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Sex Preference in South Asia: Sri Lanka an Outlier

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State intervention in providing quality primary education and health care would enable parents to attach a higher
value to the education and health of their children irrespective of sex

South Asia with more than 1.3 billion people represents a vast diversity of cultures and socio-economic conditions. Economic status, kinship systems, traditions and religious values, all contribute to a strong overall son preference in South Asia. At a recent international symposium on sex preference (UNFPA, 1994), the countries and areas represented were grouped as follows, taking into account the relationships between fertility decline, son preference and sex ratio at birth:

- Rapid fertility decline, strong son preference, abnormal sex ratio at birth: China and Taiwan Province of China, and Republic of Korea;
- Rapid fertility decline, no son preference, and normal sex ratio at birth: Indonesia, Sri Lanka and Thailand; and
- Slow fertility decline, strong son preference and normal sex ratio at birth: Bangladesh, India and Pakistan.

In this article, we shall review, therefore, the factors responsible for strong son preference in Bangladesh, India and Pakistan, three South Asian countries with a combined population of about 1.2 billion (ESCAP, 1995), and examine the possible reasons for the absence of widespread societal preference for sons in Sri Lanka, a country of 18.2 million people.

Sex preference in Bangladesh, India and Pakistan

The common indices of sex preference used in various studies are sex ratio at birth, sex differentials in infant and child mortality, and preferences obtained from survey responses.

Abnormal sex ratios at birth have been found to be due to sex-selective abortions. The increasing use of pre-natal ultrasound and amniocentesis procedures, which make selective abortion possible by revealing the sex of a fetus, contribute to high sex ratios at birth (Population Information Program, 1994). Although many South Asian countries have banned pre-natal gender tests to prevent sex selective abortions, illegal tests are available and more female fetuses are aborted than males (Patel, 1989); Benjamin, 1991; Nandan, 1993).

In South Asia, sex preference is mainly manifested in the form of excessive mortality of female children. The excessive mortality of female children relative to males is found to be due to the discrimination against females in the allocation of food and health care within the household. In many South Asia societies, sons are the parents only source of security in old age. This is particularly so where women have little economic independence or cannot inherit property. Son preference is also strong when daughters are more expensive to marry off than sons owing to the dowry system; in addition, women have few opportunities to earn income and invest household resources in female children (Cain, 1984). The two papers on India presented at the aforementioned symposium on son preference showed the impact of son preference on child survival in India. A significant finding was that risks to daughters increased with more older female children in the household. Similar hazards to son survival were not observed. The daughter mortality differentials between northern and southern India were attributed to variations in women's status and the strength of sex preference (Visaria, 1994; Das Gupta, 1994).

Similarly, data from Bangladesh showed a higher risk of survival for girls having older sisters than that of boys who have older brothers. The study showed that the complex interaction of areal variations in service availability, attitudes, preferences, practices, and social and economic status effects the determined outcomes (Bairagi, 1994).

In Pakistan, strong son preference has been noted because sons are regarded as economic assets and old-age security (Khan and Serageldin, 1977; Ali, 1989). More recent data from Pakistan further confirms the continued desire for sons (NIPS, 1992). The Pakistan Demographic and Health Survey of 1990/91 showed that, of the women with no children, about one-third desired to have a son, while the preference for having a daughter was negligible. Among those who had two daughters and no son, almost all (93 per cent)

wanted their next child to be a son. However, the incidence of wider neglect of female children or preferential treatment for male children was not evident from the data (Karim, 1994).

In South Asia, cultural factors such as kinship systems and religious traditions also tend to value males more highly than females. In India and Bangladesh for example, traditional patrilineal kinship systems require women to marry out of their families of origin and after marriage not provide financial or even emotional support to their parents (Greenhalgh, 1991). In the Hindu tradition, only sons can pray for and release the souls of dead parents, and only males can perform birth, death and marriage rituals (Benjamin, 1991).

It has been observed that females are more likely than males to die in early childhood particularly in South Asia owing to poor nutrition and health care. Visaria (1967), in a study of inter-State differences in sex ratios between 1901 and 1961, showed that throughout the period sex ratios were persistently higher in the northern Indian States and lower in the southern ones. He argued that mortality differentials by sex were mainly responsible for these differences.

Dyson and Moore (1983) also found that sex differentials in child mortality are much higher in the northern than in southern States of India. They established that the main reason for the relatively high sex ratios in the northern part of the country is higher female mortality; they attributed this phenomenon to the discrimination against females in access to food and medical care. They also related the differentials observed in the north and south to variations in kinship systems and female autonomy.

In a study of 11 villages in Ludhiana District of Punjab, Das Gupta (1987) found that sex differentials by birth order are far stronger than those by socio-economic status. Women's education was associated with reduced child mortality but stronger discrimination against higher birth order girls. She noted that the strong underlying preference for sons appears to be the outcome of women's "structural marginalization" in that culture, as a result of being of low value to their parents.

D'Souza and Chen (1980), using data from Matlab Thana, Comilla District in Bangladesh, found higher female than male mortality from shortly after birth through the child-bearing ages. The most marked differences were found in the age group 1-4 years where female mortality exceeded male mortality by as much as 50 per cent. Son preference in terms of parental care, feeding patterns, intra-family food distribution and treatment of illness has been cited as a possible cause of childhood mortality differences by sex.

Chen and others (1981), using a height-for-age (stunting) indicator as a measure of chronic deprivation among a survey of 882 boys and girls in Matlab, Bangladesh, demonstrated that a higher percentage of girls are severely or moderately malnourished than boys. The authors also found that boys were seen two-thirds more often that girls at the diarrhoea treatment centre in Bangladesh, even though the centre provides free ambulance transport and treatment.

To what extent does son preference have an effect on fertility and contraceptive use? Das (1987) analyzing Indian data in Gujarat State noted that the effect of son preference on overall fertility is significant and concluded that future fertility might be reduced if gender preference could be realized. Bairage and Langesten (1986), using data from Bangladesh, observed that in the study area, although son preference is very strong, more than 98 per cent of women desire to have at least one daughter. However, women with a higher proportion of sons are less likely to want more children and are more likely to practise contraception. Chowdhury and others (1990) found that, in two given areas of Bangladesh with a strong son preference, its effect on fertility was stronger in the area with relatively high contraceptive prevalence. Thus, the authors arribute the absence of fertility effect on son preference in Pakistan to the low contraceptive prevalence in that country. In another study on Bangladesh on the effects of family sex composition on fertility preferences and behaviour during the period 1977-1988, Chowdhury and others (1993) found that the sex composition of living children was systematically related to fertility preferences and behaviour, with a higher number of sons at each family size associated with a higher percentage of women wanting no more children, a higher percentage currently using contraception and lower subsequent fertility.

In a study of the scheduled caste population in the Indian State of Assam, Nath and others (1994) found that couples having two surviving sons are less likely to have a third child than those without a surviving son and those with only one surviving son.

In a recent study in Matlab, Bangladesh, Rahman and others (1992) indicate that son preference can have a strong effect on contraceptive use and fertility. In the study area, which had a contraceptive prevalence of about 50 per cent and an average of four children per couple, the researchers calculated that eliminating the

preference for sons would increase contraceptive use by 10 per cent and continuation rates by 15 per cent. Such increases would likely avert nearly one birth for every two couples.

In a study of the effect of sex preference on contraceptive

use and fertility in rural South India, Rajaretnam and Deshpande (1994) found that couples overall prefer families with at least one son and one daughter, but in areas where contraceptive prevalence rates are high, most couples have two sons with or without a daughter before they initiate contraceptive use. In low-prevalence areas, couples often have two sons and one daughter before starting to practise family planning. In the absence of sex preference, the authors noted that contraceptive prevalence rates could be expected to increase by about 12 per cent in the high prevalence areas and by about 25 per cent in low prevalence areas. In both areas, the levels of marital fertility can be expected to decline by about 20 per cent from current levels.

What could be done to reduce the desire for sons in South Asia? As was evident from the studies in India (Das Gupta, 1994) and will be seen from Sri Lankan data, the status of women has an important influence on son preference in South Asia. Increasing the economic opportunities for women and raising the value of women's labour would increase the likelihood of parents regarding their daughters as economic assets rather than as liabilities. Increasing the opportunities of education for female children may increase their income-earning potential and thereby raise their economic value to their parents (Bourne and Walker, 1991).

Better access to food and medical care in general would enable parents not to discriminate against female children in the allocation of household resources. Also, better opportunities for old-age security would minimize the urge to have sons (Cain, 1984). Above all, far-reaching changes in the cultural and economic status of women would enable women to resolve the conflict between the achievement of their smaller family size preferences and sex preferences (table 1).

Table 1: Selected state-level indices related to women's status and sex preference in India

Region/State	Percentage of couples protected by family planning	Female labour force participation rate	Percentage of females literate	Index of son preference
	1979	1971	1971	1978
South				
Kerala	28.8	13	54.3	17.2
Tamil Nadu	28.4	15	26.9	11.5
Andhra Pradesh	26.5	24	15.7	8.9
Karnataka	22.4	14	20.9	11.2
North				
Gujarat	20.1	10	24.7	20.8
Rajasthan	13.0	8	8.5	n.a
Uttar Pradesh	11.5	7	10.7	25.0
Madhya Pradesh	20.9	19	10.9	21.9
Punjab	25.0	1	25.9	31.3
East				
Bihar	12.2	9	8.7	24.3
West Bengal	21.2	4	22.4	18.4
Orissa	24.4	7	13.9	15.7
All India	22.1	12	18.7	20.2

Note: A son preference index of zero would imply equal preference for sons and daughters.

Source: Adapted from table 5 from Dyson and Moore (1983).

Sex preference in Sri Lanka

In Sri Lanka, preference for a balanced number from each sex as well as a preference for sons has been

observed, although not consistently strongly (Pullum, 1980; Arnold, 1992). It has been shown that improvements in the status of women during the past two decades have weakened the preference for sons in Sri Lanka (Abeykoon, 1994).

Sex ratios at birth by parity do not indicate any sex preference in Sri Lanka (table 2). It can be seen from table 3 that the mean desired family size between two-son and two-daughter families is negligible. The interpretation of this finding is that respondents tend to prefer balanced families. The mean is only 0.19 less for balanced families than for the two imbalanced types grouped together, which indicates that parents tend to give greater value to the small family norm than to the sex of the child. However, when Pullum (1980) examined the 1975 data on the desire for more children among non-pregnant women with two children, it was found that 62 per cent of those women with two girls wanted more children compared with 59 per cent of the women with two boys who wanted more, which indicates a slight son preference. A similar observation was made by Arnold (1992) using data from the 1987 Demographic and Health Survey.

Table 2: Sex ratios at birth by parity in Sri Lanka, 1985-1988

Parity	1985	1986	1987	1988
1	104.7	104.9	104.8	105.5
2	104.7	104.2	104.8	105.2
3	103.6	104.4	105.3	104.6
4	103.7	104.2	105.1	106.8
5	104.4	101.6	105.5	104.5
6	106.6	104.4	104.1	102.9
7	104.3	102.3	106.3	105.0
Total	104.3	104.3	104.9	105.2

Source: Computed from data of the Registrar General's Department.

Table 3: Mean desired family size for different sex compositions in Sri Lanka, 1975

Sex composition	Mean	Standard deviation
2 boys	2.79	0.82
1 boy, 1 girl	2.60	0.79
2 girls	2.78	0.86

Source: Pullum (1980) op. cit.

