259	22.7	38.9	1.7 ¹⁾
Five	973	808	38.0	51.9	1.4
Six +	1,112	937	26.1	35.2	1.3
Total	12,648	11,495	25.5	40.5	1.6

Notes: χ^2 test used. Where 1) is $p < 0.05$, 2) $p < 0.01$ and 3) $p < 0.1$.

Table 7.11 *Death rates of children aged 1~4 years by sex and family composition, Matlab, 1986~87 cohort*

Characteristics	Birth cohort 1986~87				
	MCH-FP area				Relative risk (G/B)
	Person years		1000 x death rates		
Boys	Girls	Boys	Girls		
Number of surviving older siblings at birth:					
None	3,213	3,049	7.2	5.9	0.8
1 brother	1,265	1,165	5.5	3.4	0.6
2+ brothers	727	746	5.5	8.0	1.5
1+ sister	2,241	1,906	4.9	6.3	1.3
1 br, 1+ sis	1,938	1,946	5.2	10.8	2.1 ¹⁾
2+ brs, 1+ sis	1,803	2,036	6.1	10.3	1.7
Living children:					
None	3,213	3,049	7.2	5.9	0.8
One	2,611	2,273	4.2	4.8	1.1
Two	2,240	2,059	6.7	11.7	1.7
Three	1,375	1,429	4.4	5.6	1.3
Four	747	956	8.0	10.5	1.3
Five +	1,001	1,082	5.0	10.2	2.0
Total	11,187	10,848	5.9	7.6	1.3
<Comparison area>					
Number of surviving older siblings at birth:					
None	2,805	2,792	7.5	14.7	1.9 ²⁾
1 brother	1,149	1,133	7.8	18.5	2.4 ³⁾
2+ brothers	907	796	12.1	15.1	1.2
1+ sister	2,059	2,075	4.4	19.3	4.4 ²⁾
1 br, 1+ sis	2,142	2,015	11.7	12.9	1.1
2+ brs, 1+ sis	2,927	2,898	8.2	19.0	2.3 ²⁾

Table 7.11 continue

Characteristics	Birth cohort 1986~87				
	MCH-FP area				Relative risk (G/B)
	Person years		1000 x death rates		
Boys	Girls	Boys	Girls		
Living children:					
None	2,805	2,792	7.5	14.7	1.9 ³⁾
One	2,390	2,305	5.9	18.7	3.2 ²⁾
Two	2,218	2,133	11.7	12.7	1.1
Three	1,740	1,715	7.5	22.2	2.9 ²⁾
Four	1,133	1,120	7.1	16.1	2.3
Five +	1,703	1,644	10.0	17.0	1.7
Total	11,989	11,709	8.3	16.7	2.0 ²⁾

Notes: χ^2 test used. Where 1) is $p < 0.1$, 2) $p < 0.01$ and 3) $p < 0.05$.

Conclusions

While there is a preference for sons over daughters in Bangladesh, there is no regular relationship between number of living sons and the willingness on the part of couples to use contraception and stop having children. Evidence suggests that couples in Bangladesh would definitely like to have one son but that they appear less keen to have more than one. This is evidenced by the finding that women with one son and two daughters are as willing to limit their family size as those with three sons. There appears to be increasing tolerance of daughters and a recognition of the economic value of female children, as suggested by downward shift in the preference for son and growing scepticism among parents regarding the possibility of receiving support from sons during actual time of crisis.

There is no evidence indicating that the significant decline in fertility over the last two decades was accompanied by a decline

in the quality of life of female children. Data show an overall improvement in the quality of life of both male and female children in terms of reduction of neonatal, post-neonatal and infant deaths, and malnutrition, although the relative position of female to male children on these measures remains almost unchanged. However, sex discrimination in the utilisation of health services, favouring male over female children, still persists.

The Matlab evidence indicates that intensive MCH-FP services will result in more egalitarian child mortality sex ratios in Bangladesh. Excess mortality of girls, particularly of girls with older sisters, appears to be due to intended discrimination. This suggests that public health interventions alone will not be able to improve girls' survival very much without concomitant change in the social, economic and political status of women. Sex bias in child mortality has been found to be related to female autonomy and kinship structure (Bardhan 1974, 1982, 1984; Dyson and Moore 1983). Raising women's status would appear to be an important precondition for the eradication of discrimination against females. Thus for further reductions in gender disparities steps should be taken to empower women by giving them access to education and employment. To facilitate independent earnings, basic education must be given to all female children. Moreover, appropriate IEC strategies should be adopted to promote the value of female children in society.

References

- Ahmed, N. R., "Family size and sex preferences among women in rural Bangladesh", *Studies in Family Planning*, 12, 1981, pp.100~109.
- Alam, N. and Bairagi, R., *Excess female child mortality in Bangladesh: its differentials and relationship with fertility and mortality decline and MCH-FP intervention*, Paper presented at the International symposium on issues related to sex preference for children in the rapidly changing demographic dynamics in Asia, Seoul, 1994.
- Amin, R. et al., "Reproductive change in Bangladesh: evidence from recent data", *Asia-Pacific Population Journal*, Vol.8, No.4, 1993.
- Amin, S., *The effect of women's status on sex differ entails in infant and child mortality in South Asia*, *Genus*, XLVI~N, 3~4, 1990, pp.55~70.
- Bairagi, R., "Food crisis, child nutrition and female children in rural Bangladesh", *Population and Development Review* 12, 1986, pp.307~315.
- Bairagi, R. and Langsten, R. L., "Preference for sex of children and its implications for fertility in rural Bangladesh", *Studies in Family Planning* 17, 1986, pp.302~307.
- Bardhan, P. K., "On life and death questions", *Economic and political weekly* 9, 1974, pp.1293~1304.
- , "Little girls and death in India", *Economic and political weekly* 17, 1982, pp.1448~1450.
- , *Land, labour and rural poverty in India*, Delhi: Oxford University Press, 1984.

Barkat, K., *The Value of Children in Village Barkat*, a paper presented at the conference on Fertility of Bangladesh - Which Way is it Going?, Cox's Bazar, Bangladesh, 1976.

-----, "Demand Aspects of Fertility and Family Planning" in Duza, B. (ed.), *South Asia Study of Population Policy and Programmes: Bangladesh*, Dhaka: United Nations Population Fund, 1990.

Bhuiya, A. and Streatfield, K., "Maternal education and survival of female children in a rural area of Bangladesh", *Population Studies* 45, 1991, pp.253~264.

Cain, M., "The Economic Activities of Children in a Village in Bangladesh", *Population and Development Review*, 3.3, 1977.

Chaudhury, R. H., *Female Status in Bangladesh*, Dhaka: Bangladesh Institute of Development Studies, 1980.

-----, *Social Aspects of Fertility with Special Reference to Developing Countries*, New Delhi: Vikas Publishing House Pvt. Ltd., 1982.

-----, "Adequacy of Child Dietary Intake Relative to that of their Family Members", *Nutrition Bulletin*, Vol.10, No.2, 1988.

Chen, L. C., Huq, E. and D'Souza, S., "Sex bias in the family allocation of food and health care in rural Bangladesh", *Population and Development Review* 7, 1981, pp.55~70.

Das Gupta, M., "Selective discrimination against female children in rural Punjab, India", *Population and Development Review*, 13, 1987, pp.77~100.

Duza, M. B., *South Asia Study of Population Policy and Programmes: Bangladesh*, Dhaka: United Nations Population Fund, 1990.

Dyson, T. and Moore, M., "On kinship structure, female autonomy, and demographic behaviour in India", *Population and Development Review* 9, 1983, pp.35~60.

- Horton, S., Claqin, P., *A Cost Effectiveness Study of Hospital and Ambulance Services at Matlab Transport Centre, Dhaka: International Centre for Diarrhoeal Disease Research, 1990.*
- ICDDR, B, *Annual report 1993*, Dhaka: International Centre for Diarrhoeal Disease Research, 1993.
- Kabir, M., *Ageing in Bangladesh: Its Social, Economic and Health Consequences*, in the proceedings of the Workshop of Dissemination of Current Statistics, Dhaka, 1991.
- Koenig, M. A. et al., "Trends in Family Size Preference and Contraceptive Use in Matlab, Bangladesh", *Studies in Family Planning*, 18(3), 1987.
- Muhuri, P. K. and Preston, S. H., "Effect of family composition on mortality differentials by sex among children in Matlab, Bangladesh", *Population and Development Review* 17, 1991, pp.415~434.
- Nag, M. and Duza, M. B., *Explaining High Contraceptive Prevalence in Matlab, Bangladesh: A Qualitative Study*, a report submitted to the Swedish International Development Agency, New York: The Population Council, 1986.

8. Sex Preference for Children in Low Fertility Sri Lanka

Anthony Abeykoon, *Ministry of Health and Women's Affairs, Colombo*

Dallas Fernando, *Colombo*

The transition from high to low levels fertility in Sri Lanka represents one of the most fundamental social changes that has taken place in the country over the past four decades. The recent fertility decline, whereby the total fertility rate (TFR) fell to 2.3 per woman by the early 1990s, is particularly significant in that it has occurred while a large majority of the population continue to live in rural areas at relatively low income levels. Changes in fertility levels have been accompanied by significant shifts in desired family size. Preference for sons is common in much of South Asia and has been described as an inhibiting factor in fertility decline (Repetto, 1972; Cleland et al, 1983; Karki, 1986; Bairagi et al, 1986; Tray, 1984). In Sri Lanka preference for sons has been noted though it is not consistently strong as, for example, it is in India (Pullum, 1980; Arnold, 1992). In fact, the weight of evidence suggests that Sri Lankan couples prefer a balanced family sex composition. This paper examines the evidence relating to sex preference for children in Sri Lanka after first reviewing the ongoing fertility transition.

Fertility Transition 1971~1993

Fertility declined steadily over the two decades prior to the five year period centred on 1991 (Table 8.1). The TFR fell from 4.1 in 1970~2 to 2.3 in 1988~93, a decline of some 44 per cent. The reduction in the TFR has been brought about by declines in age-specific fertility rates in all age-groups of women, particularly those aged under 30 during the 1980s.

Table 8.1 *Age specific fertility rates per 1,000 women, Sri Lanka, 1970~1993*

Age group of women	Year 1970~72	Year 1980~82	Year 1985~87	Year 1988~93
15~19	40	38	35	35
20~24	179	173	137	109
25~29	227	197	150	134
30~34	200	149	113	104
35~39	131	89	66	54
40~44	41	26	21	14
45~49	6	4	3	2
TFR ¹⁾	4.1	3.4	2.6	2.3

Notes : 1) Per woman

Source: ESCAP (1976); Demographic and Health Surveys (1987) and (1993).

Cumulative fertility, measured in terms of the mean number of children ever born to currently married women, has also show a steady downward trend consistent with the reduction in TFRs. The overall mean parity has declined from 4.0 births per woman in 1975 to 2.6 in 1993 (Table 8.2). More significantly the time series data show that the mean parity has declined markedly among women in every age group over the period 1975 to 1993, but particularly among those of older childbearing ages.

It is instructive to examine trends in the parity distribution of women aged 45~49, that is women who have completed their childbearing (Table 8.3). The figures show a striking reduction in the proportion of women having high parity births and an increasing proportion having small families. Thus in 1975, just 12 per cent of women aged 45~49 had two or less children ever born, by 1993 this proportion had risen to 26 per cent: the corresponding proportions of three or less children ever born were

19 per cent and 47 per cent.

Table 8.2 *Mean number of children ever born to currently married women, Sri Lanka, 1975, 1982, 1987 and 1993*

Age group	1975	1982	1987	1993
15~19	0.8	0.9	0.6	0.5
20~24	1.6	1.8	1.3	1.1
25~29	2.6	2.7	2.1	1.8
30~34	3.9	3.5	2.8	2.3
35~39	5.0	4.4	3.4	2.9
40~44	5.7	5.4	4.4	3.3
45~49	6.3	5.8	5.1	4.0
Total	4.0	3.7	3.0	2.6

Source: WFS (1975); CPS (1982); and DHS (1987) and (1993).

Table 8.3 *Percentage distribution of currently married women aged 45~49 by number of children ever born, Sri Lanka, 1975, 1982, 1987 and 1993*

Mean number of children ever born	1975	1982	1987	1993
0	2.3	2.1	2.6	2.6
1	3.6	5.0	4.4	5.9
2	6.4	8.5	9.5	17.6
3	6.9	8.5	9.4	21.1
4	8.5	11.0	21.2	19.2
5	11.2	13.3	13.7	13.5
6	14.4	13.3	12.3	7.8
7	11.0	8.7	8.9	5.4
8	9.7	7.3	7.8	3.1
9+	26.0	22.2	10.2	3.8
Total	100.0	100.0	100.0	100.0
Mean	6.3	5.8	5.1	4.0

Source: As for Table 8.2.

In Sri Lanka, as in many other countries, there are significant differentials in fertility levels according to socio-economic factors. For example, there is a consistent negative relationship between females education level and fertility, whereby fertility of those with higher education is about two and a half times lower than those with no schooling (Table 8.4). However, it has to be noted that the proportion of females in the reproductive age group with no schooling or just primary level has continued to fall over the past two decades.

Table 8.4 *Children ever born by mother's education level, Sri Lanka, 1982*

Variable	Education of mother			
	No Schooling	Primary	Secondary	Higher
Mean number of children ever born	4.6	3.9	2.6	1.9

Source: Computed from data of 1971, and 1981 Census of Population.

Place of residence is also strongly associated with levels and changes in fertility. Fertility of those living on estates is consistently highest, while that in the country's urban capital of Colombo is lowest (Table 8.5). However, it is interesting to note that during the period between 1982/87 and 1988/93 fertility decline occurred most conspicuously in the estates and rural areas, thereby narrowing residential differentials.

Apart from education and place of residence, other variables such as occupation and ethnicity are also shown to be significantly related to levels of fertility in Sri Lanka. For example, in terms of ethnicity, the more urban Sinhala Christians have much lower fertility than the more rural Moore. The fertility differences

between ethno-religious groups cannot be entirely explained by other socio-economic differentials, since multivariate studies have shown that differentials, although lessened somewhat, still persist when controlled for relevant socio-economic factors (Little and Perera, 1981; Namboodiri et al. 1983; Abeykoon, 1987).

Table 8.5 *Total fertility rate by place of residence, Sri Lanka, 1982/87 to 1988/93*

Sector	1982/87	1988/93	Percentage Decline
Colombo Metro	2.2	2.0	9.1
Other Urban	2.3	2.4	- 4.3
Rural	2.9	2.3	20.7
Estate	3.4	2.6	23.5
Sri Lanka	2.9	2.3	17.9

Source: Demographic and Health Surveys 1987 and 1993, Department of Census and Statistics.

Proximate Determinants Influencing Fertility

Nuptiality

The initial decline in fertility in Sri Lanka was mainly due the rise in age at marriages of females. Between 1953 and 1971 the singulate mean age at marriage rose by 2.6 years, and by a further 2 years in the subsequent two decades (Table 8.6). By 1993 the singulate mean age of females at marriage was 25.5, significantly higher than elsewhere in South Asia. The main factors contributing to the rise in female age at marriage have been higher educational attainment and partly as a consequence of that, higher participation of single women in the labour force.