Discrimination against girls has been widely reported in countries of South Asia where son preference is strong. In Sri Lanka too, persistent higher female mortality at ages 1-4 and 5-9 years prior to 1962 has been attributed to greater parental care and favoured treatment with regard to food and medical attention for male children (Nadarajah, 1983). However, recent data do not indicate any evidence of such practices in Sri Lanka (table 4).

Table 4: Mortality rates and nutritional status by sex of child in Sri Lanka, 1987

	Male	Female	Ratio (male/female)
Mortality			
Infant mortality rate	40	25	1.60
Neonatal mortality rate	26	15	1.73
Post-neonatal mortality rate	10	10	1.00
Child mortality rate	10	10	1.00
Nutrition			
Stunted (%)	29	26	1.12
Underweight (%)	38	37	1.03
Wasted (%)	12	12	1.00

Note: Data exclude the northern and eastern provinces.

Source: Arnold (1992) op.cit., tables 4 and 6.

Why is Sri Lanka an outlier in South Asia with regard to sex preference? Compared with other South Asian countries, the status of women in Sri Lanka is found to be more advanced. The many social welfare programmes carried out during the post-independence decades did create many favourable conditions which promoted greater participation of women in the development process. These include (a) rapid expansion of literacy and educational attainment of women, (b) improved life expectancy and decline in fertility and (c) wider participation of women in formal and informal economic activities.

Female literacy, which was only 8.5 per cent at the turn of the present century, rose to 83.2 per cent in 1981. The difference in the male and female rates of literacy, which was 33.5 percentage points in 1901, declined to 7.9 percentage points in 1981. With regard to school attendance in 1981, the percentage of those aged 5-14 years attending school was equally high for both sexes at 84 per cent. In the age group 15-19 years, 42 per cent of females were attending school compared with only 29 per cent for males. Nearly 60 per cent of ever-married women in the age group 15-49 years had an education beyond the primary level in 1987.

Female expectation of life at birth, which remained lower than that of males in 1946 at 41.6 years, increased to 72.1 years in 1981 surpassing male life expectancy by 4.4 years; female life expectancy in 1995 is 75 years and that of males 70 years (ESCAP, 1995). The maternal mortality rate, which was around 20 per thousand live births in the mid-1930s, declined to 0.5 per thousand in 1985. Female age at marriage increased from 20.9 years in 1953 to 25.5 years in 1993. The contraceptive prevalence rate rose from a level of 32.0 per cent in 1975 to 66.1 per cent in 1993. The rise in the educational attainment of females has been the single most important socio-economic factor that has contributed to fertility decline in Sri Lanka by influencing the age at marriage and contraceptive use. The total fertility rate (TFR) has declined from an average of 5.1 children per woman during the period 1952-1954 to 2.3 during the period 1988-1993.

The economic participation of women in the modern sector has shown a marked increase in recent years. Female participation in manufacturing industries has increased visibly; in 1986, about 45 per cent of the total employed in this sector were women. This increase has been largely in urban industry. Women have been employed in increasing numbers in export-oriented modern industry. The employment of females in these industries has increased employment opportunities for women and has also given them some degree of economic independence and personal freedom. The increased participation of women in the modern sector has also improved their social mobility. While the initial impetus to fertility decline came about through rising aspirations of females resulting from the expansion of educational opportunities and attainment, in more recent decades, the upward social mobility of females brought about by the wider availability of economic opportunities and participation in the modern economic sectors have also contributed to higher contraceptive use and fertility decline in Sri Lanka.

Within the family, Sri Lankan women are less vulnerable to discrimination and oppression than their counterparts in other South Asian countries. The extreme situation of male dominance such as dowry deaths and widow immolation are absent.

Conclusion and policy implications

From the foregoing discussion it is evident that the wide-spread son preference in Bangladesh, India and Pakistan is manifested in the form of post-natal discrimination against the girl child. This is in contrast to the situation in East Asia where pre-natal sex discrimination prevails (UNFPA, 1994). It is also clear that the absence of widespread societal preference for sons in Sri Lanka is due to the relatively high status of women in that society.

The strong overall son preference in a population of 1.2 billion people in South Asia has varied demographic, social, economic and health implications for the region.

The demographic impact of son preference appears to be closely associated with family size norms, availability of contraceptive services and sex-selection technologies. The imbalance in sex ratios of children under five years of age resulting from the discrimination against female children may lead to female sex imbalances in the marriageable ages in the future. If females become scarce, the situation may improve the status of women in the long term. However, it may also contribute to an increase in sex-related crimes and violence as well as homosexual activities (Park and Cho, 1995).

The decline of family size norms and the availability of sex-selection technologies among subgroups of the population in South Asia in the course of its demographic transition may contribute to the widening of the social gap between males and females in the future, as children of smaller families who are likely to be predominantly males may be advantaged in the allocation of household resources for education, nutrition and health care. Also, with poor medical technologies and facilities available for induced abortions, it is likely that maternal mortality and morbidity rates may increase in South Asia with declining family size norms in the future. Therefore, the possible long-term improvement of the position of women resulting from the projected shortage of females in the reproductive ages may be offset due to the above implications.

The gradual erosion of the widespread societal preference for sons in the countries with a large population in South Asia may be brought about, as has taken place in Sri Lanka, by raising the economic and social value of the girl child through education. In a modernizing society such as in the Republic of Korea, where sex preference and status of women are relatively high, Hong (1994) found a clear negative relationship between boy preference and the educational attainment of the mother. Providing easy access to family planning services would also relieve women from the burden of excessive child-bearing and release them to participate in productive economic activities.

There is no doubt that State intervention in primary education and health care including family planning by ensuring widespread accessibility to quality services, would enable parents to attach a higher value to the education and health care of their children irrespective of sex.

Over a period of time, it is likely that wider societal acceptance of education, health care and family planning will occur owing to the demonstration effect of the benefits of these services to families and the community at large. This would contribute to the elimination of post-natal sex discrimination and enable couples to resolve the conflict between the achievement of small family norms and sex preferences.

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Sex Ratio at Birth in China, with Reference to Other Areas in East Asia: What We Know

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Society-wide efforts are needed to emphasize the value of girls and women, and to promote true equality of the sexes

China's 1990 national population census revealed that the sex ratio at birth in 1989 was 113.8 (SSB, 1991). Because this was much higher than what is considered a normal sex ratio at birth at 107, the Government and others became concerned about the reasons for this phenomenon. Subsequently a number of studies were undertaken both within and outside China to assess the situation (Hull, 1990; Johansson and Nygren, 1991; Xu and Guo, 1991; Gu and Peng, 1991; Banister, 1992a; Wen, 1992). In October 1992, the sex ratio at birth became the de facto focus of discussions at the "International Seminar on China's 1990 Population Census" held at Beijing, with presentations by scholars from a number of countries (Banister, 1992b; Coale, 1992; Hull, 1992; Johansson and Arvidsson, 1992; Li, 1992; Tu and Liang, 1992; Zeng and others, 1992). In November 1994, the United Nations Population Fund (UNFPA) sponsored the "International Symposium on Issues Related to Sex Preference for Children in the Rapidly Changing Demographic Dynamics in Asia", which was held at Seoul. This Symposium brought together scholars from a number of Asian countries to address the various aspects of the issue and "to make a contribution to the understanding of the complex processes of rapid fertility decline, sex preference for children and adaptations to social and cultural change" (Singh, 1994; Nizamuddin, 1994; Roy, 1994). At the Symposium, the situation in eight Asian countries, namely Bangladesh, China, India, Indonesia, Pakistan, Republic of Korea, Sri Lanka and Thailand, was reviewed and discussed.1

All these activities have greatly improved knowledge and understanding of this issue. Using available statistical information and empirical research findings, this article intends to provide a wrap-up of the current status of knowledge concerning the abnormal sex ratio at birth in China in terms of (a) when it occurs, (b) where it occurs, (c) among whom it occurs, (d) how it occurs, (e) why it occurs, and (f) what can be done about it. While the focus of the discussion is on China itself, for comparative purposes the article also refers to Taiwan Province of China and the Republic of Korea, since the phenomenon of "missing girls" is observed not only in China but also in other parts of East Asia, especially Taiwan Province of China and the Republic of Korea.

When it occurs

In scrutizing the data from previous population censuses and fertility surveys in China, Coale and Banister (1994:476-477) have demonstrated that the sex ratio at birth was higher than normal in the 1930s and 1940s, which suggests that larger than normal female mortality "resulted from the persistence of the traditional practice of female infanticide".2 During the 1960s and 1970s however, the sex ratio at birth in China "was very close to 106" (Zeng and others, 1993:283) and "by and large within the normal range" (Gu and Li, 1994). And "the proportion of missing girls in each five-year grouped cohort reached a low point at about 2 per cent of the girls born ..." (Coale and Banister, 1994:477). "The decline of excess female mortality after the establishment of the People's Republic was assisted by the action of a strong Government, which tried to modify this custom as well as other traditional practices that it viewed as harmful" (Coale and Banister, 1994:472).

The decade of the 1980s, however, witnessed a rise in the sex ratio at birth, particularly in the late 1980s (Gu and Li, 1994). More specifically, it exceed 108 in the year 1984, and since then has not dropped lower than that level. In their recent study, Park and Cho (1995:60) examined the recorded sex ratios of children by single year of age through age four for China, Taiwan Province of China and the Republic of Korea, and concluded that in the three populations it appears that the sex ratio at birth began to rise "after about 1985", and "the initial year of increase in the sex ratio at birth appears to be around 1985 in the Republic of Korea, 1986 in China and 1987 in Taiwan" (Province of China).3

Why did the sex ratio at birth happen to rise at almost the same time in these three populations, each having quite different social, economic and political contexts? One factor which can be noticed is that they share the traditional cultural trait of son preference. Another factor which deserves more attention is the rapidity of fertility decline in the these populations. Table 1 presents the sex ratio at birth and total fertility rate (TFR) of China, Taiwan Province of China and the Republic of Korea since 1980. Women's fertility in

China as measured by the TFR declined dramatically from 5.8 in 1970 to 2.2 in 1980, an astonishing decrease of more than 50 per cent in only one decade; during the decade of the 1980s, the TFR fluctuated around the level of 2.4 (Gu and Yang, 1991; SFPC, 1994; Gu, forthcoming). In the case of Taiwan Province of China, between 1956 and 1983, the TFR fell by 67 per cent from 6.51 to 2.16, and then decreased 22 per cent more to 1.68 in 1986; since then it has oscillated narrowly around the level of 1.8 (Freedman, Chang and Sun, 1994). In the case of the Republic of Korea, the TFR also dropped precipitously from about 6.0 in the early 1960s to the replacement level (2.1) at the beginning of the 1980s, dropping to below the replacement level to as low as 1.6, as shown in table 1 (Hong, 1994).

Table 1: Sex ratio at birth and total fertility rate: China,Taiwan Province of China and the Republic of Korea, 1980-1993

	China		**Taiwan Province of China**		**Republic of Korea**	
Year	SRB	TFR	SRB	TFR	SRB	TFR
1980	107.4	2.24	106.4		103.9	
1981	107.1	2.63	107.0		107	
1982	107.2	2.86	106.9		106.9	2.7
1983	107.9	2.42	106.7	2.16	107.7	
1984	108.5	2.35	107.3		108.7	2.1
1985	111.4	2.20	106.6		110.0	
1986	112.3	2.42	107.2	1.68	111.9	
1987	111.0	2.59	108.3	1.70	109.0	1.6
1988	108.1	2.52	108.2	1.85	113.5	1.6
1989	113.9	2.35	108.6	1.68	112.1	
1990	114.7	2.31	110.2	1.81	116.9	1.6
1991	116.1	2.20	110	1.72	112.9	
1992	114.2	2.00			114.0	
1993	114.1					

Sources: Sex ratio at birth (SRB): China: (1980-1989) Gu and Li, 1994: table 1; (1990) SSB, 1991b; (1991) SSB, 1992; (1992) SSB, 1993b; (1993) SSB, 1994. Taiwan Province of China: Chang, 1994: table 4; (1991) Freedman, Chang and Sun, 1994: table 14. Republic of Korea: Park and Cho, 1995: table 6; (1981) Cho and Kim, 1994.

Total fertility rate (TFR): China: SFPC, 1994:68. Taiwan Province of China: Freedman, Chang and Sun, 1994: table 2. Republic of Korea: (1982, 1984, 1987) KIHASA, 1991:18; (1988, 1991) Hong, 1994.

While the fertility rate in China seems to be somewhat higher than in the other two populations, one should keep in mind that the decline is occurring in a country accounting for one-fifth of the world's total population, with considerable regional variations in social, economic and demographic conditions not to mention a stronger population control programme.4 Overall, these three populations all experienced rapid fertility decline to the replacement level within a short period, which continued to drop to below the replacement level during the 1980s. The former period is called the "demographic transition period"; the latter period, the "post-transition period" (Freedman, Chang and Sun, 1994). "Historically, the number of children preferred in Taiwan (Province of China) has been tilted upward by a strong preference for sons. The decrease in the number of children wanted and born during the fertility transition has partly resulted from a decreasing, if persistent, preference for sons". However, along with the rapid fertility decline, the "continuing conflict for many couples between the desire to have only two or three children and the desire to have a son has become evident in Taiwan" (Province of China) (Freedman, Chang and Sun, 1994). This observation should be viewed as applicable to the other two populations as well.

When fertility is high, people may satisfy their sex preference for son(s) through the number of children they are going to have, some of whom almost surely will be boys. However, when fertility declines dramatically people will not be able to have the number of children they would like to have, because of such factors as a strict population policy or social and economic constraints. Therefore, they then switch to a "quality for quantity" strategy of fertility (Gu and Peng, 1991; Gu, 1992). In a socio-cultural setting with a strong son preference but under conditions of rapid fertility decline, couples will be more conscious of their sex preference for children. When they know the limited number of children they are going to have, it is very likely that they would seek various means to ensure that they get the sex of child they most desire (Gu and Li, 1994). In the other words, the distorted sex ratio at birth is a new demographic phenomenon

that accommodates both the parents' sex preference for children and the small-family norm (Hong, 1994; Park and Cho, 1995).

It seems that the occurrence of abnormal sex ratios at birth during the mid-1980s in the three aforementioned populations has a lot to do with the rapidity of fertility decline as well as the downward change in the norm concerning desired family size along with the persistence of son preference.

Where it occurs

While a higher than normal sex ratio at birth is observed in China as a whole, this does not mean that the phenomenon occurs everywhere and to the same degree nationwide. The sex ratio at birth in 1989, based on data from the 1990 population census, is presented in table 2 for China as a whole and 30 individual provinces, municipalities and autonomous regions (all referred to as provinces hereafter).

With regard to geographical variations in the sex ratio at birth by residence, the city provinces showed the lowest sex ratio at birth, i.e. 108.9, which is close to the normal range. However, it is interesting to note that in town populations, the sex ratio at birth was highest at 111.9, whereas for the county or rural population it was 111.7. With regard to geographic variations in the sex ratio at birth by province, in 1989 it varied among the 30 provinces from as high as 117.4 in Guangxi and 116.7 in Zhejiang to as low as 103.4 in Guizhou and 103.6 in Tibet. While China has an overall sex ratio at birth of 111.3,5 21 of the 30 provinces had a sex ratio at birth higher than 108.0, which means that they are above the normal or acceptable range.

It is interesting to observe the relationship between the sex ratio at birth and the fertility level among the provinces, which table 2 also shows. Among the nine provinces with sex ratios at birth less than 108, well within the normal range, there are some which are socio-economically more advanced, having the lowest fertility in China, much below the replacement level. These include Shanghai and Beijing with TFRs of 1.344 and 1.332, respectively; both of them are virtually entirely metropolitan. In addition, there are other provinces which are among the least developed socio-economically, having concentrated minority populations and the highest fertility in China; the TFRs of these are Tibet (4.222), Xinjiang (3.157), Guizhou (2.963), Yunnan (2.588) and Qinghai (2.468). In the case of China as a whole, it appears that the sex ratio at birth displays an inverted U-shaped relationship with the fertility level and socio-economic development. The phenomenon of abnormal sex ratios at birth is associated more with those areas which are in the process of developing socio-economically and are characterized by an accelerated fertility transition.

Observations on Taiwan Province of China and the Republic of Korea are somewhat different. In his discussion of the former, Chang (1994: table 6) argued that the sex ratio at birth for parity 3 and above is "positively associated with degree of urbanization in Taiwan" (Province of China), with the ratios being 138 for Taipei City, 123 for Kaohsiung City, 121 for other cities and 119 for all counties. However, it may be noted in another account of the fertility situation in that province that "by 1991, all urbanization strata had TFRs below replacement levels" (Freedman, Chang and Sun, 1994: table 6).

Park and Cho (1995:63) examined the sex ratio of children under five years of age by geographical area in the Republic of Korea, and demonstrated that "the sex ratio rose earlier in large cities than in towns or rural areas .... the year the sex ratio at birth reached a consistent level of 110 or more is 1985 for cities, 1986 for towns, and 1988 for rural areas," while in 1980 the sex ratio of young children was "within a normal range throughout (the Republic of) Korea". Taegu had the highest ratio (124.0 for age zero in 1990) among the six largest cities in the Republic of Korea. This is an area, according to Park and Cho (1995:64), "considered to be very conservative, having a strong parochial tie popularly known as the TK (Taegu-Kyungsangpuk province) sentiment", which implies a greater association of high sex ratio with the cultural setting of strong son preference rather than the size of the city.

Table 2: Sex ratio at birth and total fertility rate by province and area of residence: China, 1989

			Sex ratio at birth			
Rank	**Area/province**	**TFR**	**Total**	**City**	**Town**	**County**
	China	2.253	111.3	108.9	111.9	111.7
1	Guizhou	2.963	103.4	99.4	109.0	103.7
2	Tibet	4.222	103.6	112.4	106.0	102.8

3	Xinjiang	3.157	104.1	106.6	104.6	103.6
4	Shanghai	1.344	104.1	103.9	104.0	104.7
5	Qinghai	2.468	104.6	115.3	92.5	103.9
6	Beijing	1.332	107.1	106.1	105.8	108.9
7	Yunnan	2.588	107.3	103.9	105.3	107.6
8	Heilongjiang	1.713	107.3	105.5	106.4	108.6
9	Jilin	1.806	107.8	106.0	107.3	108.5
10	Gansu	2.340	108.4	106.6	112.6	108.5
11	Inner Mongolia	1.967	108.5	105.2	105.3	110.1
12	Hubei	2.496	109.5	108.8	115.0	109.4
13	Ningxia	2.614	109.7	111.8	110.0	109.4
14	Fujian	2.362	109.9	109.4	124.0	108.9
15	Shanxi	2.461	110.1	111.5	109.3	109.9
16	Hunan	2.397	110.1	105.6	111.1	110.5
17	Shaanxi	2.705	110.3	113.6	116.7	109.6
18	Tianjin	1.661	110.4	106.4	107.6	115.4
19	Jiangxi	2.460	110.4	112.8	112.1	109.9
20	Liaoning	1.505	110.5	107.5	107.0	113.2
21	Hebei	2.331	110.9	104.0	108.4	111.9
22	Anhui	2.511	111.3	108.9	107.8	111.0
23	Guangdong	2.512	111.3	114.0	120.5	109.1
24	Sichuan	1.758	112.1	108.9	106.0	112.8
25	Jiangsu	1.939	113.8	112.0	107.3	114.5
26	Shandong	2.124	115.0	113.3	117.2	115.2
27	Hainan	2.932	116.1	111.1	136.2	114.7
28	Henan	2.897	116.2	113.0	113.9	116.6
29	Zhejiang	1.404	116.7	107.5	119.2	118.2
30	Guangxi	2.727	117.4	113.2	110.4	118.1

Source: Sex ratio at birth: SSB, 1991a:45, 427-429.

Among whom it occurs

To identify the particular population groups who are more likely responsible for the rise in the sex ratio at birth, table 3 presents the available data by parity of women in China as well as Taiwan Province of China and the Republic of Korea. While the overall sex ratio at birth in China has been rising since the mid-1980s and has remained at a high level, i.e. as high as 114, since 1989, the ratio for parity 1 has been almost constantly at the normal level of around 107, and until 1984, so was the ratio for parity 2. The remaining data all have been above the normal range since the very beginning of the 1980s. The higher is the order of birth, the higher has been the sex ratio at birth, and the more recent is the year, the higher has been the sex ratio at birth. By the end of that decade, they were all at high levels, even above 120, "which is implausible to be explained by either biological or ethnical factors" (Gu and Li, 1994). It is clear that the imbalance between male and female births has been occurring mainly at births of high orders.

This observation also holds true for Taiwan Province of China and the Republic of Korea. The overall ratio for Taiwan Province of China went up in the mid-1980s and remains at the level of around 110, which is lower than that of the two other populations. The sex ratio for parity 1 is normal and for parity 2 more or less acceptable, but for parity 3 and 4, all exceeded 110, and for parity 4 it reached as high as 130 in 1990.

Table 3: Sex ratio at birth by parity: China, Taiwan Province of China and the Republic of Korea, 1980-1993

		Parity of women				
Year	**Total**	**1**	**2**	**3**	**4**	**5+**
China						
1981	107.1	105.1	106.7	111.3	106.5	114.1

1982	107.2	106.6	105.2	109.4	112.9	109.9
1983	107.9	107.8	107.2	109.5	104.7	112.1
1984	108.5	102.5	113.3	113.0	115.3	127.3
1985	111.4	106.6	115.9	114.1	126.9	117.3
1986	112.3	105.4	116.9	123.1	125.3	123.5
1987	111.0	106.8	112.8	118.9	118.6	124.6
1988	108.1	101.5	114.5	117.1	123.1	108.7
1989	113.9	105.2	121.0	124.3	131.7	129.8
1989 (Cities)	110.5	105.6	121.3	128.9	137.3	37.4
1989 (Towns)	114.0	108.0	125.5	127.0	136.3	134.1
1989 (Rural)	114.5	104.8	120.7	123.9	131.2	129.3
1990	114.7					
1990 * (Cities)	105.5					
1990 * (Towns)	115.5					
1990 * (Rural)	116.4					
1991	116.1	110.8	122.6	124.4(3+)		
1992	114.2	106.7	125.7	126.7(3+)		
1993	114.1	105.6	130.2	126.1(3+)		
Taiwan Province of China						
1987	108	107	108	110	114	
1988	108	107	107	112	111	
1989	109	107	107	113	121	
1990	110	107	109	119	128	
1990 (Taipei)	112	108	110	134	156	
1990 (Kaohsiung)	109	106	107	122	130	
1990 (Cities: all)	109	105	108	119	131	
1990 (Rural: all)	110	107	109	117	121	
1991	110	107	109	118	130	
Republic of Korea						
1980	104	106	104	103	102	96
1981	107	106	107	107	113	115
1982	107	106	106	110	113	118
1983	108	106	106	113	121	128
1984	109	107	108	119	132	134
1985	110	106	108	133	157	154
1986	113	108	112	143	161	161
1987	109	105	109	137	150	163
1988	114	108	114	170	199	187
1989	113	105	114	190	217	214
1990	117	109	117	196	234	215
1991	112.9	106.1	112.8	184.7	212.3	
1992	114.0	106.4	112.8	195.6	229.0(4+)	

Sources: China: (1981-1989) Gu and Li, 1994; (1989) SSB, 1993a; (1990) SSB, 1991; (1991) SSB, 1992; (1992) SSB, 1993b; (1993) SSB, 1994. Taiwan Province of China: (1987-1989, 1991) Freedman, Chang and Sun, 1994; (1990) Chang, 1994. Republic of Korea: (1980-1990) Cho and Kim, 1994; (1991) Park and Cho, 1995; (1992) Hong, 1994.