Table 8.6 *Singulate mean age at marriage, SMAM, of females, Sri Lanka, 1953~1993*

	Year					
	1953	1963	1971	1981	1987	1993
SMAM	20.9	22.1	23.5	24.7	24.8	25.5

Source: Census of Population General Report 1981; Demographic and Health Surveys 1987 and 1993.

Contraceptive use

The rise in marriage age in Sri Lanka has been accompanied by a significant reduction in childbearing within marriage, particularly since the 1970s. The decline in marital fertility has resulted from an increased use of contraception, particularly during the 1970s and 1980s. Contraceptive prevalence rates have slightly more than doubled between 1975 and 1993, rising from 32 per cent to 66 per cent (Table 8.7). The use of modern methods has increased particularly sharply throughout, especially resort to sterilisation.

Postpartum Infecundability

The mean duration of breastfeeding has increased from 22.7 months in 1987 to 23.1 months in 1993, despite increasing educational attainment of females. This may be due to the breastfeeding promotion campaign during the late 1980s and early 1990s as well as to policy decisions taken to stop the advertising of infant milk food, removal of the milk subsidy and extended maternity leave for women in public sector employment. These measures have led to a weakening of the relationship between education and duration of breastfeeding.

Table 8.7 *Percentage of currently married women using contraception by method, Sri Lanka, 1975, 1982, 1987 and 1993*

Contraceptive methods	1975	1982	1987	1993
Modern method				
Vasectomy	0.7	3.7	4.9	3.7
Tubectomy	9.2	17.0	24.9	23.5
IUCD	4.7	2.5	2.1	3.0
Pill	1.5	2.6	4.1	5.5
Injection	0.4	1.4	2.7	4.6
Condom	2.3	3.2	1.9	3.3
Norplant	-	-	-	0.1
Total	18.8	30.4	40.6	43.7
Traditional methods				
Rhythm	8.0	18.4	14.6	15.7
Withdrawal	1.5	4.7	3.4	5.0
Others	2.7	0.0	2.0	2.2
Total	13.2	24.5	21.1	22.4
All methods	32.0	54.9	61.7	66.1

Source: World Fertility Survey Report (WFS) 1975; Contraceptive Prevalence Survey Report (CPS) 1982; and Demographic and Health Survey Reports (DHS), 1987 and 1993.

Abortion

Reliable data on abortion are not available in Sri Lanka. Abortion is permitted under law only for the purpose of saving a woman's life. However, it is common knowledge that abortion services are provided both under safe and unsafe conditions. Until around the 1980s the impact of abortion on fertility levels appears to have been insignificant. In 1987 the national contraceptive prevalence rate of 62 per cent was consistent with the TFR of 2.6. Although this figure of 62 per cent included 21 per cent using traditional contraceptive methods, a study on traditional method users showed that a large majority were more educated and low

parity women (Silva et al., 1990). The Demographic and Health Survey (DHS) of 1993 shows a contraceptive prevalence rate of 66 per cent and a TFR of 2.4. The apparent inconsistency between levels of contraceptive prevalence and fertility recorded in that survey may suggest that there has been a rise in abortion in recent years which may in turn have contributed to fertility decline.

Factors Influencing the Proximate Determinants

Socio Economic Factors

The rise in the educational attainment of females has been the single most important socio-economic factor influencing fertility. It has influenced both age at first marriage and the level and effectiveness of contraceptive use. In 1981, nearly half of all women in the reproductive age group had eight or more years of schooling, and this proportion is continuing to increase as the less educated women progress out of the childbearing ages. This trend can be expected to exert further downward pressure on fertility.

The substantial decline in infant and child mortality has been another strong motivation factor in the reduction of fertility in Sri Lanka. For example, the estimated infant mortality rate per 1,000 live births declined from around 80 in 1957 to around 20 in 1990. It has thus become evident to married couples that survival chances of their new born infants are much higher than previously.

Institutional Factors

Policy makers and planners in Sri Lanka took an early and continued interest in population and family planning activities. They encouraged the Family Planning Association of Sri Lanka to introduce family planning in the 1950s and invited the government

of Sweden to enter into the first international bilateral agreement in the population field in 1958. Between 1965 and 1994 Sri Lanka developed and supported an extensive family planning programme integrated with the maternal and child health care services. The national programme was made multi-sectorial and dynamic with the signing of an agreement with United Nations Fund for Population Activities in the early 1970s. Since then the programme has received greater emphasis and visibility. The government of Sri Lanka regards the population issue as one of crucial importance and in 1991 set a target of reaching replacement level fertility by the end of the decade in order to match population with other resources.

The National Co-ordinating Council on Population (NCCP) co-ordinates and monitors the national population programme. The Population Division of the Ministry of Health is responsible for population family planning, co-ordination and monitoring of the national population programme, and acts as the secretariat to the NCCP. The Division also co-ordinates donor funded population projects of line Ministries. Population activities at the District and Divisional levels are co-ordinated through the respective Population Co-ordinators. The implementation of the service delivery programme is the responsibility of the Family Health Bureau of the Ministry of Health. By tradition the Bureau provides in-service training in family planning and also is responsible for the procurement and distribution of contraceptives, equipment and other related supplies.

The National Health Council (NHC), chaired by the Prime Minister, is the highest policy making body on health and related subjects. The Minister of Health and Ministers dealing with allied subjects along with senior government officials attend meetings of the NHC. Representatives of donor agencies and NGOs who are active in the population field also attend NHC meetings when

necessary. Population and family planning issues are discussed and policy decisions are taken at these meetings which are held regularly.

Programme Factors

Facilities for sterilisation have been progressively increased overtime with the upgrading of 118 medical institutions throughout the country to provide for such services. In addition, nearly 800 clinics are equipped to insert IUCDs and provide other clinical services. Medical and para-medical personnel are given training in the delivery of services. In addition, the country's four leading NGOs in the population field have actively participated in the sterilisation programme.

Population information, education and communication activities in Sri Lanka have contributed to creating a favourable climate for acceptors of family planning and in conditioning the community to change behaviour in an informed and responsible manner. The population IEC activities have functioned at two levels. First, in providing basic information for motivation and secondly, in assisting in the decision making process. While mass media are used for the first purpose, interpersonal efforts play a dominant role in the latter.

Son Preference

Sex Ratio at Birth

Table 8.8 shows trends in the sex ratio at birth from 1965 to 1992, based on birth registration statistics. Throughout this period the ratio of male births per 100 female births has fluctuated within a narrow range of 103 to 105. Surveys conducted in 1967 and 1980 by the Department of Census and Statistics to ascertain the completeness of registration statistics in Sri Lanka have found

that birth registrations are almost entirely complete (Aponso, 1970; Department of Statistics, 1980). However, of the small amount of underregistration, it may be surmised that the underregistration of female births is more than that of male births, which could account for the slightly lower sex ratios at birth in Sri Lanka as compared with international standards. Medical technology for determining the sex of foetuses became available in Sri Lanka around 1987. The slight rise in the sex ratio in the years 1987 and 1988 may be partly explained by the use of prenatal sex detection techniques and sex-selective abortions, although this line of explanation is rather conjectural.

Table 8.8 *Sex ratio at birth, Sri Lanka, 1965~1992*

Year	Sex ratio	Year	Sex ratio	Year	Sex ratio
1965	103.3	1975	103.0	1985	104.3
1966	103.6	1976	103.9	1986	104.3
1967	103.1	1977	103.4	1987	104.9
1968	103.7	1978	103.5	1988	105.2
1969	103.3	1979	104.1	1989	104.7
1970	104.0	1980	104.3	1990	104.8
1971	104.4	1981	105.2	1991	104.4
1972	104.3	1982	104.2	1992	103.4
1973	104.6	1983	104.1		
1974	103.6	1984	104.5		

Source: Registrar-General's Department.

Excess female infant mortality and child mortality

Discrimination against girls has been widely reported in countries where son preference is strong. Differential nutrition and health care have been found to contribute towards excess female mortality of infants and children. Table 8.9 shows infant mortality rates by sex around selected census years. Male infant mortality

consistently exceeds that of the female in Sri Lanka, unlike the irregular pattern found in some other South Asian countries.

Table 8.9 *Infant mortality per 1,000 live births by sex, Sri Lanka, 1952~1985*

Years	Males	Females	Ratio of M/F
1952~54	80.4	67.2	1.20
1962~64	60.0	50.2	1.20
1970~72	50.0	41.7	1.20
1985	26.3	21.9	1.20

Source: Nadarajah, (1983).

However, while infant mortality rates of males are higher than those of females, the reverse holds for age-specific death rates at ages 1~4 and 5~9 (Table 8.10). The higher child mortality of females is often attributed to the better food and greater medical attention which male children enjoy (Nadarajah, 1983). However, it should be noted that there have been marked reductions in child mortality rates overtime in Sri Lanka and by 1980~82 the rates were much the same for both sexes.

In many developing countries, especially in rural areas, there is a strong preference for sons (Cain, 1986; Vlassoff, 1990). Higher female mortality during childhood has often been cited to support greater parental care for male children in diet and medical treatment when compared to female children. In Sri Lanka these attitudes hold to some degree, as Nadarajah notes, 'A son is always preferred to a daughter. A daughter when she grows up becomes a responsibility and a problem. She needs a dowry' (Nadarajah, quoting Wijesekera, 1949). Assistance from sons for old age security is also more relied upon in Sri Lanka.

Table 8.10 *Age specific death rates (per 1,000) at ages 1~4 and 5~9, Sri Lanka, 1952~1954, 1962~1964, 1970~1972 and 1980~1982*

Age	1952~54		1962~64		1970~72		1980~82	
	Males	Females	Males	Females	Males	Females	Males	Females
1~4	17.1	20.5	8.3	9.8	5.4	6.4	3.0	3.0
5~9	3.1	3.7	2.0	2.3	1.7	1.8	1.0	1.0

Source: Nadarajah (1983); Dallas F.S. Fernando (1990).

Issues related to son preference in Sri Lanka

According to the 1987 DHS, the stated desired family size for women having two sons, one son and one daughter or two daughters are 2.79, 2.60 and 2.78 respectively. The mean is roughly 0.19 less for balanced families than for the two imbalanced types. The difference between two-son and two-daughter families is negligible. On this evidence it would thus appear that Sri Lankan couples tend to prefer balanced families (Pullum, 1980). When Pullum examined the desire for more children among non-pregnant women with two children it was found that 62 per cent with 2 girls wanted more children, compared to 59 per cent for women with two boys, indicating a slight son preference; a similar observation was made by Arnold (1992).

To what extent does son preference even if not consistently strong, have an effect on fertility-related behaviour? The level of use of contraception in relation to the composition of living children is given in Table 8.11. In 1987 there was no differential with regard to contraceptive use in relation to the sex composition of two living children, and although a differential emerges in 1993, contraceptive prevalence for all family types with two living children increased considerably during the six year period.

Table 8.11 *Percentage of women aged 15~49 currently using contraception by sex of those having two living children, Sri Lanka, 1987 and 1993*

Sex Composition	1987	1993
2 Boys	61	72
1 Boy, 1 Girl	61	75
2 Girls	62	69

Source: Fred Arnold, 1992 loc. cit; Demographic and Health Survey 1993.

Conclusions

Fertility rates in Sri Lanka show an inevitable trend towards reaching replacement level in the near future. A host of institutional, programme and socio-economic factors have influenced the proximate determinants of fertility in bringing about fertility change. In Sri Lanka, there is no clear evidence of son preference, and differentials in child mortality, which could suggest preferential treatment of male children, have weakened. Couples in Sri Lanka appear to want a two-child family consisting of one boy and one girl.

Compared to most Asian and Pacific countries, the status of women in Sri Lanka is more advanced. The extensive social welfare programmes carried out during the post independence decades resulted in many favourable conditions which promote greater participation of women in the development process. These include the rapid expansion of literacy and educational attainment of women; improved life expectancy and low fertility, and wider participation of women in formal and informal economic activities. The increased employment of females has given them some degree of economic independence and personal freedom. The granting of the right of franchise to women in Sri Lanka in 1937 was an early

significant achievement. This right was granted when the country was still a British colony, and long before it was granted to women in most other Asian countries. Within the family, Sri Lanka women are less vulnerable to discrimination and oppression than their counterparts elsewhere in South Asia.

References

- Abeykoon, A. T. P. L., *Differentials in Fertility and Contraceptive Behaviour in Sri Lanka: The Ethno-religious Factor*, Ph.D. Dissertation, University of Michigan, Ann Arbor, 1987.
- Aponso, W. M. L. S., *Study of the Extent of Under Study of the Extent of Under-registration of births and deaths in Ceylon*, Colombo: Department of Government Printing, 1970.
- Arnold, F., "Sex Preference and its Demographic and Health Implications", *International Family Planning Perspectives*, Vol.18, 1992.
- Bairagi, R. and Langestan, R. D., "Sex Preference for Children and its Implications for Fertility in Rural Bangladesh", *Studies in Family Planning*, Vol.17, 1986.
- Cain, M., "The Consequences of Reproductive Failure: Dependence, Mobility and Mortality among the Elderly of Rural South Asia", *Population Studies*, London, 1986.
- Cleland J., Verral, J. and Vaessen, M., "Preference for the Sex of children and their Influence on Reproductive Behaviour", *Comparative Studies*, No.27, International Statistical Institute, Netherlands: 1983.
- Department of Census and Statistics, *Sri Lanka Demographic and Health Survey 1987*, May 1988.
- , *Demographic and Health Survey Sri Lanka 1993: Preliminary Report*, May 1994.
- ESCAP, Population of Sri Lanka, *Country monograph Series* No.4, 1976.

- Fernando, D., "Differential Mortality and Fertility in Sri Lanka by Ethnic Group", *Biology and Society*, London, 1990.
- Karki, Y. B., "Sex Preference and the Value of Sons and Daughters and its Implications for Fertility in Rural Bangladesh", *Studies in Family Planning*, Vol.17, 1986.
- Little, J., Roderick, A. and Perera, S., "Illustrative Analysis: Socio-Economic Differentials in Cumulative Fertility in Sri Lanka - A Marriage Cohort Approach", *WFS Scientific Reports* No.12, March 1981.
- Nadarajah, T., "The Transition from Female to Higher Male Mortality in Sri Lanka", *Population and Development Review* 9, 1983.
- Namboodiri K., Peiris, W. A. A. S., Gunasekera, H. R., Perera, S., Patel, S. and Ladd, K. W., *Determinants of Recent Fertility Decline in Sri Lanka*, Population, Health and Nutrition Department, the World Bank, 1983.
- Pullum, T. W., "Illustrative Analysis: Fertility Preferences in Sri Lanka", *WFS Scientific Reports* No.9, 1980.
- Repetto, R., "Son Preference and Fertility Behaviour in Developing Countries", *Studies in Family Planning*, Vol.3, 1972.
- Silva, S., de Silva, V. and Abeykoon, A. T. P. L., "Traditional Contraceptive use in Sri Lanka: A Cross Survey Analysis", *Demographic and Health Surveys Further Analysis Series*, No.2, 1990.
- Tray, D. D., "Son Preference in Pakistan: An Analysis of Intentions vs. Behaviour", *Research in Population Economics*, Vol.5, 1984.
- Vlassoff, C., "The Value of Sons in an Indian Village: How Widows See It", *Population Studies*, London, 1990.
- Wijesekera, N. D., *The People of Ceylon*, Colombo: Gunasena & Co. Ltd., 1949.