* Note: The SSB data for 1990 do not provide sex composition by birth order, but only by residence.

With regard to the Republic of Korea, the overall ratio rose from normal levels in the mid-1980s and since 1988 remained at a level above 113, but the ratio for parity 1 has always been within the normal range, which was also the case for parity 2 during most of the 1980s until 1986. The sex ratios at birth for the other parities have been far out of the normal range, even exceeding 200 for parity 4 and above in recent

years. This suggests a positive relationship between sex ratio at birth and birth order in recent years in the Republic of Korea (Park and Cho, 1995:65).

Table 4 provides data obtained by computerized analysis of the 1 per cent sample of China's 1990 census. Disaggregated by three variables, it shows the sex ratios of children born between 1 January 1989 and 30 June 1990 who survived to the time of the 1990 census: (a) by the number and sex of previous siblings, (b) by residence and (c) by the educational level of the mother. The table indicates on one hand that the sex ratio of the surviving children aged 0-1.5 born during 1989 and the first half of 1990 was high nationally, i.e. 115.3 surviving male children per 100 surviving female children. On the other hand, it also reveals that, regardless of residence and education of the mother, the sex ratios of surviving children for women with no surviving children or only one son tend to be in the normal or acceptable range. This may suggest that the majority of these women, i.e. those having their first child as well as those with a son and having a second child, do not belong to the group likely to distort the sex ratio at birth. By contrast, the sex ratios of surviving children for women with no son but only daughter(s) were all extremely high, even exceeding 200; also, the sex ratios of surviving children for women with son(s) but no daughter were too low to be normal.

Table 4: Sex ratios at birth of children born in the period 1 January 1989 to 30 June 1990, by the number and gender of their siblings, by residence and mother's education: China

	Gender of siblings									
	0	**1**		**2**			**3+**			**Total**
Sex	0male(m)	1m	0m	2m	1m	0m	3+m	1+m	0m	
	0female(f)	0f	1f	0f	1f	2f	0f	1+f	3+f	
			China							
Sex ration at birth(SRB)	105.6	101.4	149.4	74.1	116.4	224.9	64.4	121.9	219.4	115.3
			Residence							
Rural areas										
SRB	105.1	101.1	152.9	73.1	114.6	226.6	63.6	119.7	215.9	116.0
Towns										
SRB	106.0	100.1	143.6	79.4	120.4	215.2	71.7	125.3	215.6	115.5
Cities										
SRB	106.0	103.8	147.7	69.7	116.4	233.5	52.1	125.4	237.0	113.8
			Education of mother							
< 1 year of schooling										
SRB	99.2	99.2	129.5	74.8	115.0	209.2	66.8	119.0	186.0	111.9
1-5 years of schooling										
SRB	104.3	99.5	148.0	74.3	116.9	223.7	62.8	117.0	237.3	115.0
6-8 years of schooling										
SRB	107.5	105.3	159.9	73.5	118.2	239.2	68.8	146.7	245.8	117.4
9+ years of schooling										
SRB	108.1	100.1	157.2	71.6	111.3	228.9	41.2	131.3	223.3	114.1

Notes: 1. Calculated from a 1 per cent sampling of China's 1990 census data; some figures may disagree with those published in 10 per cent tabulations.

2. Twins are not considered owing to poor sex identification.

3. The table excludes children who did not survive to the date of the 1990 census.

4. In some cases, the children enumerated in the household many not be the biological siblings of the child born during the period 1 January 1989 to 30 June 1990.

This pattern provides evidence that a sex-selective process showing son preference is involved in childbearing in China. The imbalance between male and female births has been occurring mainly among women who already have one or more children, but especially among women having daughter(s) but no son, which suggests intentional interference with fertility behaviour owing to strong son preference. However, it may be noticed that, although extremely high sex ratios of surviving children may be observed

among women with no son, women with 6-8 years of education (to the junior middle school level) appear to have relatively higher sex ratios at birth, which once again suggests an inverted U-shaped relationship at the individual level, as observed previously at the aggregate level in table 2. Obviously, more research needs to be undertaken on these issues, which include the possibility that some parents in households with more than one child may be aborting male fetuses when their other children are males and they have no female child or children.

In a recent study with the same data set, Poston and others (1995) examined the sex ratio by parity and sex composition of previous births in 29 provinces of China (Tibet was excluded owing to the unavailability of data). That study showed a similar pattern, i.e. the sex ratios at birth for women with previous births of all male children tended to be very low in the provinces. For example, the mean value for parity 3 women with two previous male births was as low as 81; the sex ratios at birth for those with previous births of all female children tended to be very high. Also, the mean value for parity 3 women with two previous female births was as high as 208, and the sex ratios at birth for those with previous births of mixed sex tended to fall in between that range, e.g. the mean value for parity 3 women with two previous births of mixed sex was 112 (Poston and others, 1995).

Freedman, Chang and Sun (1994: table 13), in their discussion of the trends in family-size preferences and family planning in Taiwan Province of China during the period of 1965-1991, examined data on the percentage of married women aged 22-39 who wanted no additional children and the percentage currently using contraception, by number of living children and number of living sons in 1965, 1980, 1985 and 1991. The data revealed that the percentage of women who wanted no additional children and the percentage currently practising contraception increased with the number of living sons they had. Thus, those with no son in 1991 were less likely to want no additional children regardless of the number of children they had. Also, the latter group of women were less likely to practise contraception than women who had at least one son; this trend held true for women with up to four children.6 That study indicates that, in the case of Taiwan Province of China, preference for sons had persisted to 1991, even if on a diminished scale compared with earlier periods. In 1991, "among couples with similar numbers of children, the proportions wanting no more children and the proportions currently practicing contraception increased with the number of living sons they had" (Freedman, Chang and Sun, 1994:324).

Park and Cho (1995: table 7) have shown the sex ratio at birth by birth order following a specified sex sequence of previous births for the Republic of Korea in 1974 and 1991. Whereas in 1974 none of the sex ratios classified by the sex sequence of earlier births was significantly different from the normal level, in the 1991 sample the sex ratio of third children born to women with two daughters, i.e. 136.3, significantly deviated from the normal level. Though the sample size under discussion for the Republic of Korea may be too small to be statistically significant, Park and Cho (1995:68) concluded that "sex-selective abortion appears especially prevalent among families having only daughters".

How it occurs

Several studies (Hull, 1990; Johansson and Nygren, 1991; Banister, 1992a) have hypothesized female infanticide, sex selective abortion, the underreporting of female births, or female adoption as plausible immediate causes for the rise in the sex ratio at birth in China.

Zeng and others (1993: table 3) have demonstrated that sex-differential underreporting of births and sex-selective induced abortion after pre-natal determination were mainly responsible for the increase in the reported sex ratio at birth in China during the 1980s. To identify the contribution of sex-selective abortion to the rise in the sex ratio at birth, a field survey was conducted in 1993 in southern Zhejiang Province, which had a sex ratio at birth higher than 120, according to the 1990 census (Gu and Li, 1994). Table 5 presents the sex ratio of the aborted fetuses by the number and sex of surviving children for that province. About 30 per cent of the abortion cases occurred among women with one daughter but no son; the sex ratio of aborted fetuses was as low as 51.0. For those women with at least one son, the sex ratio of aborted fetuses tended to be normal which suggests less interference. However, for those women with no son, the sex ratio of aborted fetuses was much lower than normal, a phenomenon most likely affected by the sex identification of the fetuses prior to the induced abortion. It would be interesting to compare this table with table 4 on the sex ratio at birth by the number and the sex of siblings: the trend of the sex ratio of aborted fetuses is surprisingly consistent with the trend of the sex ratio of surviving children. Discounting the underreporting of female births, it would seem that sex-selective abortion following sex identification of a fetus by ultrasound or other diagnostic methods is additionally, and likely to be increasingly, responsible for the increase in the sex ratio at birth in China.

Table 5: Sex ratio of aborted fetuses by number and sex of surviving children: southern Zhejiang Province, 1993

Surviving children		Total aborted	Male fetuses aborted	Female fetuses aborted	Sex ratio of aborted fetuses
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

Source: Gu and Li (1994: table 7).

While infanticide and abandonment are relatively less responsible for the rise in the sex ratio at birth in China, research also indicates that female babies are more frequently subject to abandonment than male babies. During the decade of the 1980s, the infant mortality rate for girls was increasing while that of boys was decreasing. This was particularly so in rural areas, where as discussed above the sex ratio at birth has been exceptionally high (Gu and Li, 1994).

In Taiwan Province of China, it has been observed that "an increasing number of couples with no sons use amniocentesis when the wife is pregnant to determine the sex of the fetus and to have an abortion performed if the fetus is female" (Freedman, Chang and Sun, 1994:324). According to the 1992 KAP (knowledge, attitude and practice) survey, most of the pregnancies with reported pre-natal sex screening "turned out to be male live births" with a sex ratio of 295 (72.0 per cent for male live births and 24.4 per cent for female live births: see Chang, 1994).

Several studies on the Republic of Korea argue that sex-selective abortion is "the sole cause of rising sex ratios" (Park and Cho, 1995:64). According to the 1988 National Fertility and Family Health Survey, sex-identification tests were conducted in 1.2 per cent of pregnancies surveyed that year. Out of 275 cases tested, 169 were male fetuses and 87 female fetuses, with the sex not being distinguishable in nine cases. While more than 90 per cent (154 cases) of the tested pregnancies indicating male fetuses resulted in normal births, more than 30 per cent (27 cases) of the tested pregnancies indicating female fetuses were terminated by induced abortion, subject to underreporting, according to the report (Hong, 1994: table 9).7 While Park and Cho (1995:68) have argued that "sex-selective abortion appears especially prevalent among families having only daughters", Cho and Kim (1994: table 2c) have noted that the abortion rate tends to increase with parity and time, and is much higher among families with at least one son, which "indicates the changing preferences toward smaller families while the son preferences are maintained". They state that "ill treatment of baby girls, as compared with baby boys, is possible; but overt sex-selective infanticide is beyond imagination. The lag in the rise of the sex ratio in rural areas may be largely explained by a lesser availability there than in urban areas of medical facilities to determine fetal sex. Son preference in rural areas is expected to be stronger than in urban areas" (Park and Cho, 1995:64).