PART IV.

COUNTRY STUDIES - SOUTH-EAST ASIA

9. Sex Preference for Children in Vietnam

Daniel Goodkind, *University of Michigan, Ann Arbor*

Vietnam is among the last societies where the issue of sex preference for children has yet to be addressed extensively. This paper summarises evidence which suggests that son preference in Vietnam is pervasive. It is divided into three sections. The first section describes three contextual features of contemporary Vietnamese society that bear upon gender and family formation issues; patrilineal Confucian patterns, population policies, and recent political and socio-economic transformations. Sex preference measurements are discussed in relation to these three contextual features, to which we now turn. The second section uses national-level data to demonstrate the existence of son preference in Vietnam. The final section gives the preliminary results from the author's field survey conducted in two Vietnamese provinces that provide ethnographic perspectives on parental sex preference.

Three Features of Contemporary Vietnamese Society

Kinship and Patrilineal Confucian Model

Vietnam is situated on the coast of Mainland South-East Asia at China's South-West border, the confluence of two contrasting regional kinship patterns: the idealised Confucian model of patrilineal descent and the bi-lateral kinship model more characteristic of South-East Asian societies. A widespread consensus holds that son preference tends to be strongest in societies that exhibit patrilineal traditions of descent, inheritance, and ancestor veneration. Keyes (1977), Hirschman (1994), and others have posited that the contemporary kinship system, due to

historical contact with both China and South-East Asian societies, has resulted in a blending of both Confucian and bi-lateral kinship systems. Evidence presented here supports this hypothesis, although blending does not imply an equality of influence: on balance, as far as ancestor veneration and son preference are concerned, Vietnam lies squarely within the Confucian orbit.

Population Policy and Fertility Decline

Aside from Japan, Vietnam was one of the first societies in East Asia to have articulated a national concern to lower fertility. Following national partition into Northern and Southern halves in 1954, rapid population growth in the Northern Red River delta combined with slow growth in agricultural productivity after the collectivisation of 1959~60 led to state encouragement of '2 or 3' children per family in 1963 (Vu, 1992). The policy was not strictly enforced, however, in part because the subsequent war of reunification (1965~1975) absorbed state resources that might have otherwise been use for family planning. Following political reunification of the North and South in 1975, the 1979 census revealed that population growth was extremely rapid. The National Commission for Population and Family Planning (NCPFP) was established in 1984, and the national 'one-or-two' child policy decree followed in late 1988 (Goodkind, 1995a). That decree officially determined that most couples should have one or two children, called for the free provision of contraceptives for most citizens, set lower age limits for marriage, and supported local economic incentives and disincentives to encourage compliance with the policy (JPRS, 1989; Goodkind, 1995a).

These policies, in addition to other developmental factors common to the East Asian region, have contributed to a decline in Vietnam's total fertility rate (TFR) from 4.7 in 1980~84 to about 3.3 in 1990~93 - the latter figure is based upon estimates from the

Vietnam Living Standards Survey of 1992~93 (Haughton and Haughton, 1995) and the more recent Inter-censal Demographic Survey of 1994. For a variety of reasons, however, some population specialists believe that these surveys have underestimated fertility levels, and the TFR may have been as high as 3.7 for 1990~93. Whatever the current rate of fertility it has clearly fallen from levels prevailing in the 1980s. This fall in fertility, as has been the case in many other countries with son preference, augurs a rise in parental discrimination against daughters, because couples want to have at least one son within their smaller families.

Socialist Transformation and Gender Relations

Following national partition into Northern and Southern halves in 1954, the Northern regime attempted to suppress certain forms of patriarchal control and otherwise transform family and gender relations. This strategy, common to many revolutionary socialist states, had several rationales: to facilitate women's participation in agricultural and industrial production, to strive for socialist ideals, and to build a base of political power. The Vietnam Women's Union was established in the 1940s as a mass organisation entrusted with motivating women's support for state policy. During the mid-1960s a series of affirmative action decisions and gender-based job quotas reflected a deliberate attempt on the part of the government to raise women's status. Such efforts were made largely because women's contributions were crucial to the war of reunification, during which universal draft of men was enacted. The Women's Union was widely credited with providing essential logistical support during that conflict.

However, after the war of reunification ended, women's relative position declined in Vietnam vis a vis men, due to

demographic features of the post-war era, abject poverty, and most recently, Vietnam's official shift away from centralised socialist planning towards a free market system in 1986 (Goodkind, 1994c, 1995b). Under Vietnam's *perestroika*, known as *Doi Moi* (Turley and Seldon, 1993), the government's commitment to social equity has decreased, and in its wake traditional gender-segregated patterns have re-emerged in the labour force and marital arrangements. The post-*Doi Moi* era has also contributed to a weakening of the Women's Union, and, due to Vietnam's limited *glasnost*, other women's advocates that might halt the re-emergence of traditional sex roles have yet to appear (Goodkind, 1995b). These recent social changes have implications for current sex-preferences behaviour.

National Indicators of Sex Preference

This section examines national indicators of son preference drawn from two sources of data. The first is the Vietnam Living Standard Survey (VLSS), which was undertaken in 1992~93 by the State Planning Committee with the assistance of the World Bank. The survey canvassed a nationally representative sample of 4,800 households. This paper draws largely upon an initial analysis of the results of the survey described by Haughton and Haughton (1995). The second data source consists of Vietnam's population censuses of 1979 and 1989.

A variety of family formation behaviours may indicate discrimination in favour of sons. Table 9.1, for instance, shows the proportion of female respondents from the VLSS who had no sons or daughters, respectively. Sex preferences are indicated if there is a differential between these proportions because parents with no sons are more likely than those with no daughters to continue to have another birth. Indeed, among all female respondents, 22 per cent had no daughters compared to 18 per cent with no sons, an absolute difference of 4 per cent. Among respondents whose

families were completed, the discrepancy was even higher, with 19 per cent having no daughters, compared with only 7 per cent with no sons, an absolute difference of 12 per cent.

Table 9.1 *Proportion of respondents without a son or daughter, respectively, Vietnam, 1992~1993*

	All Families	Complete Families ¹⁾
% with no sons	18.0	6.8
% with no daughters	22.1	18.8
Other	59.9	74.4
Total	100.0	100.0
Women surveyed	2,636	868

Notes : 1) Families classified as complete if they fulfilled one of the following categories:

- a) one child in family, ten years or older
- b) two or more children, youngest aged 7 or older
- c) mother aged 37.4 or older

Source: Haughton and Haughton (1995).

Table 9.2 presents more detailed evidence of parental sex preferences in family formation. It shows parity progression ratios, that is the proportion of parents that continue to have another child, based on the sex composition of existing children. For families with two children, continuation ratios were higher when there were two daughters (89 per cent) rather than two sons (75 per cent). A similar discrepancy exists for those with four children. However, at parities one, three, and five, there was no such discrepancy in the expected direction. A greater consistency in skewness across parities was evinced by the sex composition of families with a particular number of children. For instance, among families with one child, those with one boy exceeded those with one girl by 494 to 339. For those with two children, the number

with boys only exceeded those with girls by 221 to 141. A similar skewness is apparent for those with larger families. Of course, Table 9.2 also shows evidence of preferences for a balanced family. At all parities above the second, the parity progression ratio was highest among those with either no sons or no daughters, which indicates that many parents desired at least one daughter in their family.

Table 9.2 *Parity progression ratios by composition of prior children, Vietnam, 1992~1993*

Number of children	Number of boys	Number of families	Parity progression ratio
1	0	339	96.3
	1	494	95.7
2	0	141	88.7
	1	293	77.5
	2	221	74.5
3	0	46	73.0
	1	139	64.4
	2	138	58.5
	3	107	76.4
4	0	22	81.5
	1	61	69.3
	2	71	55.0
	3	74	60.2
	4	44	69.8
5	0	8	66.7
	1	26	59.1
	2	29	53.7
	3	45	55.6
	4	30	52.6
	5	16	66.7

Source: Houghton and Houghton (1995).

Table 9.3 shows further evidence of parental sex preferences. It depicts the proportion of parents currently using contraception by the current sex composition of their children. At parities two and above, parents were less likely to use contraceptions when they had no sons as opposed to no daughters. A puzzling feature, however, is that those with sons only were more likely to be using contraception than those with a mixture of sons and daughters. If, as Table 9.2 suggested, parents desired to have a combination of sons and daughters, those with sons only would have been less likely to be current users of contraception than those with a mixed family already. Such ambiguous findings are not uncommon in the sex preference literature.

Table 9.3 *Contraceptive prevalence by sex composition of children, Vietnam, 1992~1993*

Number of children	Number of boys	Sample size	Proportion using contraception
1	0	241	50.2
	1	257	50.6
2	0	146	71.2
	1	372	77.4
	2	219	81.7
3	0	41	65.1
	1	185	75.2
	2	197	80.4
	3	73	81.1
4	0	26	61.5
	1	105	71.4
	2	125	73.6
	3	110	79.1
5	4	39	82.1
	0	12	41.7
	1	39	76.9
	2	60	70.0
	3	69	65.2
	4	45	57.8
	5	13	61.5

Source: Haughton and Haughton (1995).

There are many other indicators through which parental sex preferences in family formation may be expressed. For instance, parents may be more likely to withhold medical care from daughters than sons, which can result in higher levels of daughter mortality. In a number of Asian societies, differential care of sons and daughters has been well-documented (for example, Choe, 1987; Muhuri and Preston, 1991; Kishor, 1993). Furthermore, as Das Gupta (1987) demonstrated, for Punjabi parents who had only daughters, prejudicial treatment against subsequent daughters was higher among the best educated than less-educated groups, a finding that may be explained by smaller family size desires of the best educated. Vietnam, over the course of the 1980s, began to resemble the South Asian model. That is, as the TFR fell from 4.9 to 4.2 between 1979 and 1989, female child mortality evidently rose relative to that for males during the same period. This is demonstrated in Table 9.4, which compares life table measures based on the population censuses of 1979 and 1989. The sex ratio of death probabilities at ages 1 to 14 decreased strongly between the two census from a normal surplus of male deaths to an abnormal surplus of female deaths, which suggests a worsened relative survival probability for female children. In fact, the sex ratio of child survival probabilities in 1989 (below .90) was comparable to that found in some South Asian societies. That pattern of child mortality ratios has recently been confirmed by the VLSS (State Planning Committee, 1994).

A qualification to the above result concerns the fact that child mortality has fallen to extremely low levels for both sons and daughters. Thus absolute gender differences in child mortality in Vietnam represent only 2 to 4 deaths per 1,000. Furthermore, these estimates of child mortality in Vietnam were obtained after adjustment procedures were applied to the original data to take account of differences in mortality reporting by sex of child.

Table 9.4 *Probability of death for younger males and females, Vietnam, 1979 and 1989*

Age	Probability of death: ${}_nq_x$				Sex ratio: ${}_nq_x$		
	1979		1989		1979	1989	Far East standard
	Males	Females	Males	Females	M/F	M/F	M/F
0~1	.0458	.0438	.0446	.0438	1.044	1.017	0.968
1~4	.0315	.0287	.0210	.0256	1.099	0.821	0.948
5~9	.0142	.0125	.0110	.0132	1.134	0.835	1.260
10~14	.0060	.0056	.0081	.0083	1.074	0.981	1.518
15~19	.0072	.0064	.0070	.0070	1.109	1.315	1.222
20~24	.0091	.0070	.0095	.0095	1.290	1.347	1.293
Life expectancy at birth(e_0)	63.7	67.9	63.0	67.5	0.938	0.933	

Source: Vietnamese Censuses, 1979 and 1989; Reconstructed Life Table for 1979 from Banister, 1992. Life Table for 1989 from Vietnam Population Census - 1989, 1991.

Nevertheless, the procedures applied represent the current state of the art, and a variety of other circumstantial evidence suggests that the estimated relative rise in female child mortality over the 1980s was indeed real. For instance, the rapid fertility decline in Vietnam has raised parental concerns about having at least one son within a smaller family. At the same time, post-reunification poverty led to extreme constraints on public health resources to fund new military conflicts with Kampuchea and China. According to an unpublished survey conducted by the Institute of Sociology in a Red River delta village in 1983, over 75 per cent of respondents felt that the availability of food and clothing had deteriorated since 1975. Rates of child malnutrition exceeded 50 per cent through much of the 1980s (State Planning Committee, 1994). Furthermore, recent free market policies have resulted in both the institution of school fees (education used to be free) and opportunities to enhance private incomes through agricultural production, factors which have likely reduced the

incentive to invest in the health and education of daughters relative to sons.

As of yet, there is little demographic evidence of prenatal sex testing being used in Vietnam as has been documented elsewhere in Asia (Zeng, et al., 1993). Sex ratios at birth according to the 1989 census were about 106 (General Statistical Office, 1991), which is close to normal, and this ratio was marginally lower in urban areas where prenatal sex testing is more likely to be available. As of May 1994, according to a senior population official, only one hospital in Hanoi had prenatal sex testing facilities. However, recent newspaper advertisements for private health clinics in Ho Chi Minh City indicate that ultra-sound technology is increasingly available. Given the evidence of sex preferences documented above, the proliferation of this technology, in tandem with this 'one or two' child policy, is almost certain to result in sex-selective abortion and a concomitant rising sex ratio at birth. Vietnam is already notable for having the highest rate of abortion in Asia: as of 1992, the total abortion rate that is the number of lifetime pregnancy terminations an average woman would expect to have based on period rates was about 2.5 per woman (Goodkind, 1994a). This rate is higher than that ever recorded in China. Whether sex ratio at birth in Vietnam will eventually rise to the levels currently observed in Korea and China will depend on the availability of such sex-testing technology, access to the test results, as well as the continuing strength of son preference.

Ethnographic Perspective from a Field Survey

This section attempts to sketch some of the cultural underpinnings of son preference in Vietnam. Family structure in Vietnam has for several centuries been patrilocal and patrilineal (Keyes, 1977). A focal point of such structure in everyday life is the veneration of the ancestor's of the husband's family. Table 9.5 shows the continuing importance of ancestor veneration in

contemporary Vietnam. The data are from a survey carried out by the author undertaken in two Vietnamese provinces in September and October of 1993 in collaboration with the Institute of Sociology. The survey consisted of an urban cluster and two rural clusters in each province, with 120 people interviewed in each cluster. Respondents consisted of men and women who had at least one child at the time of survey (Goodkind, 1995a).