Why it occurs

Since the time when the issue of rising sex ratios at birth (SRB) became a major concern, it has often been asserted that the phenomenon in China is a result of the Government's adoption in 1980 of a population policy advocating one child per couple. Although it is true that the sex ratio at birth for high parity women exceeded the normal level from the very beginning of the 1980s as seen in table 3, it is not true for other women since the overall sex ratio at birth did not become abnormal until the mid-1980s, as seen in table 1. Moreover, it would be difficult to explain why a similar phenomenon has also been observed since the mid-1980s in the populations of Taiwan Province of China and the Republic of Korea, both presenting different contexts. As stated by Coale and Banister (1994:476): "Can we assume that only special factors as communism, compulsory family planning, or the one-child policy can cause a sharp rise in the masculinity of younger cohorts, of the type that occurred in China in the 1980s and early 1990s? The answer appears to be `no' because a very similar increasing dearth of young girls is observed in data from the Republic of Korea from 1983 to 1988".

The implication of this situation for policy purposes would be misleading if one were to assume that China should be able to rid itself of the abnormal sex ratios at birth once a two-children-per-couple policy is

adopted (Gu, 1994). Some researchers have followed this line of reasoning: "Witness the high sex ratios in Taiwan (Province of China) and (the Republic of) Korea where such drastic fertility policies (as found in China) do not exist. Were China's policy relaxed, the main difference might be that the SRB deviation from normality might not occur until the second parity, instead of, as is now the case in China, after the first parity" (Poston and others, 1995). As shown in table 2, in areas where the population policy of "advocating one child per couple" is most effective, such as in Shanghai and Beijing, the sex ratio at birth has been normal, and "does not demonstrate a 'missing girl' problem" (Banister, 1995). Areas with the most serious abnormality in the sex ratio at birth, such as Guangxi, Hainan and Henan, are also characterized by high fertility and a large proportion of births occurring among the higher-than-one parity couples (see Gu and Yang, 1991 for a detailed discussion of the fertility trends in rural China during the 1980s).

It has been widely noticed, at least in the three populations under discussion, that the rise in the sex ratio at birth seems to have a lot to do with the rapidity of the fertility decline which has occurred in recent decades. "In both populations (China and the Republic of Korea), the total fertility rate fell from about 6.0 in the late 1950s to about 2.6 around 1980, and marital fertility changed from an age pattern indicating little voluntary control to a pattern implying widespread practice of birth limitation" (Coale and Banister, 1994:476). The fertility transition in China accelerated at the beginning of the 1970s with the vigorous implementation of the family planning programme, driven by the policy of "later (marriage), longer (birth spacing) and fewer (children)"; the TFR declined more than 50 per cent in only one decade (Gu and Peng, 1991:50). "Taiwan (Province of China) completed the fertility component of the demographic transition in the 27 years between 1956 and 1983 with the fall of the net reproduction rate (NRR) from 2.84 to 1.01" (Freedman, Chang and Sun, 1994:317). However, this might not have been the case if the cultural setting of son preference were absent. For example, as we have seen in Indonesia, Sri Lanka and Thailand, where son preference appears to be nearly non-existent, a rapid decline in fertility may not necessarily cause the sex ratio at birth to rise to an abnormal level (Gu, 1994). Such is the case also for the most developed areas in China, such as Shanghai and Beijing (Gu and Li, 1994).

The cultural setting of son preference seems to be crucial: when fertility declines dramatically people show that, of the fewer children they have, they still prefer to have son(s) for family labour and for support during their old age (more so in poor and remote areas than other parts of the country). In some cases, the desire to have sons is related to enhancement of the mother's status or the wish to perpetuate the family line (more so in areas with a strongly growing economy). In this context, a recent field survey indicates that the most seriously perceived gender inequality for many women is that they feel that they will be most strongly discriminated against if they simply fail to have a son (Gu and Li, 1994). According to the Korean National Fertility and Family Health Surveys, the ideal number of children preferred by Korean women decreased over the period from the 1960s to the 1990s, but 62.6 per cent of rural women and 34.6 per cent of urban women still insisted that it is necessary to have a son (Hong, 1994), indicating a changing preference towards smaller families, but one that still maintains the traditional preference for sons (Cho and Kim, 1994). According to a KAP survey in Taiwan Province of China in 1991, "the mean preferred number of sons was still greater than the mean preferred number of daughters among both younger and older wives" (Freedman, Chang and Sun, 1994:324; Chang, 1994). "In areas where there is little or no son preference, fertility decline does not bring it on. But where son preference existed alongside high to moderately high fertility, even a modest decline in fertility may exacerbate the existing discrimination against female babies, children, and now fetuses" (Banister, 1995).

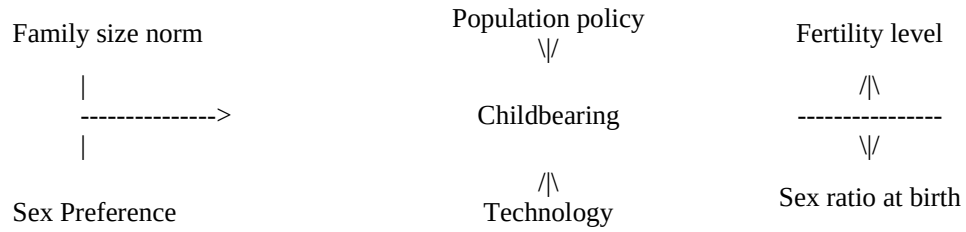
Another factor which is often claimed to be responsible for the rising sex ratio at birth in some Asian populations is the introduction during recent years of technologies for pre-natal sex identification. "In the past decade or so, medical advances have opened up the potential for a new form of gender discrimination, that is through prenatal sex identification followed by sex-selective induced abortions" (Leete, 1994). The rise in the sex ratio at birth during the 1980s coincided with the availability and accessibility of medical technology in China, in particular the ultrasound B machine, to detect the sex of fetuses during pregnancy (Zeng and others, 1993:291). Two techniques for pre-natal sex screening, namely chorionic villus sampling (CVS) and amniocentesis, have become available recently in Taiwan Province of China. In view of the fact that CVS can determine the sex of a fetus at the early stage of pregnancy, "women who intend to perform a combination of prenatal sex determination and abortion usually choose CVS for sex screening simply because of the lower risk of induced abortion" (Chang, 1994). In the case of the Republic of Korea, because CVS "is very expensive, only a small number of people can afford it. Amniocentesis is frequently used" as an alternative. "The most often used method in (the Republic of) Korea appears to be ultrasound. It is the least expensive and simplest method, but it is effectively applicable only in later stages of pregnancy" (Park and Cho, 1994:77).8

Nevertheless, the availability and accessibility of technologies for the pre-natal detection of the sex of the fetus and sex-selective abortion may not be regarded as the "root causes" of the phenomenon of abnormal sex ratios at birth. Otherwise, it would be very difficult to explain why it does not occur in more developed

areas, such as Shanghai and Beijing in China as well as in many developed countries of the world, where sex-detection technology is widely available (Gu, 1994).

Based on the discussion above, it seems that the phenomenon of abnormal sex ratios at birth observed recently in a number of East Asian populations may be viewed as the outcome of an interplay of four factors, namely (a) the effect of the cultural setting on sex preference, (b) level of socio-economic development, (c) rapidity of fertility decline, and (d) focus of the population programme. Such a situation may be conceptualized as in the flowchart above. At the aggregate level, the problem is more likely to occur in a population in the process of development with a cultural setting conducive to a strong son preference when the fertility level declines rapidly and the population programme is almost solely concentrated on reducing the number of children per woman in a context where the technology for pre-natal sex detection is easily available (Gu, 1994). At the individual level, it may be more likely to occur among couples living in a less urbanized area, where there has been a downward change in the family size norm but persistence of a preference for sons, who having a lower level education, have not even one son but are exposed to the knowledge of or technical means for pre-natal sex detection and sex-selective abortion. This conceptualization may be helpful to our understanding of the inverted U-shaped relationship observed among the various provinces of China (table 2), and among the various population groups covered by table 4.

Flowchart for conceptualizing effects of population policy and availability of pre-natal sex detection technology, among other factors, on child bearing



What can be done

It has been argued that the phenomenon of abnormal sex ratios at birth is a transitory one, which will eventually disappear when societies move sufficiently closer to being fully modernized. However, this does not necessary mean that development will automatically take care of this problem as can be seen in the cases of Taiwan Province of China and the Republic of Korea, the evidence from which so far is mixed or even discouraging despite the advanced stages of economic development there (Gu, 1994; Banister, 1995). Taiwan Province of China and the Republic of Korea are "some of the most developed places in Asia, yet sex-selective abortion is very widespread .... greater economic development, affluence, education, and knowledge do not necessarily ameliorate son preference or reduce the use of sex-selective abortion" (Banister, 1995). It seems that when fertility declines rapidly in terms of the number of children a couple will have, the tradition of a strong preference for sons over daughters will probably become more salient, and socio-cultural factors will likely be more influential than economic factors in dominating people's fertility behaviour (Gu, 1994). It is argued, therefore, that "economic development is not the solution. Rather, changes in cultural norms are required" (Banister, 1995; Hong, 1994).

Much of the concern about the abnormal sex ratio at birth often focuses on the possible occurrence of the so-called "marriage squeeze", a phenomenon that has been foreseen by social scientists in societies where cohorts of males exceed those of females in number. Such a situation will inevitably result in an aberrant age-sex structure of the population of such a society, since many men, when they reach marriageable age, will be hard pressed to find spouses of compatible age, which in turn may affect the stability of that society (Gu and Peng, 1991:57-59; Zeng and others, 1993:296; Freedman, Chang and Sun, 1994:324; Gu and Li, 1994; Hong, 1994; Park and Cho, 1995:74-75). The discussion on the issue suggests, however, that our knowledge of the nature and magnitude of potential societal adjustments to a demographic imbalance in the sex ratios of cohorts of marriageable age is rudimentary. While the negative as well as positive consequences of the imbalance between the numbers of males and females in a society are still under discussion (Park and Cho, 1994), it has been argued that the focus of the concern itself is male oriented and reflects a high valuation of males and a disregard of the needs of females (Gu, 1994; Banister, 1995).

Such a situation may also shift attention away from the present to the remote future, thus taking the urgency out of the need to find a solution to the problem. A more serious implication of the issue is very much related to the status and well-being of females at home and in society at large, not to mention the fate of the females who are maltreated, abandoned, or whose life was prematurely cut short by abortion or

infanticide (Gu, 1994; Greenhalgh and Li, 1995; Banister, 1995). Women without sons may encounter a variety of day-to-day problems and feel inferior to women with sons. The evidence from the aforementioned field survey suggests that for women, especially those in rural areas, their status and position at home is to a great degree dependent upon their ability to bear children, particularly a son. Many women feel that they are discriminated against by society simply because they fail to have a son, which is by far the most seriously perceived result of gender inequality. In trying to counteract discrimination against female fetuses and children, not only should the future dearth of available women, i.e. potential wives, be emphasized, but also more so the negative impacts of sex-selective abortion, female infanticide, and the negative impact of these on today's women and girls (Banister, 1995).

One question that may arise in the discussion of this issue is: why have the sex ratio at birth abnormalities that have occurred in a number of Asian populations not been given the attention that this issue deserves in existing population and family planning programmes? The answer to this question seems to be related to the existing conceptualization of the fertility transition and evaluation of family planning programmes. Conceptually, the "fertility transition" has long been viewed as a single-dimensional process going from high fertility to low fertility, which focuses almost solely on the change in level of fertility, often measured by the number of children born per woman during her lifetime.