Table 9.5 *Patterns of ancestor worship, two Vietnamese Provinces, 1993*

Province	No religion	Ancestor worship only	Bhuddist	Catholic	Cao Dai
a) Do you have an ancestral altar at home?					
QN Danang					
% Yes	25	89	91	63	100
Number	(48)	(254)	(34)	(16)	(2)
Hai Hung					
% Yes	57	97	100	15	-
Number	(7)	(304)	(7)	(40)	-
b) Do you observe your ancestor's death days?					
QN Danang					
% Yes	31	80	91	69	100
Hai Hung					
% Yes	57	88	86	31	-
c) Do you worship your spouses' ancestors?					
QN Danang					
Male					
% Yes	0	9	10	29	50
Number	(35)	(112)	(19)	(7)	(2)
Female					
% Yes	0	54	13	33	-
Number	(13)	(143)	(16)	(9)	-
Hai Hung					
Male					
% Yes	50	41	0	0	-
Number	(2)	(140)	(4)	(19)	-
Female					
% Yes	20	80	100	29	-
Number	(5)	(166)	(3)	(21)	-

Source: Author's survey (1993).

Respondents were asked whether or not an ancestral altar was present in their home. Such altars, typically consist of a table arranged with an incense holder, a variety of fruit or flowers, photographs of ancestors, and perhaps other religious icons. The results indicate that such altars are common in the homes of most respondents. Ancestral altars were nearly universal among those professing to follow ancestor veneration only or Buddhism, but also fairly prevalent among Catholic, and even those claiming to have 'no religion'. The finding that Catholics practice ancestor veneration contradicts claims by some Vietnamese informants that the two traditions are mutually incompatible. The finding is likely due to some flexibility of traditional practices in these areas. as well as, perhaps, interfaith marriages.

In addition to veneration of ancestors, Vietnamese traditionally are expected to observe special ceremonies (*gio*) on the annual death days of these ancestors. Table 9.5 attests to the continuing importance of such ceremonies in contemporary Vietnam. Upwards of 80 per cent of those professing Buddhism or 'ancestor worship only' participated in these ceremonies, while at least 30 per cent of all other religious groups in each province did. The continuing salience of these ceremonies have implications of son preferences. Women may attend these ceremonies and often bear responsibility for organising them, although by all accounts such ceremonies can only be performed by men. Usually the eldest male son of the most recent ancestor officiates, although another close male relative may substitute for them.

Despite the primacy of patrilineal kinship relations, however, there is also evidence of bi-lateral kinship that deviates from a pure Confucian ideal. Table 9.5 shows the proportion of respondents saying that they venerated their spouses' ancestors. Most wives indicated, as expected, that they worshipped their husbands' ancestors. Surprisingly a considerable minority of

husbands also claimed to venerate their wives' ancestors, particularly in the Northern province of Hai Hung (41 per cent). It is not immediately clear whether bi-lateral kinship has always been more common in Hai Hung or whether the aforementioned political transformation in the North contributed to a less male-centred bias in family tradition there.

To better determine the relationship between ancestral veneration and sex preference for children, respondents were asked if their ancestors would be displeased if they did not have any sons. Some 58 per cent of respondents answered 'yes' in Quang Nam Da Nang compared with 46 per cent in Hai Hung (Table 9.6). Again, this evidence suggests a greater concern with the male lineage in Quang Nam Da Nang. Both the author and several interviewers sensed that respondents were more likely to report ancestral displeasure if they themselves had no son. Table 9.6 indicates only limited support for these observations. Only for parents having two children was the expressed extent of ancestral concern greater when having only daughters compared to having only sons. When parents had either one child or more than two children, those with only daughters seem to have been less worried about the implications for the ancestral line than those having only sons. One explanation for this anomalous finding may be that, in a case of having three or more daughters in a row, respondents became increasingly likely to rationalise their lack of sons.

In order to determine how people would react if the 'one or two' child policy was strictly enforced, we asked what sex combination of children respondents would want if they could only have two. Table 9.7 indicates an overwhelming preference for a balanced family of one boy and one girl. But among those preferring 2 of one sex, those preferring boys strongly outnumbered those preferring girls, particularly in Quang Nam Da Nang.

Tables 9.6 *Ancestral displeasure of having no son, two Vietnamese Provinces, 1993*

Provinces		Yes	No	Don't know	Total
Would your ancestors be displeased if you had no sons?					
QN Danang (%) (n=360)		58	39	2	100
Hai Hung (%) (n=360)		36	61	3	100
Family size and composition					
1 child	M	51	47	3	77
	F	41	55	4	51
2 children	MF	39	59	2	133
	MM	34	61	5	62
	FF	43	52	5	44
3 children	any	50	48	2	130
	MMM	50	44	6	18
	FFF	29	71	0	17
4 children	any	58	41	0	82
	MMMM	50	50	0	6
	FFFF	33	66	0	3
5 children	any	62	38	0	42
6 children	any	69	26	4	26

Source: Author's survey (1993).

Table 9.7 *Sex preferences for children, two Vietnamese Provinces, 1993*

Province	2 Boys	2 Girls	Boy and Girl	Don't know	Total
If you could have only two children, what sex combination would you prefer?					
QN Danang (%) (n=360)					
Male	12.9	2.2	80.9	3.9	100.0
Female	8.8	0.0	90.1	1.1	100.0
Hai Hung (%) (n= 360)					
Male	2.4	0.6	93.9	3.0	100.0
Female	1.5	0.0	94.9	3.6	100.0

Source: Author's survey (1993).

The only behavioural measure pertaining to son preference that is examined for the two sampled provinces is the second birth interval; that is, the length of time between the first and second birth. Table 9.8 shows the proportion of second birth intervals that were under 3 years, by sex of the first child and region. Only the first births that took place between 1980 and 1989 are included, a procedure which reduces the truncation biases affecting the most recent years. The proportion of all birth intervals under three years was quite similar between the two provinces, 53 per cent in Quang Nam Da Nang and 60 per cent in Hai Hung. However, the proportion of these shorter second birth intervals was greater when the first birth was a girl, and the sex differential was far sharper in Quang Nam Da Nang (68 per cent vs. 47 per cent) than in Hai Hung (62 per cent vs. 57 per cent). Thus, congruent with the ethnographic data presented earlier, the behavioural evidences also suggest relatively stronger son preferences in the surveyed area of Quang Nam Da Nang compared to Hai Hung.

Table 9.8 *Percentage of second birth intervals less than three years: by sex of first birth, two Vietnamese Provinces, 1980~1989*

Province	Sex of first birth		
	Male	Female	Both
QN Danang (%)	46.8	67.6	57.2
(first births)	79	71	150
Hai Hung (%)	57.3	62.0	59.7
(first births)	75	71	146

Source: Author's survey (1993).

Conclusions

From both developmental and social science perspectives the

issue of sex preference in Vietnam will continue to be relevant. As fertility levels have fallen concerns for the sex of offspring have been heightened due in part to persisting patrilineal traditions. Vietnam's population policies, coupled with the political transitions from socialism, have had further ramifications for family formation strategies and thus influenced preferences for the sex of children. These features of contemporary Vietnamese society provide important comparative perspectives regarding China and other Confucian populations in Asia that exhibit son preference. Given that Vietnam also evinced growing disparities in the survival of sons and daughters, it also provides useful perspectives on demographic patterns in South Asian societies.

The issue of sex preference for children in Vietnam, as elsewhere, is not immune from at least two dilemmas of interpretation (Goodkind, 1994b). First, if the major cause of sex discrimination is simply falling fertility, we cannot simply blame anti-natalist population policies for causing such behaviour. The major culprit would appear to be reducible to socio-cultural factors (the continuing significance of the male lineage for example) working in combination with whatever developmental factors contribute to falling fertility. Thus, the best policy prescription would appear to be simple, if rather open-ended - to reduce, wherever possible, discrimination in life circle options and opportunities between men and women.

Second, although daughter discrimination is a feature of family formation practices in Vietnam, how do we best measure changes in such discrimination when technology is ever proliferating? For instance, if prenatal sex testing becomes more widespread in Vietnam, the sex ratio at birth will rise, which some observers may interpret as a sign of discrimination. However, as parents use prenatal tests to fulfil their sex preference, subsequent postnatal discrimination against female

children may well decline. Given the fact that there are multiple measures of sex preference for children, it is not immediately clear how we will weigh their importance in evaluating the relative well being of daughters and sons over time (Goodkind, 1994b).

Notes

- 1 Acknowledgements - The author's field research in Vietnam over the course of 1993 was facilitated by Tuong Lai and Pham Bich San of the Institute of Sociology (National Centre for Social Sciences and Humanities, Hanoi) and undertaken as part of a post-doctoral fellowship at the Department of Demography at the Australian National University. This research was made possible by the Andrew W. Mellon Foundation.
- 2 The presence of an altar when a respondent professed 'no religion' may have been due in part to interviewers not double - checking to see if respondents who answered that way actually worshipped ancestors. However, other evidence from the survey (not presented here) suggests that these kinds of ambiguities reveal important insights into how people perceived these practices.

References

- Banister, J., *Population Dynamics and Prospects*, US Bureau of the Census, Centre for International Research, Unpublished, 1992.
- Choe, M. K., "Sex Differentials in Infant and Child Mortality in Korea", *Social Biology* 34, 1987, pp.12~25.
- Das Gupta, M., "Selective Discrimination Against Female Children in Rural Punjab, India", *Population and Development Review* 13, 1987, pp.77~100.
- General Statistical Office, *Detailed Analysis Of Sample Results, Vietnam Population Census 1989*, 1991.
- Goodkind, D., "Abortion in Vietnam: Measurements, Puzzles and Concerns", *Studies in Family Planning*, 25(6), 1994a, pp.342~352 .
- , *Abnormal Sex Ratios at Birth in Confucian Asia: Substituting Prenatal for Postnatal Discrimination*, Unpublished, 1994b.
- , "Inversions of Gender Power: The Vietnamese Double Marriage Squeeze", Unpublished. Revision of "The Vietnamese Double Marriage Squeeze", Working Paper in *Demography*, No.47, The Australian National University, 1994c.
- , "Vietnam's One-or-Two-Child Policy in Action", *Population and Development Review*, 21(1), 1995a, pp.85~112 .
- , *Vietnam's Post-war Rise in Gender Inequality*, Paper presented at the annual meeting of the Population Association of America, San Francisco, CA: April 1995b.
- Haughton, J. and Haughton, D., *Son Preference in Vietnam*, Unpublished paper, 1995.

- Hirschman, C., *Family and Household Structure in Vietnam*, Paper presented at the annual meeting of the Association for Asian Studies, Boston, MA: 1994.
- Joint Publication Research Service (JPRS) East and Southeast Asia, Reprinted in "Vietnam's New Fertility Policy", *Population and Development Review* 15, 1989, pp.169~172.
- Keyes, C., *The Golden Peninsular: Culture and Adaptation in Mainland Southeast Asia*, New York: Macmillan, 1977.
- Kishor, S., "May God Give Sons to All: Gender and Child Mortality in India", *American Sociological Review*, 58(2), 1993, pp.247~265.
- Muhuri, P. K. and Preston, S. H., "Effects of Family Composition on Mortality Differentials by Sex Among Children in Matlab Bangladesh" *Population and Development Review* 17, 1991, pp.415~434.
- State Planning Committee, *Vietnam Living Standards Survey 1992~1993*, Hanoi: General Statistical Office, 1994.
- Turley, W. S. and Seldon, M., *Reinventing Vietnamese Socialism: Doi Moi in Comparative Perspective*, Boulder: Westview Press, 1993.
- Vu, Q. N., 'Population Policies and Development in Vietnam,' P. 40~54 in Neil L. Jaimeson, Nguyen Manh Hung, and A. Terry Rambo, eds., *The Challenges of Vietnam's Reconstruction*, Jointly published with the East-West Centre, Indochina Institute, George Mason University, 1992.
- Zeng, Y., Tu, P., Gu, B. C., Xu, Y., Li, B. H. and Li, Y. P., "Causes and Implications of the Recent Increase in the Reported Sex Ratio at Birth in China", *Population Development Review* 19, 1993, pp.283~302.

10. Family Size Desires and Sex Preferences for Children in Thailand: Implications for Replacement Fertility

Kua Wongboonsin, *Chulalongkorn University, Bangkok*

Vipan Prachuabmoh Ruffolo, *Chulalongkorn University, Bangkok*

Thailand has experienced rapid fertility decline since the mid-1960s such that the total fertility rate (TFR) was approaching population replacement level by the beginning of the 1990s. According to previous studies (Knodel, et al., 1984; Knodel, et al., 1987), Thailand's rapid fertility transition was brought about by four major factors. First, rapid economic changes which were accompanied by fundamental societal changes, such that fertility decisions became increasingly based on the self-fulfilment of parents rather than concerns for family or children - a transition from social to individual concern (Easterlin, 1975; Van de Kaa, 1987). Secondly, the Thai cultural setting, with its predominantly Buddhist attitudes, facilitated the acceptance of voluntary contraception. Thirdly, there was a latent demand among many couples for a means to control their fertility even before modern contraceptives were readily available. Finally, the government's family planning programme resulted in a much higher awareness of the need for fertility regulation, as well as in the availability use of modern methods of contraception.

With Thailand's fertility continuing to trend downwards, the TFR is projected to fall below replacement level in the near future (NESDB, 1991). However, the assumption of below replacement fertility among the Thai population may not be justified. In particular, use of a single indicator, such as the TFR, for making projections of future births fails to take into account the

heterogeneity among different sub-groups and regions in Thailand. Moreover, the assumption neglects the socio-cultural context in which fertility decline takes place. This paper examines the evidence relating to family size desires as well as the sex preference for children among sub-groups of the population. It uses two data sets, a national Survey on Social Attitudes Towards Children conducted in 1988 by the National Statistical Office, and a small pilot Survey on Low Fertility conducted in 1993 by the Institute of Population Studies at Chulalongkorn University. The 1988 survey is used for analysing data on the preferred number of children of women cross-classified by some relevant socio-economic variables. The 1993 pilot survey data are used to provide further insights on the preference for both family size and gender composition among single and newlywed couples, using the Coombs scale.

Need for Disaggregated Data

National trends in the TFR are often used as the main basis for fertility projections. However, the use of this measure alone on an aggregated basis fails to provide insights into how the summation of individual fertility behaviour comes about, and how fertility varies among different sub-groups and regions. If we can find specific reasons why individuals in various segments of society do, or do not, intentionally reduce their fertility, and why they select the family size they achieve, then these reasons can be addressed by specific policies, if so desired. Hence it is important to take into account attitudinal and sub-national level data.

It should not be concluded that Thailand's fertility rate will fall below replacement level among all sub-groups and in every part of the country. Surveys have shown that the vast majority of Thai women both desire and expect to have a minimum of two children, and would prefer to have children of both sexes (Knodel,

et al., 1988). Thus a demographic survey conducted in the mid-1980s showed that even among the youngest cohorts of married women aged 15~19 and 20~24 the desired number of children was still 2.

The measurement of desired family size and gender composition are particularly relevant for assessing future fertility prospects, particularly so given the almost universal use of contraception (Chayovan, 1994). By 1993 the national contraceptive prevalence rate had reached 74 per cent among currently married women aged 15 to 44, and ever-use was 93 per cent. This confirms the freedom of choice for Thai women to control their fertility, and that more and more couples are able to achieve their preferred family size. Survey data have also indicated that some families tend to continue having children until they have at least one child of each gender. If the preference to have one boy and one girl persists it is unlikely that the TFR will fall to an extremely low level. It is unclear to what extent socio-economic pressures, which discourage large families, are making people change from desiring at least two children towards lower family size norms.

The Thai government needs to consider what type of population policy, particularly fertility policy, should be adopted in the context of current low fertility. Jones (1992) suggests that there could be four possible objectives. First, policy could encourage the continuation of fertility decline without taking into account the implications for actual population size. Secondly, policy could encourage the achievement of zero population growth as soon as possible and maintain a stationary population afterwards. Thirdly, policy could concentrate on keeping the annual numbers of births relatively stable: although it would be very difficult to ensure a fixed number of births occurred each year. The fourth option suggested by Jones is to set an optimum

population size and attempt to reach such a size as quickly as possible. In deciding between the various options more disaggregated information is needed about the attitudes and behaviour of individuals with respect to fertility, particularly the family size desires of Thai couples and their preferences with respect to the sex composition of their children.

Social Attitudes Towards Children

The results of a nationally representative sample from the 1988 Survey on Social Attitudes Towards Children (SSATC) show a strong association between the mean preferred number of children and the age of women. The overall mean preferred number of children was 2.7, while that for women aged 15~19 and 45~49 was 2.2 and 3.5 respectively (Table 10.1). This difference can be interpreted as due to a change in attitudes over time - older cohorts tend to have what are currently old-fashioned preferences for more children, while younger cohorts tend to desire fewer children. It is notable that even among the very young women very few wanted no children or just one, although the proportions were higher than among older women.

Table 10.1 *Distribution and mean number of preferred children, SSATC, 1988*

Age group of women	Preferred number of children(%)					Mean
	0	1	2	3	4+	
15 ~ 19	1	8	70	15	5	2.16
20 ~ 24	1	8	67	17	7	2.23
25 ~ 29	1	6	61	22	10	2.37
30 ~ 34	0	6	51	28	15	2.57
35 ~ 39	1	4	41	28	25	2.84
40 ~ 44	1	5	28	28	38	3.19
45 ~ 49	1	2	27	24	46	3.45
15 ~ 49	1	6	50	24	20	2.65

Data from the SSATC also reveal an inverse association between the economic status of the respondent and the mean preferred number of children. Among couples where the wife was under age 30, the least affluent couples had an average desired family of 2.5, while for the most affluent the corresponding figure was 2.1 (Table 10.2).

Table 10.2 *Distribution and mean number of preferred children by household economic status, married women under age 30, SSATC, 1988*

Economic status	Preferred number of children(%)			Mean
	0 ~ 1	2	3+	
Lowest	8	52	39	2.46
Low	6	62	32	2.35
Middle low	7	65	28	2.29
Middle high	8	68	23	2.27
High	9	68	23	2.18
Highest	11	72	17	2.10

Figures 10.1 through 10.3 show the spatial variations in preferred numbers of children. The mean preferred number of children among wives under age 30 in each province lies between 1.6 and 3.4 (Figure 10.1). Women with the lowest preferred number of children are those living in the North, where the actual fertility rate has already fallen below replacement level in some areas. Family size preferences close to replacement level can be found in other areas of the northern, central, and southern regions, and even in a few provinces in the North-East. However, most respondents in the North-East reported a family size preference above replacement level. This area is of particular concern because the land is quite dry and there are droughts

almost every year and from where many young people migrate to find work in the more industrialised central region. Because of the importance of a possible further future fertility decline in this region, the north-eastern province of Khon Kaen was chosen as a study area for the 1993 survey (see below). Figure 10.1 also shows that the highest preferred family size is found in the far South, where the population is predominantly Muslim, and in a few provinces in and near the North-East.

Figure 10.2 shows the distribution of wives under 30 who would prefer 3 or more children. As expected, given its lower fertility level, the North shows the lowest proportions of women desiring 3 children or more. There are higher levels of family size preferences in the central, upper north-eastern, and near southern regions. Even higher levels are found in the West and the overpopulated lower North-East. Fertility cannot fall below replacement unless many women cross the threshold of desiring fewer than two children. Figure 10.3 shows the percentages of wives under age 30 preferring no children or just one child. The areas where women are least likely to desire no children or just one child are the far South and the North-East; and most likely in the North. In most areas of Thailand, less than 5 per cent of women want fewer than 2 children which suggests that the TFR is unlikely to fall significantly below replacement level in the short-term future.

Figure 10.1 *Spatial distribution of mean number of preferred children of women under age 30, SSATC, 1988*

Figure 10.2 *Spatial distribution of wives under age 30 preferring three or more children, SSATC, 1988*

Figure 10.3 *Spatial distribution of wives under age 30 preferring no children or just one child, SSATC, 1988*

Survey on Low Fertility

Methodology

The Survey on Low Fertility (SLFS) was conducted in 1993 by the Institute of Population Studies at Chulalongkorn University. The sample consisted of couples married for less than 5 years and single adults. In this pilot project a total of 250 respondents were randomly selected from purposively chosen groups: viz. (i) professional workers in Bangkok; (ii) factory workers in Bangkok; (iii) construction workers in Bangkok; (iv) slum dwellers in Bangkok, and (v) rural villagers in the province of Khon Kaen. The main purpose of this pilot project was to test whether or not the Coombs scale, which had never been used in Thailand before, could be successfully used in interviewing people from various segments of Thai society. The test was successful and the results of the limited data set, although they can not be generalised, provide some insights into Thailand's future fertility.

The Coombs scales are used here for measuring desired family and the preferred sex of children. Previous studies have shown that the Coombs scales are much more powerful indicators of the true preference for the number and gender of children than the respondent's first choice (Coombs and Coombs 1974). The reason for this is that the Coombs scale measures first, second, third, and fourth choices, either by explicit questioning or the implicit assumption of a single-peaked utility function. Most importantly, the scales provide independent measures of the preference for the number and gender composition, and these preferences are not independently measured by a single first choice.

The survey asked respondents, 'if you were to have a total of 3 children, how many sons and daughters would you like to

have?' If the respondent looked confused, she was asked more specifically whether she would prefer 3 girls, 1 boy and 2 girls, 2 boys and 1 girl, or 3 girls. Those respondents who already had children were told to imagine that they could 'start over again' and have any gender of children that they wanted. If the respondent indicated a preference for 3 girls, or for 3 boys, the questioning was stopped at this point. The theoretical basis for this is that Coombs et al. (1974) assume a single-peaked utility function, so that, for example, if the respondent's first choice was 3 girls, it is assumed that the second choice is 1 boy and 2 girls, the third choice is 2 boys and 1 girl, and the fourth choice is 3 boys. However, if the respondent's first choice is 1 boy and 2 girls, we do not know whether the second choice will be 3 girls, or 2 boys and 1 girl. Therefore, we probe further, asking 'if you could not have the number of boys and girls you want, would you prefer to have 3 girls, or 2 boys and 1 girl?' A similar question was asked where the first choice was 2 boys and 1 girl. Finally, if the second choice was 2 boys and 1 girl, or 1 boy and 2 girls, we asked what their third choice would be. At the time of coding the survey data, the respondents answers were converted to the Coombs IS-scale with a code of IS 1 indicating a strong preference for girls, and an IS 7 code indicating a strong preference for boys, with an intermediate code indicating little or no gender preference.

A similar set of questions was asked about respondents' desired number of children, assuming an equal number of boys and girls. The replies were also coded on the Coombs scale from 1 to 7, where IN 1 represents a desire for very few children and IN 7 a desire for many children. Some 93 per cent of respondents understood a short version of the questionnaire which did not include the full set of Coombs-scale questions, while 86 per cent understood the questions on the full questionnaire.

Results

Although the sample size for this pilot project was very small, and hence the results can not be generalised, some interesting insights are given by the substantive findings. Unlike many other Asian countries, several fertility surveys have shown that Thai couples have no strong preference for boys. Our data confirm that most Thai couples show a strong preference to have at least one boy and at least one girl (Table 10.3). Among couples who desire 2 children, nearly all the respondents wanted to have one boy and one girl as their first choice: very few selected two boys, or two girls.

Table 10.3 *Percentage distribution of preferred number of boys and girls by type of respondent, SLF, 1993*

Preferred Composition	All	Professional	Factory workers	Construction workers	Slum dwellers	Rural villagers
1 girl	6	21	0	5	0	8
1 boy	4	7	0	10	0	7
2 girls	1	0	0	0	0	3
1 boy, 1 girl	76	50	86	67	80	82
2 boys	1	0	0	5	0	0
1 boy, 2 girls	8	7	10	14	10	3
2 boys, 1 girl	4	14	5	0	10	0
Total	100	100	100	100	100	100
Number	115	14	21	21	20	39

Notes: This question was from the short form - only half of the respondents were asked.

Among couples who desire 3 children, if there was no sex preference it would be expected that roughly equal numbers would prefer 2 girls and 1 boy, or 1 girl and 2 boys. That is not shown by the 1993 survey data, so there is a sex preference, but

it is a preference for both sexes - almost all couples want to have children of both sexes. Among respondents who preferred having 3 children, almost all wanted at least one boy and at least one girl: none preferred all boys, or all girls. This preference for children of both sexes may be a factor in why fertility has yet to fall below replacement in most areas of Thailand. It could be that if parents do not have at least one boy and at least one girl, they will often 'keep trying' until they have at least one of each.

A noticeable feature of the survey results is that the mean preferred family size varies by occupation (Table 10.4). While most respondents of every occupation had a low score on the IN scale, indicating a preference for 0~3 children, a large fraction of the factory workers had a medium score (IN 4), while not many professional workers had such a score.

Table 10.4 *Percentage distribution of Coombs IS and IN scales according to type of respondent, SLF, 1993*

Composition	All	Professional	Factory workers	Construction workers	Slum dwellers	Rural villagers
IN Scale						
Small (1~3)	64	67	55	64	65	67
Medium (4)	26	17	41	27	23	23
Large (5~7)	11	17	5	9	13	10
Total	100	100	100	100	100	100
Mean	3.2	3.2	3.4	3.1	3.2	3.2
IS Scale						
Girls bias (1~3)	39	39	41	36	26	51
Balance (4)	23	11	32	18	19	28
Boy bias (5~7)	38	50	27	45	55	21
Total	100	100	100	100	100	100
Mean	4.0	4.2	3.9	4.0	4.6	3.6
Number	132	18	22	22	31	39

The IS scores seem to exhibit more random fluctuations which is consistent with a low gender preference. There does appear to be a variation with occupation, as slum dwellers were more likely to prefer boys while rural villagers were more likely to prefer girls. One possible explanation for the mild preference for girls among rural villagers is provided by a recent survey, using focus group methodology, which indicated that villagers considered that daughters will take more care of them in their old age.

The IN and IS scores were compared as a function of socio-economic variables but no correlation with education, income, or marital status was found. One possible trend is that higher income families seem to desire fewer children. However, on the whole the desire for a family size of 2 to 3 children and a lack of a gender preference seem to be common to all socio-economic groups (Table 10.5).

Table 10.5 *Mean values of Coombs IN and IS scales by education, income, and marital status, SLF, 1993*

	IN scale	IS scale	Number
Education			
Primary	3.3	3.9	62
Lower secondary	3.0	3.5	20
Upper sec./Lower voc.	3.0	4.3	30
Upper voc./University	3.4	4.6	20
Income (in 1,000B)			
LT 100	3.3	3.8	58
100~199	3.2	4.3	41
200+	3.0	4.0	27
Marital status			
Single	3.1	4.2	62
Married	3.3	3.9	70

Conclusions

The results from the above analysis suggest that most Thais still want 2 to 3 children of mixed sexes, even when controlling for factors such as education, occupation, and income. Those who have a better socio-economic status tend to prefer fewer children. At the regional level significant variations were found: in the upper North, people tend to prefer a mean number of children below replacement level, while in the far South and the North-East, the preferred mean number is still well above the replacement level. The results suggest that the fertility level in Thailand will remain around replacement level in the near future. Most people still desire at least 2 children, so unless there is a shift in socio-cultural norms and attitudes, fertility is unlikely to fall well below replacement for the foreseeable future. Future studies and future fertility policies should, therefore, concentrate more on social and cultural factors underlying the preference for children, as opposed to merely increasing the availability of modern contraceptives. Moreover, planners will need to develop separate regional policies to take account of differing spatial fertility levels.

References

- Chayovan, N., "Preliminary Report on Status of Women and Fertility in Thailand", *Population Newsletter* No.52, Bangkok: Institute of Population Studies, Chulalongkorn University, 1994.
- Coombs, C., Coombs, L. C. and McClelland, G., "Preference Scales for Number and Sex of Children", *Population Studies*, 19, 1975, pp.273.
- Easterlin, R. A., "An Economic Framework for Fertility Analysis", *Studies in Family Planning*, 6(3), March 1975, pp.54~63.
- Jones, G., *Population Trends and Policy Issues for Thailand*, Presented at the UNFPA/NESDB Workshop on Population Programme Policies: New Directions, Quality Chiangmai Hills Hotel in Chiangmai, 1992.
- Knodel, J., Chamrathirong, A. and Debavalya, N., *Thailand's Reproductive Revolution: Rapid Fertility Decline in a Third World Setting*, Medison: University of Wisconsin Press, 1987.
- Knodel, J., Chayovan, N. and Frisen, C., "Has Thailand's Fertility Decline Stalled?", *Asia-Pacific Population Journal* 3, 1988, pp.3~20.
- Knodel, J., Havanon, N. and Pramualratana, A., "Fertility Transition in Thailand: A Qualitative Analysis", *Population and Development Review*, 10(2), 1984, pp.297~328.
- National Economic and Social Development Board, *Population Projections for Thailand 1980~2015*, Bangkok, 1991.
- Van de Kaa, D. J., "Europe's Second Demographic Transition", *Population Bulletin*, 42(1), 1987.

11. Ethnic Differentials in Son Preference in Indonesia

Budi Soeradji, *National Development Planning Board, Jakarta*

Sri Harijati Hatmadji, *University of Indonesia, Jakarta*

Indonesia is an archipelago consisting of five large islands starting from Sumatra in the West, Java in the South, Kalimantan which straddles the equator, and Sulawesi and Irian Jaya in the East. Additionally, there are more than 13,000 small islands of which few are inhabited. According to the population census held in 1990 the estimated total population of Indonesia is 179.4 million, and it is growing at an annual rate of slightly less than 2 per cent per year. The Indonesian people comprise more than 300 distinct ethno-linguistic groups, each of which has its own distinctive culture and tradition. However the different communities are united as one nation and all speak the national language, *Bahasa Indonesia*. Contrary to common belief son preference is not generally found in aggregate national level data, despite the fact that people tend to say that particular ethnic groups prefer to have sons to continue the family name or for the sake of old-age support. This paper examines whether son preference exists among some of the larger ethnic groups. The groups included in this study are the Sundanese from West Java; the Javanese, this group being divided into central Javanese and East Javanese, the Acehese from Indonesia's most northern province of Aceh, the Batak in North Sumatra, the Minangkabau in West Sumatra; and the Bugis and Makasarese in South Sulawesi. Because the different ethnic groups are not usually identified separately in official statistics, provincial data are used as a proxy for ethnicity. As a background to this study an account is given of Indonesia's development planning, and in

particular its population policy which has led to a spectacular reduction in fertility among all the main ethnic groups.