Rather than regarding the fertility transition as an integral part of the overall transition from a traditional society to a modern society, it should be considered as a multi-dimensional process, which includes not only how many children to have (level of fertility), but also when to have them (timing of childbearing), and also what to have (sex of child) (Gu, 1994; Ng and Gu, 1995). In reality people never think separately about "how many children to have", "when to have them" and "what sex of child to have". In developing countries where fertility has declined over a short period and in a dramatic manner, mainly as a result of family planning programmes rather than the gradual process of socio-economic development, the culture and ideology concerning the timing of fertility and sex composition of children may not change so quickly as the size of the family. This is probably the reason why the patterns and trends of abnormal sex ratios at birth may be observed not only in China but also in some other East Asian populations with similar cultures and rapid fertility declines.9

Should the "fertility transition" be regarded as a multi- rather than uni-dimensional process, the completion of the "fertility transition" would have to be redefined. Accordingly, population and family planning programmes should be implemented by attempting not only to lower fertility but also to bring about a balance in the sex ratio of births. Although the performance of a family planning programme is evaluated in terms of fertility level, population growth rate and contraceptive prevalence etc., performance should also be evaluated in terms of the degree of son preference in fertility behaviour as measured by the sex ratio at birth (Gu and Li, 1994). By the same token, information, education and communication (IEC) programmes should explicitly urge couples to value equally female and male children in addition to encouraging them to have fewer children (Gu, 1994).

More fundamentally, to curb population growth and achieve a balanced sex ratio at birth, the strategy of "beyond family planning" must be recalled. The family planning programme should be implemented by incorporating other socio-economic improvements such as the improvement of women's status and better maternal and child health care. Family planning, women's status, and maternal and child health care (MCH) should be regarded as three major components of the concept of "reproductive health". In other words, the programme should be more "people oriented" rather than "number oriented". Such programmes should emphasize reproductive health and the improvement of women's status, and should be coordinated with the MCH programme. The human orientation of such programmes should be stressed, particularly in the light of the ICPD Programme of Action (Gu, 1994).

For countries with high fertility and strong son preference but not yet showing an abnormal sex ratio at birth, the experience of the three populations discussed in this article may suggest that it is likely that their fertility decline may also be accompanied by worsening discrimination against female fetuses and children. However, if such countries prepare themselves well and closely monitor aspects such as the sex ratio at birth while implementating their family planning programme, they may be able to reduce greatly the impact of such abnormalities if they begin to occur. When people face conflicts over the number and sex of children to have in the face of rising costs associated with rearing them, they will try every way available to achieve their desired combination of children's sex within the limited number of children they are to have. Some, when they have no choice over these matters prior to the birth of the child, will achieve it after the birth of the child if it turns out to be not of the desired sex, by neglect, mistreatment, abandonment, or infanticide. When pre-natal or even pre-pregnancy determination of sex is available, accessible and affordable, a couple will seek to make their choice of the child's sex before the child is born. A demographic implication of such action is that, while female infant mortality may decline, the sex ratio at birth may increase.

It has been argued that an important strategy is for the Government to ban misuse of pre-natal sex detection. However, such prohibitions may serve more as a moral statement against the selective abortion of female fetuses than as a fundamental solution to the problem. It is not so much that the technology for pre-natal sex selection is to be blamed, but that the culture and attitudes of the people have to be changed (Gu, 1994). Moreover, laws banning the misuse of sex-detection technologies may be counter-productive, since they are likely to be enforced in a discriminatory, uneven manner against women and medical personnel (Banister, 1995). By contrast, the diffusion of knowledge and information about the negative effects on women and children concerning the use of abortion and the application of sex-detection technology may help to discourage people from practising pre-natal sex screening (Chang, 1994).

The above discussion of three East Asian populations may provide some understanding of abnormal sex ratios at birth, but it is still only "tentative until better information confirms or refines" that understanding (Banister, 1995). Nevertheless, based on this discussion, we know fairly well when, where, among whom, how, and why abnormal sex ratios at birth and sex-selective abortion occur and are likely to occur. Therefore, such information should help Governments and NGOs to target population groups for programmes aimed at changing this situation for the better (Gu, 1994).

Consciousness-raising is still a priority strategy in any effort to rectify the situation of abnormal sex ratios at birth. This requires society-wide efforts aimed at emphasizing the value of girls and women, the need for education and health care to be made equally available to girls and boys, and the need for legal changes to promote true equality of the sexes (Banister, 1995). As is brought out in the Bali Declaration, sustainable development should not be regarded as related to population size only (ESCAP, 1992). A comprehensive strategy to raise the status of women should be recognized as the cornerstone of any sustainable development policy, which may subsequently work towards reducing people's desire for sons over daughters no matter what sex-detection technology is or becomes available (Gu, 1994). The study of the sex ratio at birth should not involve merely counting the number of male births relative to female births, but it should be of profound significance to our understanding of the population dynamics in developing countries as we approach the year 2000. It is an issue related on the one hand to the final completion of the fertility transition in a population and on the other hand to the empowerment of women in a society, which is an essential measure in the achievement of truly "sustainable development".

Footnotes

1. In fact, ESCAP and KIHASA had sponsored another meeting entitled "Seminar on Impact of Fertility Decline on Population Policies and Programme Strategies: Emerging Trends for the 21st Century", held at Seoul, Republic of Korea in December 1991, during which the issue had been discussed in the presentations (see Gu and Peng, 1991; Lee and Cho, 1991).

2. Park and Cho (1995:80-81) noted that the reported sex ratios at birth in the Republic of Korea "prior to 1945 were consistently and unusually low. A possible explanation is high fetal mortality, which claims far more male than female lives".

3. Park and Cho (1995) discussed the situations in four populations, namely those of China, Hong Kong, Taiwan Province of China and the Republic of Korea. Since the population structure of Hong Kong is quite different from that of the three other populations, it is thus excluded from the present discussion.

4. Given the higher infant and child mortality rates in some parts of the population than the rates for the more developed societies, the replacement level may have to be set at a level a little higher than 2.1 (Keyfitz, 1984).

5. There are two figures for the sex ratio at birth in China in 1989 (derived from the 1990 population census): one is 113.8 derived from SSB (1991a:461), the other is 111.3 derived from SSB (1991a:45) using different tabulation procedures. See Zeng and others (1993) for an explanation.

6. An exception is the figure for women with 5+ children but no son and currently using contraceptives, i.e. 93 per cent, which is somewhat higher than the figure for women with one son (87 per cent). This may be due to fluctuation because of the small size of the population under observation. See Freedman, Chang and Sun (1994: table 13).

7. Another study by Kim and Joo (1994) reports an estimate of the proportion of births at 3.6 per cent rather than 1.2 per cent following sex identification testing in the Republic of Korea in 1989-1991. See Hong (1994).

8. According to Park and Cho (1995:78), the cost of a chorionic biopsy test is more than half a million won (US$ 625), for amniocentesis 200,000-300,000 won (US$ 250-375), and for ultrasound 60,000 won (US$ 75).

9. A discussion of the dynamics of the three dimensions connected with the process of fertility transition is beyond the scope of this article; however, a brief speculation on the topic follows (Gu, 1992; Ng and Gu, 1995). In a pre-transition population, women tend to have as many as four children or even more; they tend to get married early in life and start to have children immediately after marriage, with the birth interval being as short as biologically and sociologically allowable (Davis and Blake, 1956). The transition may start with a change in tempo rather than quantum, which is a phenomenon that Coale (1973) defined as the "first transition". But the second transition, focusing on a reduction of the number of children born to a woman during her lifetime, will follow, and this results in the historical decline in fertility from high to low levels, mostly as a reduction in marital fertility. For a population reaching a relatively low level of fertility, given the fact that there is not much of an opportunity left for a further decline in terms of the number of children per couple, the timing of marriage and childbearing will once again play a much more important role with regard to further completion of the transition. Meanwhile, mainly owing to the rapidity of the fertility transition, people's desire for children may lag behind. When a couple cannot have the number of children they would like to have for various reasons, they may adopt a "quality for quantity" strategy of fertility and switch to a strategy favouring the quality of the children they desire to have. The tradition of a strong preference for sons over daughters may become a salient aspect along with fertility decline, and the sex ratio at birth may rise accordingly. Finally, by the end of the transition, a situation may occur when women with few children are having them at a relative later age in life, with proper spacing and a balanced sex ratio of children at the aggregate level, which is in essence compatible with that of a modern society. In this sense the three dimensions may play roles at various weights over the different stages of the fertility transition. If it is valid, the focus of the population and family planning programme should vary accordingly in view of the stage of the transition for a given population.

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Sex Preference for Children in Thailand and Some Other South-East Asian Countries

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Some countries in this subregion show a preference for both boys and girls, or no sex bias at all

During the past three decades, there have been rapid changes in South-East Asia, not only in the socio-economic and political situation, but also in the demographic situation. In almost all countries and areas in South-East Asia, population growth has declined to moderate or low levels as a result of rapid declines in fertility. In most cases, this phenomenon has been promoted in the belief that lower fertility should increase the value of human capital, help to accelerate the pace of socio-economic development and bring about greater gender equity. However, in some countries lower fertility, while helping countries towards some of their aforementioned goals, has made more apparent a strong gender bias, i.e. the antithesis of gender equity. For example, gender preference, especially for male children, may be observed as being inherent in the cultural settings of many countries in Asia, particularly those influenced by Confucianism, all of which have achieved low fertility: e.g. China, Japan and the Republic of Korea. On the other hand, in low fertility countries influenced by Theravada Buddhism, such as Sri Lanka and Thailand, there is no gender bias for boys.

One of the most crucial aspects of the Programme of Action, adopted by the International Conference on Population and Development held at Cairo in 1994, regards the empowerment of women and their improved status. Improvement of the status of females is considered essential not only for the success of population programmes but also sustainable national development. Gender preference for male children thus can be seen as undermining the success of the overall development process, because it reflects discrimination on the basis of sex from the earliest to the later stages of life (United Nations, 1995).

Gender preference for children of a certain sex can have an impact not only on fertility but also on mortality. There is evidence that advanced medical technologies such as those used for pre-natal sex identification have been exploited as a tool for the selection of children by the sex of the fetus. In other words, ultrasound and amniocentesis have been used as methods for determining whether or not to abort a fetus. In general, a preference for children of one sex, i.e. males, may lead to problems of sex discrimination, sex-selective abortion, female infanticide, a poor quality of life for females, a "marriage squeeze", deterioration of the family system and have effects on the future fertility of countries; it may even interrupt the advance towards sustainable social and economic development in countries where such a preference exists.

In the case of Asia, previous research has shown that there is a great variation among countries with regard to the existence of sex preference for children. Therefore, this article attempts to review the demographic situation and the existence of sex preference in some South-East Asian countries, including Thailand.

Fertility trends

To understand the situation of sex preference for children in countries in the South-East Asian subregion, it is necessary to investigate the changes that have occurred in fertility, since this is recognized as an important factor closely related to sex preference. Table 1 shows the total fertility rate (TFR), the average number of live births during a woman's lifetime, of each South-East Asian country. The TFR for most of the countries, except the Lao People's Democratic Republic, declined during the period 1990-1995 when compared with the period 1960-1965. If South-East Asian countries are classified into ASEAN1 and non-ASEAN countries, it may be observed that ASEAN TFRs have declined faster than those of Indochinese countries (Cambodia, the Lao People's Democratic Republic and Viet Nam) and Myanmar. The percentage decline for ASEAN countries ranges from 40.5 per cent in the case of the Philippines to 65.6 per cent in the case of Thailand. Among non-ASEAN countries in South-East Asia, Viet Nam2 has had the highest percentage of decline (36.0 per cent), followed by Myanmar (30.7 per cent) and Cambodia (28.5 per cent). On the other hand, the Lao People's Democratic Republic is the only South-East Asian country where the TFR has increased, from 6.2 in the period 1960-1965 to 6.7 in the period 1990-1995, which is higher than the TFRs of all other South-East Asian countries.