Development Policies

Economic and Social Development

The year of 1966 has become important for Indonesia as it marks the beginning of the rise of the *Order Baru* - the New Order of Administration. The New Administration realised the urgent need and importance of national stability as a basis for successful development, that is development that stimulates growth for the people's welfare and equitable prosperity. Moreover, in line with the dynamic political stability, development requires economic stability. Under the scheme of *Trilogi Pembangunan* - Three Principles of Development Effort - development planning began in 1969 and sought to maintain a balance between economic growth, equity and national stability. The First Long-Term Development Programme, 1969/70 to 1993/4, was divided into five Five-Year Development Plans (*Rencana Pembangunan Lima Tahun* or Repelita for simplicity). With the exception of the first, each Repelita has been directed by The State Guidance Policy (*Garis-Garis Besar Haluan Negara*) which is a political statement issued by the General Assembly. This statement sets out the objectives of development efforts which are subsequently operationalised and detailed in a Repelita document.

The First Development Programme (1969/70 to 1993/4) led to various economic and social gains for the population. The annual economic growth rate over the Programme period was 6.8 per cent, which was much faster than that of the population, which grew by about 2.1 per cent. While the agricultural sector grew at a rate of just under 4 per cent, a significant achievement of this sector was that whereas at the outset of this period Indonesia was

the world's largest rice importer, at the end of the period it was largely self-sufficient in terms of its rice consumption needs.

The First Development Programme markedly improved the people's welfare such that per capita income rose from US\$70 in 1969 to about US\$700 by the early 1990s. With sustained economic growth Indonesia has been able to fundamentally change its economic structure. The industrial sector grew at an annual rate of 12 per cent per year during the Programme period. The industrial sector has increasingly played an important role in national production and has brought with it changes in the country's employment structure. In 1971 about 64 per cent of the workforce were engaged in the agricultural sector, but by 1990 this figure had declined to 50 per cent. Considerable progress has also been made in the provision of basic amenities and facilities. In 1971 only 6 per cent of households had electricity, compared with more than 50 per cent in the early 1990s. Over the corresponding period the telephone density rose from 15 per 10,000 persons to 159.

Several other major infrastructure development projects were completed during this period. For example, continued irrigation works have provided clean and safe water to more and more households. At the beginning of the First Development Programme only about 20 per cent of the urban population enjoyed clean water; but by the early 1990s this figure had risen to more than 80 per cent in urban areas, and about 50 per cent in rural areas. Human resources development has been high on the government's agenda with the expansion of educational opportunities, particularly the provision of basic education. In 1968/69 just 41 per cent of the population aged 7~12 years were attending elementary school, compared with 96 by the early 1990s. Life expectancy at birth increased markedly, from 45.7 years in 1967 to 62.7 years in 1993. There has also been a sharp decline in the number and proportion of the population living below the official

poverty line. The evidence thus shows that Indonesia's First Development Programme was able to strengthen economic conditions and at the same time improve the social well-being of the population.

Population Policy

Studies on Indonesia's population indicate that the administration of the *Order Lama*, that is the Old Administration, was not in favour of a population policy that would prevent rapid population growth (Soeradji and Hatmadji, 1981). In particular, an official family planning was considered unacceptable and voluntary family planning initiatives were not endorsed by the government. The *Order Baru*, on the other hand, fully supported the initiation of family planning activities in Indonesia and was committed to reducing the high rate of population growth through the implementation of a national family planning programme. The programme was seen as an integral part of the government's national development strategy.

Population policy aimed to reduce the relatively high rate of population growth through the launching in 1970 of an official government supported national family planning programme. At the beginning the programme only covered the most densely populated areas of Java and Bali, but within the decade the programme was extended to cover the whole country. The implementation of the family planning programme went through different stages. Initially the approach was clinical, followed by village contraceptive distribution centres where clinic-based personnel went from house to house motivating people to adopt family planning (Teachman and Rahardjo, 1979). This strategy led to the active participation of community members, which in turn resulted in a community based approach. Since the 1980s, however, the strategy has been changed to one whereby acceptors

can get contraceptive supplies from designated distributions centres.

The effective performance of Indonesia family planning programme has been widely acknowledged. When the programme was initiated there were only about 53 thousand couples using contraceptives. By the end of First Development Programme the number had reached more than 20 million, and a contraceptive prevalence rate of 65 per cent had been achieved. The family planning programme had successfully motivated Indonesia's predominantly rural and low income population to practice family planning, which in turn has led to a reduction in the rate of population growth. In the 1970s when the family planning programme was initiated, the rate of population growth was about 2.3 per cent, compared with 1.7 per cent in the early 1990s. This decline in the growth rate of the population is attributable to the fast decline in fertility, since, as noted above, Indonesia has also experienced marked improvements in levels of mortality (Palmore et al., 1993).

The Phenomenon of Son Preference

The preference for sons over daughters is common in many, but not all, Asian countries. However, a preference for a balanced number of daughters and sons is also common (Cleland et al., 1983; Arnold, 1985). A number of studies have concluded that a strong preference for children helps to sustain high fertility. The argument is based on the simple idea that couples who have already reached their desired family size, but have not achieved the preferred sex composition of children, continue childbearing until they have a child of the preferred sex. Some studies in India have found that sons are highly prized and that some families celebrate the birth of a son but not that of a daughter (Gideon, 1962). The preference for male children tends to reflect institutional

values rather than simply personal preferences. When times are difficult boys are given better treatment, are better fed and better clothed than girls, and more sacrifices are made to ensure that boys attend schools. Strong son preference for children in Korea, as also in other East Asian countries like China, is deeply rooted in the Confucian tradition with its patrilineal and patriarchal social structure. Son preference in Nepal is also strong (Karki, 1988). Nepalese parents prefer sons to daughters because of their culture and the various roles that sons play in family life. Moreover, sons continue the family name and provide support in old age.

A study on sex preference for children in Indonesia using the 1976 World Fertility Survey (WFS) data showed a greater preference for a balanced number of sons and daughters, than for a preference for sons. However, the study was limited to Java and Bali. Another study on the subject, which covered a larger number of provinces, found that six out of ten women in Indonesia expressed no preference (Sinquefield and Kartoyo, 1979). Moreover, families with both boys and girls had a slightly less desire for additional children than families of a corresponding size with only one-sex children. The study also found strong son preference in rural North Sumatra, but it was less conspicuous in urban North Sumatra. Using information on desires for additional children, the study found that son preference did not exist among women with a small number of living children. This suggest that sex preference at the national level may not exist, as shown by WFS data, but in certain regions and among certain ethnic communities son preference may be prevalent. Sinquefield and Kartoyo (1979) concluded that sex preference of living children was not a major determinant of the number of children Indonesian woman will bear. Using DHS data Arnold (1991) showed that preference for sons, indicated by the ratio of reported ideal number of sons to daughters, in Indonesia is minimal. In most cases once couples

bear children they take equally good care of them irrespective of their sex, although there are inequalities in their schooling.

Sex Preference Among Ethnic Groups in Indonesia

The Study Groups

As noted above, the Indonesian population is made up of numerous distinct ethno-linguistic groups each of which has its own culture and tradition. This study focuses on the following groups: the Central and East Javanese, the Sundanese, the Acehnese, the Batak, the Minangkabau, the Bugis and the Makasarese.

The ethnic Javanese are the largest ethno-linguistic group in Java island. Their dominance is in the Central and Eastern parts of the island. The kinship system of the Javanese is based on bilateral decent.

The second largest ethno-linguistic group is the Sundanese, who largely reside in West Java with small numbers in Central Java and in Jakarta. The kinship system among the Sundanese is very much influenced by Islam, since their great grandparents have been following Islamic teachings. It is not easy to differentiate between tradition and religion among the Sundanese.

The existence of son preference is commonly associated with continuing the family name and old age support. On the basis of these criteria it would not be expected that either the Javanese or the Sundanese would have a distinct son preference. This is because traditionally the Javanese and Sundanese do not have a surname, and where they do, among the younger generation, they tend to use the first name of their father. Moreover, parents prefer to stay with their daughter rather than with their daughter-in-law

when they get old. Although Sundanese women will receive their inheritance, they do not have the privilege of sharing the decision about their parents' inheritance.

The Acehnese are from Indonesia's most northern province of Aceh. The province has been labelled the *Veranda of Mecca* because the people from this province are considered very conservative and religious and their social behaviour and institutions are highly influenced by Islamic teaching.

The Minangkabau are the largest single Sumatra-origin group and their heartland is West Sumatra. This ethnic group has a matrilineal and matriarchal kinship system. Everybody in the family, except the father, is included in the mother's family.

The Acehnese and Minangkabau are using surnames. However, the surname only applies for one generation. The children will use their father's first name as their last name. Although this will not reflect the continuation of family name, discussions with several Minangkabaus indicate that they consider such a tradition as carrying the family name. Accordingly, they say that they want at least one son.

The Bataks are another numerically important ethnic group in Sumatra. They mainly reside in North Sumatra. By contrast with the Minangkabau, the kinship system among the Bataks follows a patrilineal line while the Minangkabau has a matrilineal kinship system.

The final two ethnic groups featured in this study, who are combined together here because they live in the same province, are the Bugis and the Makasarese from South Sulawesi in the Eastern Islands.

Data Analysis

In Indonesia information on ethnic origin of the population is not normally collected at the national level by the statistical authorities. So in order to analyse differentials in behavioural patterns by ethnicity Indonesian researchers usually use one of two relevant proxies, mother tongue language or province of residence. The data source used for the analysis undertaken here is the 1991 Demographic Health Survey (DHS) which canvassed a nationally representative sample of married women aged 15~49. Unfortunately the 1991 DHS did not collect information on mother tongue, so data classified by province of birth are used here as a proxy to reflect ethnicity.

Table 11.1 *Per cent of female non-migrants by type of migration and place of current residence, selected provinces, 1990*

Current place of residence	Lifetime migration			Current migration		
	Total	Rural	Urban	Total	Rural	Urban
Aceh	94.5	95.5	89.2	98.3	98.8	95.6
North Sumatra	95.8	96.6	94.2	98.9	99.3	98.2
West Sumatra	89.1	89.4	88.1	95.6	95.8	95.1
West Java	93.5	98.2	84.7	95.8	98.6	90.7
Rest of Java	99.0	99.5	97.7	99.1	99.3	98.5

Source: 1990 population census reports.

The use of province as a proxy measure of ethnicity is valid if the ethnic concentrations at the provincial level have not been significantly affected by influxes of migrants from different communities. Table 11.1 shows the proportions of the total number of females in selected provinces who are neither lifetime migrants or current (within the past five years) migrants as recorded in the results of Indonesia's 1990 population census. The figures show

that the overwhelming majority of females in the selected provinces are non-migrants. Only in West Sumatra, where the proportion of lifetime in-migrants reaches 11 per cent, is the female population not almost entirely local. In term of recent inflows, using the current migration classification, the local proportions are even higher. Hence the use of data classified by province as a proxy for ethnicity would appear to be reasonably justifiable.

One way of examining women's sex preference for children is through information on ideal numbers of sons and daughters. The 1991 DHS included two questions on this topic, namely 'total number of desired or ideal children a woman wants to have' and, 'ideal number of sons and daughters'. A woman can be said to have a sex preference if her ideal number of sons exceeds her ideal number of daughters, or vice versa. Table 11.2 shows that the majority of women in each of the ethnic groups covered in this study do not have a strong sex preference for their children, with about 60 to 75 per cent of the women in each group expressing no preference. This pattern holds even among women from rural villages and those with little or no education.

Among those who have preferences towards a specific sex balance of their children, in five out of the seven ethnic groups considered here the proportion of women who prefer sons is higher than the proportion who prefer daughters, although only for two groups, the Batak and Acehnese are the differences large. The higher proportion of women who prefer sons in North Sumatra and Aceh can be attributed to a combination of tradition and culture. The Batak follows a patrilineal and patriarchal kinship system which by definition tends to favour males (Sinquefield and Kartoyo, 1979). While the Acehnese are known as having strong conservative Islamic beliefs which tend to favour males.

Table 11.2 *Per cent distribution of ever married women according to ethnic group by sex preference of their ideal number of children, 1991*

Ethnic group	No preference	Prefer daughters	Prefer sons	Per cent difference
For all women:				
Acehnese	66.4	10.7	22.9	12.2
Batak	59.5	12.8	27.7	14.9
Minangkabau	67.5	15.5	17.0	1.5
Sundanese	69.3	17.1	13.6	(3.5)
Javanese-Central	66.6	13.7	19.7	6.0
Javanese-East	74.6	11.8	13.6	1.8
Bugis and Makasarese	62.2	22.4	15.4	(7.0)
For women with childhood place in villages:				
Acehnese	67.7	9.4	22.9	13.5
Batak	59.5	12.4	28.0	15.6
Minangkabau	68.1	15.9	16.1	0.2
Sundanese	70.6	16.2	13.2	(3.0)
Javanese-Central	65.9	14.0	20.1	6.1
Javanese-East	73.7	11.8	14.6	2.8
Bugis and Makasarese	61.5	22.8	15.7	(7.1)
For women with no school and primary education:				
Acehnese	68.4	10.9	20.7	9.8
Batak	60.2	12.8	27.0	14.2
Minangkabau	68.8	14.7	16.5	1.8
Sundanese	70.3	16.5	13.2	(3.3)
Javanese-Central	65.2	14.5	20.3	5.8
Javanese-East	72.9	12.5	14.6	2.1
Bugis and Makasarese	63.5	21.9	14.6	(7.3)

Source: 1991 DHS.

The dominant preference among all ethnic groups for a balance of sons and daughters, that is a mix of both, is reflected in Table 11.3. The figures show that among women who already have two existing children, the proportions who want additional

children is significantly lower for those who already have one child of both sexes. Interestingly, the proportions of women with two sons wanting additional children tends to be greater than among those with two daughters, except among the Batak, although the differences are not generally large.

Table 11.3 *Per cent of currently married and non-pregnant women who want more children by sex composition of living children, 1991*

Ethnic group	No children		One daughter	Two children			Other category
	One son	One daughter		Sons	Daughters	Both sexes	
Acehnese	96.3	91.2	93.3	81.3	77.8	76.1	41.6
Batak	97.8	92.8	96.8	72.9	80.0	58.7	23.2
Minangkabau	94.8	93.4	87.6	80.3	72.0	68.6	24.5
Sundanese	95.0	87.1	85.8	52.6	51.3	47.4	22.3
Javanese - Central	91.0	81.0	83.9	45.3	39.1	30.0	6.9
Javanese - East	91.0	88.8	81.2	50.0	38.1	25.9	4.5
Bugis & Makasarese	98.6	95.1	93.5	80.5	80.0	75.9	30.8

Source: 1991 DHS.