According to the United Nations medium-fertility variant projected for the period 1995-2000, a further declining trend of TFRs is expected in all South-East Asian countries, including the Lao People's

Democratic Republic. While Singapore will experience the lowest TFR, the Lao People's Democratic Republic will continue to have the highest.

Table 1: Total fertility rate by country in South-East Asia, (medium-fertility variant)

Country	1960-1965	1990-1995	Percentage decline	Medium fertility projection (1995-2000)
Brunei Darussalam	6.72	3.07	54.32	2.75
Cambodia	6.29	4.50	28.46	4.29
Indonesia	5.42	3.10	42.80	2.70
Lao People's Democratic Republic	6.15	6.69	-8.78	6.03
Malaysia	6.72	3.62	46.13	3.24
Myanmar	6.00	4.16	30.67	3.81
Philippines	6.61	3.93	40.54	3.57
Singapore	4.93	1.75	64.50	1.80
Thailand	6.42	2.21	65.58	1.85
Viet Nam	6.05	3.87	36.03	3.51

Source: United Nations (1993:218-219).

Population and age distribution trends

Such a rapid decline in the total fertility rate of most South-East Asian countries has had significant impacts on population size, structure and growth. Among all countries in the subregion, Brunei Darussalem has the smallest population whereas Indonesia's was ranked as the biggest both in 1985 and 1995 (table 2). A comparison of populations in 1985 and 1995 shows that Singapore has had the lowest increase in total population size (11.5 per cent) whereas the Lao People's Democratic Republic is experiencing the highest percentage increase (35.8 per cent). Looking at the rates of population growth, the data reveal a similar trend to that for TFRs: the Lao People's Democratic Republic is the only country in this subregion that has a population growth rate that increased (from 2.29 per cent during the period 1980-1985 to 2.72 per cent during the period 1990-2000). As for Cambodia and Myanmar, despite the fact that they are experiencing a declining rate of population growth, the decline has been relatively slow.

United Nations population projections for the year 2000 show that Indonesia will remain the largest country in South-East Asia in terms of total population (around 218 million), followed by Viet Nam (81.5 million), the Philippines (76.1 million), Thailand (61.2 million), Myanmar (51.6 million), Malaysia (22.3 million), Cambodia (10.6 million), the Lao People's Democratic Republic (5.6 million), Singapore (3.0 million) and Brunei Darussalam (0.3 million), respectively.

Table 2: Total population and growth rate by country in South-East Asia

Country	Population (thousands)		Percentage increase	Growth rate (%)		Medium fertility projection (thousands)
1985	1995		1980-1985	1995-2000	2000	
Brunei Darussalam	226	288	27.43	3.12	1.95	318
Cambodia	7,327	9,447	28.93	2.40	2.27	10,580
Indonesia	167,332	201,477	20.41	2.06	1.58	217,998
Lao People's Democartic Republic	3,594	4,882	35.84	2.29	2.72	5,592
Malaysia	15,677	20,125	28.37	2.60	2.02	22,263
Myanmar	37,544	46,548	23.98	2.09	2.05	51,567
Philippines	55,395	69,257	25.02	2.58	1.88	76,091
Singapore	2,558	2,853	11.53	1.15	0.85	2,976

Thailand	51,187	58,265	13.83	1.83	0.98	61,202
Viet Nam	59,898	73,811	23.23	2.18	1.99	81,516

Source: United Nations (1993:154-155).

As for age distribution, table 3 shows that the percentage of the population aged 0-14 years in every non-ASEAN country in the subregion is higher than that of each ASEAN country, except the Philippines and Malaysia. Of all countries in South-East Asia, the Lao People's Democratic Republic has the highest percentage of population under 15 years of age, i.e. 44.8 per cent in 1995. The figures for Cambodia, Myanmar and Viet Nam are 41.8, 37.4, and 37.0, respectively. Since the percentage of the population under age 15 in non-ASEAN countries is quite high, this leads to a higher dependency ratio there too. In 1995, the dependency ratio -- 100 times the sum of the population under 15 years of age and the population aged 60 and older divided by the population aged 15 to 59 -- is highest for the Lao People's Democratic Republic (98.4), followed by Cambodia (86.2), Viet Nam (79.9) and Myanmar (77.9). In 1995, Singapore appeared to have the lowest dependency ratio (47.9) among South-East Asian countries, and this will also be true in the year 2000 when it is projected to have a dependency ratio of 48.6. The next lowest is Thailand, for which the dependency ratio is below 55 in 1995, and is expected to be about 51.5 in the year 2000.

Special attention should be paid to Cambodia and the Lao People's Democratic Republic. Since their TFRs are quite high (table 1), the age distribution for both countries will still be concentrated in the under-15 age group for many years to come.

Table 3: Age distribution, total population and dependency ratio by country in South-East Asia (medium-fertility variant)

Country	**Population (thousands)**				**Dependency ratio**	**Population (thousands) (medium-fertility projection)**		**Dependency ratio**
	1985	%	1995	%	1995	2000	%	2000
Brunei Darussalam	226		288		66.9	318		63.7
0-14	82	36.1	93	32.2		96	30.1	
15-59	130	57.7	173	59.9		194	61.1	
60+	14	6.2	23	7.9		28	8.8	
Cambodia	7,327		9,447		86.2	10,580		82.1
0-14	2,953	40.3	3,949	41.8		4,295	40.6	
15-59	4,052	55.3	5,073	53.7		5,808	54.9	
60+	322	4.4	425	4.5		476	4.5	
Indonesia	167,332		201,477		67.8	217,998		64.2
0-14	64,757	38.7	67,293	33.4		68,233	31.3	
15-59	93,037	55.6	120,080	59.6		132,761	60.9	
60+	9,538	5.7	14,103	7.0		17,004	7.8	
Lao People's Democratic Republic	3,594		4,882		98.4	5,592		97.2
0-14	1,535	42.7	2,187	44.8		2,483	44.4	
15-59	1,887	52.5	2,461	50.4		2,835	50.7	
60+	173	4.8	234	4.8		274	4.9	
Malaysia	15,677		20,125		77.9	22,263		71.5
0-14	6,067	38.7	7,627	37.9		7,837	35.2	
15-59	8,732	55.7	11,310	56.2		12,979	58.3	
60+	878	5.6	1,187	5.9		1,447	6.5	
Myanmar	37,544		46,548		78.6	51,567		77.3
0-14	14,717	39.2	17,409	37.4		19,028	36.9	
15-59	20,499	54.6	26,067	56.0		29,034	56.4	
60+	2,328	6.2	3,072	6.6		3,455	6.7	

Philippines	55,395		69,257		77.6	76,091		71.8
0-14	22,712	41.0	26,595	38.4		27,545	36.2	
15-59	30,079	54.3	38,992	56.3		44,285	58.2	
60+	2,604	4.7	3,671	5.3		4,261	5.6	
Singapore	2,558		2,853		47.9	2,976		48.6
0-14	624	24.4	648	22.7		643	21.6	
15-59	1,734	67.8	1,929	67.6		2,003	67.3	
60+	200	7.8	277	9.7		330	11.1	
Thailand	51,187		58,265		54.3	61,202		51.5
0-14	18,427	36.0	16,431	28.2		15,913	26.0	
15-59	29,842	58.3	37,756	64.8		40,393	66.0	
60+	2,918	5.7	4,079	7.0		4,896	8.0	
Viet Nam	59,898		73,811		79.9	81,516		73.6
0-14	24,259	40.5	27,310	37.0		28,612	35.1	
15-59	31,566	52.7	41,039	55.6		46,953	57.6	
60+	4,073	6.8	5,462	7.4		5,951	7.3	

Source: United Nations (1993).

Measuring the preference for children of a certain sex

A review of the sex preference literature suggests that there are several methods for measuring gender preferences for children. According to Soeradji and Hatmadji (1994), information on the desired number of sons and daughters provides a way of examining women's preference for children of a certain sex. This particular measure was also used by Goodkind (1994). In his analysis of sex preferences for children in Viet Nam, Goodkind (1994) also used as indicators the sex combination preference in the case of a couple having only two children, and the percentage of second birth intervals less than three years by the sex of the first birth. The use of the latter indicator is based on the tendency, found by previous studies, for a subsequent birth interval to be relatively short if a daughter is born first to parents who had hoped for a son. Goodkind (1994) used the sex ratio of child mortality as another indicator of sex preference for children in Viet Nam. He found that the sex ratio of death probabilities at ages 1 to 14 shifted strongly between 1979 and 1989 from a surplus of male deaths to a surplus of female deaths. Such a trend in the sex ratio of child mortality suggests decreasing relative survival probabilities for female children there.

In addition, the parity progression ratio and ordinary least square regression of birth intervals can also be used to test for sex preferences. However, according to Leung (1988) there is a problem of validity when the two methods deal with right censoring and time-varying covariates. He maintains that, under appropriate conditions, the power of the sex ratio to test for sex preferences is satisfactory. Relying on the use of the sex ratio at birth, Chahnazarian (1988) found some homogeneity across populations and over time with an excess of male over female births, with the sex ratio at birth usually varying between 104 and 107 males for every 100 females born. Nevertheless, his conclusion was questioned by Roy (1994) who cited the influence of biological and other factors upon sex ratios. Those factors, leading to high female mortality rates in infancy and childhood etc., include under-registration of female births, female infanticide and neglect of female children in feeding and health care.

Shryock and Siegel (1973) pointed out that analyses of the sex ratio at birth should be interpreted cautiously, since the sex ratio at birth can be affected by demographic characteristics of the child and parents, such as age of the mother and birth order of the child. Besides these factors, the socio-economic status of the parents can also influence sex preference. For example, an abnormal ratio of boys to girls at birth in some developed countries may not be due to a cultural setting favouring males, but rather it could be explained by the predominance of lower order births when fertility is low and also a lower rate of pre-natal deaths. Moreover, the sex ratio at birth may be unreliable and sensitive to misreporting of births, or sampling errors.

Another measure that provides a good indicator of sex preference without the confounding effects of preference in number is the Coombs's scale, which can be used for investigating the complexity of the decision (more details on the Coombs's scale will be discussed later).

Factors affecting sex preference

Previous studies have shown that there are variations in sex preference among countries and regions that can be associated with a wide range of factors. These factors can be classified into micro- and macro-level factors. Concerning micro-level factors, the individual characteristics of parents, especially the mother, are expected to have an influence on the preference for children of a certain sex. Some research in developed countries has hypothesized that improving the socio-economic status of parents could affect preferences for the sex of children, particularly because the increasing autonomy of the mother would lead to a greater girl preference, or a more equitable view of the gender composition of the family.

Previous research has provided no consensus on the impact of maternal characteristics, such as employment, on the sex preference for children. Coombs (1977) studied preferences for the sex of children among couples in the United States, and found that the empirical result did not support the hypothesis that wives working outside the home are more likely than non-working wives to prefer girl children, or prefer both sexes. Instead, his analysis showed that "working wives are somewhat more likely to prefer sons".

There are also several macro-level factors that are expected to have an impact on sex preference, such as population policy and rapid fertility decline, modernization, cultural settings, and socio-economic and political transformation.