Another way of examining the phenomenon of sex preference for children is through the differential use of contraception by the different ethnic groups in relation to the sex composition of living children (Table 11.4). It is reasonable to assume that women who are most satisfied with the sex composition of their children will be more likely to use contraception to stop having additional children at any given family size. Of course, women with no children, or with just one child, may simply use contraception for the sake of birth spacing rather than because they do not want any additional children. For this reason such women have been excluded from the data in Table 11.4.

Some further evidence of son preference is found among the Batak and Acehnese, with higher proportions of women in both of these groups using contraception if their two children are sons than if they have two daughters (Table 11.4). But surprisingly, perhaps, the proportions using contraception among these two ethnic groups with both a son and a daughter is not very different from those who have two daughters. There is no clear pattern of sex preference for children emerging from the data for the other ethnic groups and the proportions seem highly variable.

Table 11.4 *Per cent of currently married and non-pregnant women with two or more children who are currently using contraception by sex composition of living children, 1991*

Ethnic group	Two children			Three or more children
	Sons	Daughters	Both sexes	
Acehnese	53.1	27.8	31.3	33.9
Batak	44.0	42.9	41.3	45.6
Minangkabau	46.1	57.3	60.0	48.6
Sundanese	66.3	58.5	60.4	57.1
Javanese - Central	67.1	60.0	70.5	54.5
Javanese - East	65.3	77.8	61.8	68.1
Bugis & Makasarese	52.4	42.5	47.7	47.1

Source: 1991 DHS.

Conclusions

Although studies at the national level have concluded that there is no sex preference for children in Indonesia there has been very little research to establish how far this holds among the major ethnic groups. Part of the reason is because of the lack of relevant data classified by ethnicity. In this study province has been used as a proxy measure of ethnicity - a decision justified by

the relative homogeneity of the communities in particular provinces. Among the seven groups considered here most showed no clear evidence of son preference. However, the Batak and Acehnese show consistent patterns of son preference which may be explained by a combination of both tradition and cultural factors.

References

- Arnold, F., "Measuring the Effect of Sex Preference on Fertility: The Case of Korea", *Demography*, 22(2), 1985, pp.280~88.
- , *Sex Preference for Children and its Demographic and Health Implications*, Proceedings of the Demographic and Health Surveys World Conference, Vol.1, Washington, Columbia, Maryland: IRD/Macro International, 1991.
- Cleland, J., Verral, J. and Vaessen, M., Preference for the Sex of Children and Their Influence on Reproductive Behaviour, *World Fertility Survey Comparative Studies*, No.27, Voorburg, Netherland: International Statistic Institute: 1983.
- Gideon, H., "A Baby is Born in the Punjab", *American Anthropologist* 64, 1962.
- Karki, Y. B., "Sex Preference and the Value of Sons and Daughters in Nepal", *Studies in Family Planning*, 19(3), 1988, pp.169~178.
- Palmore, J. A., Si Gde Made and Yohandarwati Arifiyatno, *Fertility Decline in Indonesia 1971~1991*, Demographic and Health Survey Indonesia, 1991, Extended Analysis, Vol.1, Demographic Levels and Trends, National Family Planning Co-ordinating Board (BKKBN) Jakarta, Indonesia, 1993.
- Sinquefield, J. C. and Kartoyo, A., *Sex Preference for Children in Indonesia*, Majalah Demografi Indonesia, No.11, Th. VI., 1979.
- Soeradji, B. and Hatmadji, S. H., "Contraceptive Use in Java-Bali: A Multivariate Analysis on the Use of Efficient Methods of Contraception", *Scientific Reports*, 24, London: WFS, 1981.
- Teachman, J. D. and Pudjo Rahardjo, "Contraceptive Use in the Indonesia Village Distribution System: Continuation and Effectiveness", *International Family Planning Perspective and Digest*, 5(2), 1979.

PART V.
CONCLUSIONS

12. Son Preference in Asia: Issues and Considerations

Richard Leete, *Kuala Lumpur*

Gender discrimination has a deeply rooted history in all cultures. Its manifold manifestations at all phases of life conspire to create a glass ceiling for females throughout Asian societies. Even a cursory examination of data on say literacy levels shows, almost without exception, how much less educated are successive female cohorts compared with their male counterparts. Having been denied access to even basic education, it is not surprising to find that Asian women have, and continue to, experience discrimination, and lower social status than men. Demographers have long reported gender discrimination, especially in South Asia, in terms of its effect on reversing natural sex differentials in mortality. In the past decade or so, medical advances have opened-up the potential for a new form of gender discrimination, that is through prenatal sex identification tests followed by sex-selective induced abortions. Consequently population scientists have now also turned their attention to examining sex ratios at birth to help further understand the effects of son preference. This concluding chapter summarises some of the main issues and considerations on the subject arising from the 10 fascinating country studies presented above.

Patterns of Son Preference and Gender Discrimination

In spite of a lack of conclusive evidence in some settings, a clear pattern of sex preference for children and gender discrimination in relation to different stages of the demographic transition, emerges from the 10 country studies. The 10 countries can be classified into three groups on the basis of the extent of their fertility decline and the strength of son preference.

- First, countries which have completed the decline to low levels of fertility, or where there have been very substantial decline, and which are characterised by strong son preference. There are four that fall within this category; China, Taiwan province of China, the Republic of Korea and Vietnam. In these countries the effects of strong son preference are evidenced by abnormal sex ratios at birth, and/or discrimination against female infants and young children resulting in a reversal of the normal sex differential in mortality. Where there are abnormalities in the sex ratio at birth, there is also strong evidence of increased use of prenatal sex-detection tests and female-selective abortion.
- Second, countries where fertility decline has been relatively slow and which are characterised by strong son preference. There are three countries which fall within this category; Bangladesh, India and Pakistan. The data are not conclusive but they appear to show normal sex ratios at birth coupled with discrimination against female infants and young children resulting in a reversal of the normal sex differential in mortality.
- Third, countries where fertility decline has been very substantial but which are not characterised by any apparent son preference. There are three countries which fall into this category, Indonesia, Thailand and Sri Lanka. The data from these countries show normal sex ratios at birth and no unnatural sex differential in the mortality rates of infants and young children.

Sex Ratios at birth in Multiethnic Malaysia

It is interesting to note that Asia's three largest countries, China, India and Indonesia are each represented in a different

group and that the groups share some broad cultural similarities. Malaysia, which can be viewed as a microcosm of Asia, with its three main ethnic groups, Malays, Chinese and Indians, representing samples of the cultures of China, India and Indonesia (Leete, 1996). It is therefore, interesting to assess to what extent the patterns identified above are mirrored in trends in the sex ratios of these three groups in Malaysia. Peninsular Malaysia has a complete and reliable system of civil registration from which it is possible to examine a long time series of sex ratios at birth (Table 12.1).

A normal expected range for the sex ratios at birth in Malaysia over the period 1960 to 1993, taking into account levels of mortality, would be between about 104 and 107 male births per 100 female births (James, 1987; Shaw, 1989; Johansson, S. and Nygren, O., 1991). For the Chinese in Peninsular Malaysia, between 1960 and 1985 sex ratios at birth are shown to be within the normal range. However, in several of the years thereafter the sex ratios at birth increase above the normal maximum, much like elsewhere in East Asia (Table 12.1). For the Malays the sex ratios at birth are consistently slightly lower than those of the Chinese.

The trend shows a slow but steady secular increase, consistent with declines in stillbirths rates and improvements in ante-natal care. The sex ratios are all within the normal range and consistent with the pattern of sex preference found in Indonesia. For the Indians, the trends in the sex ratios at birth are similar to those of the Malays with no apparent evidence of serious distortions in the sex ratios at birth. Thus the cultural patterns in Malaysia mirror those found among similar cultural groups elsewhere in Asia.

Table 12.1 *Sex ratios at birth by ethnic group, Peninsular Malaysia, 1960~1993*

Year	Malays	Chinese	Indians
1960	103	107	103
1961	104	106	104
1962	104	106	104
1963	104	107	103
1964	105	105	103
1965	104	106	102
1966	105	107	105
1967	104	105	104
1968	105	107	103
1969	104	106	103
1970	105	106	105
1971	106	106	103
1972	105	106	102
1973	105	106	102
1974	106	106	104
1975	105	107	104
1976	106	107	104
1977	106	106	103
1978	106	106	103
1979	106	107	104
1980	106	107	105
1981	106	106	104
1982	107	107	106
1983	106	107	105
1984	106	107	106
1985	105	107	103
1986	106	109	104
1987	106	108	104
1988	106	107	105
1989	106	107	107
1990	107	107	108
1991	106	110	103
1992	106	107	105
1993	106	108	104

Source: Computed from birth statistics supplied by the Department of Statistics, Kuala Lumpur.

Examination of the trend in the Malaysian Chinese sex ratios by parity, for the years for which data are available (Table 12.2), does not reveal a consistent tendency for the ratios to rise with increasing birth order, as experienced in some of the East Asian countries. Assuming that the reporting of parity at birth registration is correct, it would appear that the minority of the Malaysian Chinese who are using prenatal sex detection and resorting to sex-selective abortions are just as likely to be doing so at early birth orders as at higher orders. This situation has similarities with that in the Republic of Korea (see Cho et al. in Chapter 4 below). Some Korean women now use sex-detection tests to ensure the outcome of first order births, and the position of a Korean wife becomes more secure if her first child is a boy.

Table 12.2 *Sex ratios by birth order, Chinese, Peninsular Malaysia, 1983~1993*

Year	Birth order			
	First	Second	Third	Fourth and above
1983	107	106	108	107
1984	107	108	108	105
1985	106	107	106	107
1986	109	108	110	109
1987	108	107	107	108
1988	106	106	107	109
1989	109	108	106	105
1990	106	105	108	109
1991	110	111	110	108
1992	108	108	107	107
1993	109	106	110	107

Source: Computed from birth statistics supplied by the Department of Statistics, Kuala Lumpur.

Methodology and Data

The authors of the country studies have attempted to detect son preference and discrimination against female children by cleverly exploiting data from a wide range of different sources - population censuses, surveys, civil registration, and even hospital records. In several cases, the quality of the available data is subject to sex-selective reporting errors and other biases and great caution is necessary in their interpretation. While not wanting either to weaken the qualitative findings or to detract from the seriousness of their implications, it is necessary to raise a few important issues with respect to both the methodology and data used in some of the studies to support the conclusions about the existence and effects of son preference.

Population Age-Sex Distributions

Population census age-sex distribution are used by several authors to try to detect imbalances in the sex ratios. Where higher than expected sex ratios are found this is attributed to son preference. But underenumeration of girls is widespread in many developing countries, even including those where discrimination against girls may not exist, and hence higher than expected male sex ratios need not necessarily be the result of increased resort to sex-selective abortion

In using population census age-sex distributions it is necessary to take into account several commonly found biases, particularly in settings where literacy levels are not high (Ewbank, 1981). Potential biases result from both coverage and content errors. Coverage errors, such as underenumeration of children, can not simply be assumed to be the same for both boys and girls. Underenumeration tends to be both age and sex-selective. Census post-enumeration evaluation surveys, which essentially involve a

more intensive reinterviewing of a sample of census households, do not help greatly since they tend to miss the same type of events as in the censuses themselves. The implications of the culturally linked tendency in some settings to report information about sons prior to daughters also requires careful evaluation and investigation. Similarly content errors, in particular age-misreporting which occurs through a variety of differing reasons, is also often sex-selective and may impact on sex ratios.

In sum, population census data need to be very carefully evaluated, their limitations kept clearly in mind and frequently, particularly in South and South-East Asian countries, they will be insufficiently robust to detect true sex ratio differentials. Moreover, estimates of 'missing girls' derived from poor quality census data will merely be as good as the assumptions on which they are based and should be very critically evaluated. The very wide range of the existing estimates reflects their fragility (Klasen, 1994).

Sex Preference Data

Several studies draw upon DHS and other survey data of responses by ever married women to questions on sex preferences for children. There are a number of potential pitfalls in using these data as a guide to the future, quite apart from a whole set of separate issues relating to the importance of the role of men in reproductive decisions. Attitudes (and behaviour) can, and frequently do, change with social and economic development and they do not necessarily give a reliable indication of future childbearing behaviour. It was quite common among researchers in the 1970s and early 1980s to use similar survey based evidence to argue that Asian fertility would not decline because of a strong son preference. And yet in several of these countries fertility declined very sharply in a comparatively short time span to levels below population replacement, in spite of the stated existence of

son preferences. Moreover, there are also issues relating to the stability of the data, particularly when used for sub-national analysis. Thus while the study by Soeradji and Hatmadji (see Chapter 11 below) is a bold attempt to tease out ethnic differentials in son preference using Indonesian DHS data, the high level of instability in the data could just as readily reflect sampling variability as real ethnic differentials. The point here is that caution is necessary in the interpretation of data, on issues which have not been addressed in the design of the survey.

Mortality Data

Great care is necessary in interpreting sex differentials in infant and childhood mortality rates in those Asian societies lacking complete and reliable civil registration data. Rarely will data on deaths collected through surveys or censuses be sufficiently reliable to analyse sex differentials by age. In the case of surveys the sample size requirements are large, and the necessary training and level of control and supervision of the field work required to collect reliable and complete mortality data, are generally beyond the budgets allocated for these purposes. Moreover, there has traditionally been a great reluctance in some cultures to report deaths of infants and young children (Barnet, 1964). Thus, for example, in field work undertaken by the author on the registration records and population statistics in many communes in a selection of provinces in Vietnam, not a single infant death was registered and the inescapable conclusion from the study was that collecting information on deaths in Vietnam, whether through direct or indirect approaches, is exceedingly difficult (General Statistical Office, 1992). Moreover, the relatively low level of child death rates at ages above infancy, that is the numbers involved, needs to be kept in mind when interpreting percentage differences in survival chances.

Causes of Son Preference

The causes of son preference in both East and South-East Asia appear to be the same. Patriarchal and patrilineal kinship systems are clearly at the root of son preference as was noted by Nizamuddin and Alam in Chapter 1, and as several of the country studies have noted. The effects of these kinship structures are seen in terms of cultural biases which favour males over females in almost all spheres of life, and become self-perpetuating through lower investments in the human development (health and education) of women, which necessarily helps to ensure their continued lower status in society. The view that sons will provide for old-age support is also frequently cited as a factor sustaining son preference. However, in several countries this factor was found to be of diminishing importance. For example, on the basis of survey data which show a decline in the preference for sons, the authors of the country study in Bangladesh suggest that there is a growing tolerance of daughters and a recognition of the economic value of female children. They also note that there is growing scepticism among parents regarding the possibility of receiving economic support from sons during times of real need (Chaudhury et al. in Chapter 7 below).

Several studies suggest that as fertility levels have declined son preferences, which have long existed in much of Asia, have heightened. However, as Goodkind points out (see Chapter 9 below), we should not simply blame anti-natalist population policies for causing such behaviour. Indeed there is some evidence of increasing son preference in contexts such as Hong Kong where there has never been an anti-natalist population policy (Park and Cho, 1995). Similarly, the blame should not simply be put on increasing development, since surely it will only be through increasing development, particular the provision of universal basic

primary and secondary schooling, that the causes of discrimination can be overcome. Moreover, as Das Gupta and Visaria observe (see Chapter 5 below), fertility decline has done much to improve women's health and survival. It has also opened up previously unthought of possibilities in terms of enabling women to have a role outside of the household, in modern sector employment for example.

Further, in some South Asian settings there is no evidence indicating that the significant decline in fertility over the last two decades has been accompanied by a decline in the quality of life of female children. Data for Bangladesh (see Chaudhury et al. in Chapter 7 below) appear to show an overall improvement in the quality of life of both male and female children in terms of reduction of neonatal, post-neonatal and infant deaths, and malnutrition, although the relative position of female to male children on these measures remains almost unchanged. However, sex discrimination in the utilisation of health services, favouring male over female children, still persists. The Matlab evidence indicates that intensive MCH-FP services will result in more egalitarian child mortality sex ratios in Bangladesh. Excess mortality of girls, particularly of girls with older sisters, appears to be due to intended discrimination. This suggests that public health interventions alone will not be able to improve girls' survival very much without concomitant change in the social, economic and political status of women.

Role of Culture

Cultural factors are frequently cited as causes of son preference. However, culture is dynamic and it evolves and changes in response to new circumstances, ideas and even fashions. Asian culture has changed enormously over the past 50 years. For example, there has been a flight from marriage and

childbearing among the Asian Chinese that would have been unimaginable 50 years ago, despite the previously strong Confucianist pro-natalist values that existed among this community (Leete, 1996). Such changes attest to the potential impact of education and other modernisation factors. As Chang notes (see Chapter 3 below), recent Taiwanese survey data indicate that changes in preferences accumulate through the acculturation of successive cohorts into new beliefs and situations, which again points to the important long-term impact of education. Of course, some features of culture are more enduring than others. But women should not be expected to become the victims of outdated culture, and governments have an important role to play in helping to address some of the more unpalatable aspects of outdated culture, otherwise questions will be increasingly asked about just whose culture is being preserved and for whom? There is clear evidence that cultural preferences for children can and do change even among Chinese populations. Thus on the basis of survey evidence Zeng and He (1988) noted that traditional son preference had almost disappeared among the Chinese in Shanghai, and that among women with no children there were in fact more wanting a girl. It appeared that the sex of a child was of much less practical importance than considerations about numbers and the opportunity costs of additional children.

Implications

Marriage Squeeze?

One of the often cited implications of current imbalances in the sex ratio at birth is the possible future impact on marriage trends, with the idea that there will be a 'marriage squeeze' whereby sizeable proportions of men will find it difficult to find a spouse of compatible age. However, this idea, with its static conceptualisation of marriage age differentials, tends to

underestimate the complexity of the marriage market and its ability to adapt to changing cohort sizes. There are several examples, both historical and contemporary, of the effects of sex-selective migration causing distortions in the sex ratios at the marriageable ages without having serious implications on the proportions marrying. For example, in Hong Kong, in-migration of males has led to a major imbalance between the number of Chinese men and women, which in 1991 amounted to some 17 per cent at ages 25~34 (Census and Statistics Department, 1993). Given the long-term deficit of women of young marriageable ages in Hong Kong, one might have expected a marriage squeeze, leading to a decline in the age at first marriage among females. This has not occurred simply because there are many factors determining both marriage age and the decision on whether to marry, and equilibrium in numbers is not necessarily the most important.

Family Composition

The consequences of son preference differ at differing stages of the transition from high to low fertility. Initial concerns are about its delaying impact on fertility transition; differential child mortality effects then became more salient; and ultimately, imbalanced sex ratios at birth became a concern. Detailed quantitative assessments of each of the separate effects is required. However, the intrafamilial effects of sex ratio distortions at the family level could be significant (Park and Cho, 1995). In East Asian countries there is a clear inverse relationship emerging between family size and the sex ratio, rising sex ratios with birth order and an extremely high sex ratio of last-born children (see below). Where girls are discriminated against, if large families have girls and small families have boys then overall resource allocation and care would further favour boys (Park and Cho, 1995). Given that last children frequently receive special treatment,

stopping rules that lead to disproportionate representation of boys in last births could worsen resource allocation differentials. Another implication relates to the status and well-being of females: gender discrimination against female births, infants and young children is a serious violation of human rights.

Family Planning Programmes

Recent survey data in Taiwan indicate that at any given family size, women who have only daughters but no sons are more likely to perform prenatal sex screening and deliver male live births. In the Republic of Korea the decline in desired family size and sustained strong son preference have made the sex of a child a much more important factor in the determination of pregnancy outcome. The probability of a pregnancy ending in an abortion increases substantially when parents already have a son. In South Asia differential use of contraception according to sex composition of family size, suggests that as fertility transition continues to run its course, resort to prenatal sex-detection tests followed by induced abortions could rise, although as Zeba and Karim note in the case of Pakistan (see Chapter 6 below), the deep cultural aversion to abortion among Islamic populations means that there are likely to be sub-cultural differences.

Several of the country studies saw these developments as having important implications for family planning programme policy. Apart from ideas to improve the range and quality of services, there was a general view that family planning programmes should now concentrate less on measures to lower fertility and that intervention to prevent sex-selective abortions should be strengthened. Further the performance of family planning programmes should be evaluated not simply in terms of levels of contraceptive prevalence rates achieved, but also by the degree of son preference in fertility behaviour. Moreover, in

several country studies it was contended that existing institutional and social support policies should be further strengthened to weaken the high value attached to sons, and to prevent sex-selective abortions. For example, measures to counter strong son preference and resort to selective abortion should be started through the promotion of universal basic education, the creation of paid employment opportunities for women, and consciousness-raising by the media to improve the position of women.

A few governments have already taken action to forbid prenatal sex identification. However, legislative measures do not appear sufficient to eliminate sex-selective abortions and the support of the public must be gained by encouraging parents to avoid using prenatal identification methods. Extended discussion at the Symposium as to the value of legislative bans on sex-selective abortions was, however, inconclusive with respect to the unintended effects that such a measure could bring about. Concern was expressed about its impact on overall abortion rights, and that perfect compliance was not needed for important impacts including delegitimation of the procedures. Future research should try to systematically identify the characteristics of couples who resort to prenatal sex-detection and sex-selective abortion so that more can be understood about the factors that sustain these practices. Similarly more systematic field investigations, with combinations of both qualitative and quantitative methods, are required to further understanding of the various social, economic, and cultural factors which determine people's son preference in childbearing.

Conclusions

As Gu and Li note (see Chapter 2 below) conceptually fertility transition has long been viewed as a single dimensional process from high fertility to low fertility, which almost

exclusively focuses on changes in the level of fertility. Instead fertility transition should be considered as an integral part of the overall transition from traditional society to modern society, in which case it can be understood as a multi-dimensional process, which includes not only the level of fertility, but also the timing of childbearing and the sex at birth. It is now apparent that much more attention will need to be given to this third dimension in future theory and research.

Finally, discussions about the extent of son preference in Asia need to bear in mind that not only do the overwhelming majority of couples in Indonesia, Thailand and Sri Lanka appear to want a two-child family consisting of one boy and one girl, but the fact that sex ratios at birth are so close to normal levels elsewhere in Asia signifies that this desire for a balanced number of children remains the norm elsewhere. It is only minority of couples who are sufficiently passionate about their commitment to son preference who are resorting to prenatal sex-selection tests. This situation calls for further research and informed discussion rather than hasty policy measures.

References

- Barnet, K. M. A., *Hong Kong: Report on the Census 1961*, Vol.II, Hong Kong: Census and Statistics Office, 1964.
- Census and Statistics Department, *Hong Kong 1991 Population Census: Main Results*, Hong Kong, Census and Statistics Department, 1993.
- Ewbank, D. C., *Age Misreporting and Age-Selective Underenumeration: Sources, Patterns, and Consequences for Demographic Analysis*, Committee on Population and Demography, Report No.4, Washington, DC: National Academy Press, 1981.
- General Statistical Office, *Status of Civil Registration and Population Statistics Vietnam 1992*, Hanoi: Statistical Publishing House, 1992.
- Klasen, E., "Missing Women Reconsidered", *World Development* 22, No.7, 1994.
- Leete, R., *Malaysia's Demographic Transition: Rapid Development, Culture and Politics*, Kuala Lumpur: Oxford University Press, 1996.
- James, W. H., "The Human Sex Ratio. Part 1: A Review of Literature", *Human Biology*, 59: No.5, 1987.
- Johansson, S. and Nygren, O., "The Missing Girls of China: A New Demographic Account", *Population and Development Review* 17: No.1, 1991.
- Park, C. B. and Cho, N. H., "Consequences of Son Preference in Low Fertility Countries in East Asia: Rising Imbalance of Sex Ratio at Birth", *Population and Development Review* 21: No.1, 1995.

Zeng, Y. and He, F., *A Comparative Study of Fertility in Hong Kong and Shanghai*, Paper presented at the IUSSP Seminar on Fertility Transition in Asia: Diversity and Change, Bangkok, 1988.

APPENDIX

Recommendations of the International Symposium on Issues Related to Sex Preference for Children in the Rapidly Changing Demographic Dynamics in Asia

Preamble

The Programme of Action of the United Nations International Conference on Population and Development highlighted the need for international, national and community attention and action to improve the status of women, particularly the girl child. The International Symposium on Issues Related to Sex Preference for Children in the Rapidly Changing Demographic Dynamics in Asia, held in Seoul from 21 to 24 November 1994, reaffirmed those objectives.

The Symposium noted that there is significant variation in Asia both within and between countries with regard to the existence of sex preference for children. It further noted that sex preference has been identified as an underlying factor contributing to differential access to nutrition, medical care and schooling, resulting in excess female child morbidity and mortality and gender inequality in life chances and in quality of life. Sex preference is also recognised as a factor whose impacts may increase as family size declines, particularly with increased access to sex-selective technology.

Discrimination on the basis of gender has a long history and is deeply rooted in most cultures. Recent medical advances have opened up the potential for a new form of gender discrimination, that is through prenatal sex identification followed by sex-selective

induced abortions. Thus, the national and international community needs now to turn its attention not only to the problems of excess female child mortality, but also to the increasingly abnormal sex ratios at birth.

In addition to the current impacts of sex preference for children, the Symposium took note of the possible longer term implications of such phenomena for family roles and norms including marriage, family structure and old age security.

The Symposium, reaffirming the specific recommendations contained in the Programme of Action of the International Conference on Population and Development, and having reviewed the issues related to sex preference for children in rapidly changing demographic dynamics in Asia, discussed various policy and operational implications and adopted the following recommendations.

Recommendations

Data and Research

1. Available data from censuses, surveys, civil registration and hospital records relating to gender frequently suffer from limitations and biases. Countries should strengthen the capacity of statistical and research organisations to collect and analyse gender-disaggregated data and improve their quality.
2. A set of reproductive health indicators (including sex ratios at birth by birth order; age-sex-specific death rates; and to the extent possible, contraceptive use and induced abortions by number and sex composition of living children) need to be regularly produced and widely and promptly disseminated to heighten awareness of problems of gender discrimination. The indicators should be standardised so that they facilitate

national and sub-national analysis, as well as cross-national comparisons. International organisations should assist countries, where requested, in strengthening relevant data collection agencies to enable them to publish those and other statistics according to gender.

3. Efforts should be made to develop and improve existing data collection systems, including civil and sample registration systems. In addition, it will also be necessary to rely on regular surveys and censuses to provide relevant data. However, data from these sources will require careful evaluation to detect biases that often arise from sex-selective age misreporting, under-enumeration and under-reporting of births and deaths. Further, a cross-national assessment of the quality, reliability and validity of survey-derived attitudinal data on desired family size and sex preferences for children should be undertaken. In addition, efforts should be made to obtain and analyse information on husbands' sex preferences for children.
4. Appropriate projection and simulation models need to be developed to further understand trends and consequences of gender discrimination in reproductive health behaviour. Innovative methodologies should be formulated to study the impact of socio-economic and cultural factors on issues relating to imbalanced sex ratios, increased use of sex-selection procedures, sex preference for children and gender differences in mortality. There is also a need to study these issues through qualitative research procedures such as focus group discussions and small area studies.
5. An important research priority is to improve understanding of the causes of son preference and how such preference changes over time. In this respect there is a need for intra

and inter-country comparative studies on sex differentials in child mortality and on the linkages between son preference and kinship structures, marriage patterns, ethnicity, religion and culture.

6. There is an urgent need to establish national working groups to apprise Governments, address emerging issues, and formulate appropriate action strategies with regard to trends in issues relating to imbalanced sex ratios, sex preferences for children and their effects on fertility and gender differences in mortality and on other aspects of life. The national working groups should be comprised of researchers, policy planners and other concerned groups, including women's groups. Regional and sub-regional working groups should, as appropriate, be established to reinforce and co-ordinate the activities of the national working groups.
7. The use of sex-selection techniques and other gender discriminatory practices and their implications for women's and for children's health in Asia need to be studied. It would be instructive to study gender discrimination in reproductive health and related issues as they are observed in various cultural contexts, with differing degrees of son preference and levels of fertility.

Policies and Programmes

8. Governments should formulate and implement policies and programmes to improve women's status by providing reproductive and child health services, including a range of high quality contraceptive services and by ensuring that they are universally accessible. This will help reduce the underlying basis for sex preference and gender-based differentials in the use of health services.

9. In follow-up to the Programme of Action of the International Conference on Population and Development, a more comprehensive set of basic indicators will need to be developed to measure progress in the performance of reproductive health and family planning programmes, which should include sex ratios at birth. The programmes will also need to be evaluated in terms of universal access to, and the range and quality of services.
10. Governments should initiate public policy dialogue, including consultations with non-governmental organisations, medical associations, and other groups, to establish guidelines to monitor and regulate the use of prenatal testing technologies in order to discourage their use for sex-detection purposes. The public should be informed of these regulations as part of information, education and communication efforts aimed at discouraging sex-selective abortions.
11. Governments should employ innovative means of communication, including using mass and folk media and interpersonal counselling, to promote gender equity and to raise awareness regarding the harmful effects of late abortions following prenatal sex-detection tests.
12. Countries should take necessary steps to make school curricula at all levels gender-sensitive in order to promote gender equity and equality and thereby reduce gender-discriminatory practices including sex preference for children. In addition, the ethics curricula in medical schools should be further developed and strengthened to incorporate those issues concerning prenatal sex-detection and related techniques, and sex preference for children.

In formulating population policies and programmes,

Governments should take account of the implications of sex preference for children and related issues in order to eliminate gender discrimination. Governments should design and implement policies and programmes to diminish the underlying causes of discrimination against girls and women. These underlying causes may include: discriminatory laws; inequitable inheritance systems; unequal access to education, economic opportunities and resources; discriminatory social and cultural practices; and, differential access to nutrition and health care. These policies and programmes should be reviewed periodically in the light of new data and research.