In many developing countries, rapid fertility decline has been an achievement of population policy. Such policies usually concentrate on reducing the total fertility rate or the number of children per woman. If there is a cultural setting that is biased towards one sex, this may elevate the situation of sex preference for children. For example, the existence of gender preference in Viet Nam is also related to the country's reduction in fertility, owing in part to the Government's anti-natal population policy, which has increased concern among couples who, if they are going to have fewer children, would want to make sure they bear some sons (Goodkind, 1994).

Some demographers believe that modernization will change attitudes and behaviour towards fertility, including the sex preference for children. It is believed that modernization will make people more egalitarian or less biased towards boys. Considering the evidence from developed countries, it seems that "modernization" or "development processes" gradually reduce the bias towards the sex of children. However, the experience of newly industrialized economies (NIE) and some developing societies in Asia does not follow such a pattern. For example, the Republic of Korea and Taiwan Province of China, which have been classified as NIEs, have experienced modernization for some time, but they still have a strong bias towards boys.

One of the factors that previous research indicated would play an important role in determining sex preference is cultural factors. Coombs (1977) stated that "sex preferences are more deeply rooted in the culture and reflect a constellation of cultural attitudes about sex roles and values". Previous results have indicated that the cultural setting is the crucial factor determining sex preferences. In a study on gender preferences in seven Asian societies (Indonesia, the Philippines, the Republic of Korea, Singapore, Taiwan Province of China, Thailand and Turkey) and the United States, Arnold and Kuo (1984) concluded that the development of sex preference for children is more a function of cultural factors than of the individual characteristics of parents. The cultural tradition is a factor at the societal level having effects upon individual characteristics. Studies have maintained that son preference tends to be strong in societies with a Confucian tradition, and its patrilineal and patriarchal kinship systems. This is particularly the case for China, the Republic of Korea, Taiwan Province of China and other East Asian societies. According to Goodkind (1994), Keyes (1977), Hirschman (1994) and others, Viet Nam's contemporary gender preference has resulted from a blending of Confucian and bilateral kinship systems. Besides the cultural factors, there are other factors in both economic and political terms. For example, there is an interplay of socio-economic and political transformations on gender relations in Viet Nam. As Goodkind (1994) put it, an increase in female child mortality in Viet Nam can be explained by the weakened post-war position of Vietnamese women in a situation of poverty and the Government's promotion of a free market. Women's position had previously been elevated by the goal of the revolutionary socialist regime.

Sex preference in South-East Asia

Research has shown that a strong preference for sons prevails in both eastern and southern Asia (see other articles in this issue of the Journal). This is particularly the case for Bangladesh, China, India, the Republic of Korea, Pakistan and Taiwan Province of China (Soeradji and Hatmadji, 1994). In South-East Asia, there seems to be two major patterns of sex preference for children: the preference-for-sons pattern, and the pattern of an egalitarian gender preference.

The general Oriental pattern of a preference for sons seems to be followed by people in Malaysia, Singapore and Viet Nam. This is particularly the case for the Chinese in Malaysia, according to Leung

(1988). In Singapore, Goh (1981) found both a preference for having children of both sexes and a clear preference for sons. This was so despite Singapore's earlier official policy characterized by the "girl or boy, two is enough" slogan aimed at achieving zero population growth by the year 2030. According to the results of his analysis, a couple with children of only one sex likely would decide to have more children. In addition, among couples with more than one child, the proportion wanting no more children was higher among those with at least one son, compared with those having daughters only. A subsequent national plan aimed at narrowing the gap between parental satisfaction and the former target of zero population growth characterized what had been an intensive national family planning and population programme. A revised slogan stating "stop when you have both boys and girls, but three is enough" represented a compromise by the Government (Goh, 1981). As Moen (1991) put it, "the Singaporean case falsifies the basic assumption that economic development is an essential prerequisite for improved female status". (It should be mentioned that in 1987, the slogan was again revised to reflect what the Government calls a "selectively pro-natalist" policy: "have three or more if you can afford it".)

The case is quite different in Indonesia, the Philippines and Thailand where the sex preference for children is more egalitarian in nature than a bias towards sons or daughters.

According to Bautista (1988), egalitarian gender preference has long existed in the Philippines. It was interrupted only during the Spanish colonial period when male status was considered superior. Currently, with the American model of a liberal education and the economic trend towards industrialization, men and women are considered equally important to the advancement of Philippine society. Accordingly, Filipino couples tend to be associated with an egalitarian child preference.

In Indonesia, a study using 1976 World Fertility Survey (WFS) data covering the islands of Java and Bali demonstrated the balanced nature of the sex preference for children there (Central Bureau of Statistics, Indonesia, 1978). A balanced gender preference also represented the majority of responses by Indonesian women in a study by Sinquefield and Kartoyo (1979) covering a larger spatial scope of investigation. They also found a low percentage preference for daughters and that the proportion of couples desiring additional children was slightly higher among those with children of only one sex than those couples having both boys and girls. However, using the 1991 Indonesian Demographic and Health Survey (DHS) data, Soeradji and Hatmadji (1994:18) maintained that "although studies at the national level have concluded that there is no sex preference in Indonesia, it is difficult to reach such a conclusion if we are studying different ethnic groups or regions".

In Thailand, there is a general lack of a son preference. In fact, as many studies have shown, the majority of Thais strongly desire at least one child of each sex (Kamnuansilpa, Chamratrithirong and Knodel, 1982; Knodel and others, 1987; Knodel, Chayovan and Frisen, 1988). According to Kamnuansilpa, Chamratrithirong and Knodel (1982), a couple tends to continue child-bearing if their first two children are of the same sex; their hope is for a child of the other sex. Knodel and others (1987) reported that couples with only two girls were less likely to undergo sterilization. Lately, in our recent pilot study (Wongboonsin and Ruffolo, 1994), we have used the Coombs scale to provide much more detailed information on the preference for both family size and gender composition among single and newlywed couples in Thailand.

We have analyzed data from a pilot project on low fertility conducted in 1993 by the Institute of Population Studies at Chulalongkorn University. The sample was drawn from couples married for fewer than five years and single adults. Since this was a pilot project, the sampling was purposive, and we did not attempt to randomly sample the entire Thai population. Instead, we randomly chose 250 respondents from five different groups: (a) professional workers in Bangkok, (b) factory workers in Bangkok, (c) construction workers in Bangkok, (d) slum dwellers in Bangkok and (e) rural villagers in the northeastern province of Khon Kaen. We tested the use of the Coombs scale to provide much more detailed information on the preference for both family size and gender composition among single and newlywed couples. The theoretical basis for this is that the unfolding theory used by Coombs and others (1974) assumes a single-peaked utility function so that, for example, if the respondent's first choice is three girls, it is assumed that the second choice is one boy and two girls, the third choice is two boys and one girl, and the fourth choice is three boys (see the figure on page 54). This is an assumption underlying the Coombs scale. However, if the respondent's first choice is one boy and two girls, we would not know whether the second choice will be three girls, or two boys and one girl. Therefore, we would probe further, asking: "If you could not have the number of boys and girls you want, would you prefer to have three girls, or two boys and one girl?" In our survey a similar question was asked in cases where the first choice was two boys and one girl. Finally, if the second choice was two boys and one girl, or one boy and two girls, we asked what their third choice would be. This set of questions then completely determines the relative preference for the gender composition of the families concerned.

Figure: Part of questionnaire concerning the preferred gender composition

First choice	**3 girls**	**1 boy, 2 girls**	**2 boys, 1 girl**	**3 boys**
Second choice	0 boys 3 girls	2 boys 1 girl	1 boy 2 girls	3 boys 0 girl
Third choice	0 boy 3 girls	3 boys 0 girl	0 boy 3 girls	3boys 0 girl

In the coding stage, these responses were converted to I-scale values according to table 4, again following Coombs and others (1974). A code of IS1 indicates a strong preference for girls, IS7 indicates a strong preference for boys, and an intermediate code indicates little or no gender preference.

Table 4: The Coombs IS-scale for measuring number preference

IS scale	**Choices for (No. of boys) - (No. of girls)**			
	First	Second	Third	Fourth
1	-3	-1	+1	+3
2	-1	-3	+1	+3
3	-1	+1	-3	+3
4	-1	+1	+3	-3
or	+1	-1	-3	+3
5	+1	-1	+3	-3
6	+1	+3	-1	-3
7	+3	+1	-1	-3

Notes: IS1 means a strong preference for girls and IS7, a strong preference for boys.

Boldface numbers are actual choices and plain numbers are assumed choices.

Table 5: The Coombs IN-scale for measuring number preference IN scale Choice for No. of children

IN scale	**Choice for No. of children**			
	First	Second	Third	Fourth
1	0	2	4	6
2	2	0	4	6
3	2	4	0	6
4	2	4	6	0
or	4	2	0	6
5	4	2	6	0
6	4	6	2	0
7	6	4	2	0

Notes: IN1 means a strong preference for few children and IN7, a strong preference for many children. The respondents were asked to assume they would have equal numbers of girls and boys.

We asked a similar set of questions about the desired number of children, assuming an equal number of boys and girls. Again, we coded the responses on a scale from 1 to 7, where IN1 represents a desire for very few children and IN7, a desire for many children (see table 5).

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 number and gender composition, whereas these preferences are not independently measured by a single first choice.

We have mentioned previously that, unlike couples in many other Asian countries, Thai couples have no strong preference for boys (Wongboonsin and Ruffolo, 1993). In fact, most couples show a strong desire to

have at least one boy and at least one girl. Our recent data show a striking confirmation of this preference (see table 6). Notice that, among couples who desire two children, nearly all the respondents wanted to have one boy and one girl as their first choice. Almost no one selected two boys, or two girls.

Table 6: Percentage distribution of preferred number of boys and girls by type of respondent

Preferred number of children	**All**	**P ***	**F ***	**C ***	**S ***	**R ***
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 (per cent)	100	100	100	100	100	100
Number	115	14	21	21	20	39

* Note: P = professionals; F = factory workers; C = construction workers; S = slum dwellers; and R = rural villagers.

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

If there were no sex preference, what we would see is that roughly equal numbers would prefer two girls, one boy and one girl, and two boys. That is not the case, so there is a sex preference, but it is a preference for both sexes -- almost all Thai couples want to have children of both sexes. This is very different from the situation in India or the Republic of Korea, or many other Asian countries. Again, among respondents who said they would prefer having three children, every one of them wanted at least one boy and at least one girl. No one preferred having all boys or all girls.

We now turn to results based on the Coombs scales. One noticeable trend is that the mean preferred family size depends on the occupation of the respondents (see table 7). 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 (IN4), whereas not many professional workers had such a score.

Table 7: Percentage distribution of Coombs IN and IS scales according to type of respondent

	All	**P ***	**F ***	**C ***	**S ***	**R ***
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 (per cent)	100	100	100	100	100	100
Mean	3.2	3.2	3.4	3.1	3.2	3.2
IS scale						
Girl 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 (per cent)	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

* Notes: See table 6 for meaning of abbreviations. This question was from the Coombs scale: only half the respondents were asked.

The IS scores seem to exhibit more random fluctuations, which is consistent with a weak gender bias. There does appear to be a variation with occupation, as slum dwellers were more likely to prefer boys, and rural villagers were more likely to prefer girls. One possible explanation for the mild preference for girls

among rural villagers is provided by results from the Study of Women and Fertility in Thailand (SWAFT), in which focus groups indicated that villagers believe that daughters will take care of them in their old age.

We also compared the IN and IS scores as a function of socio-economic variables, and found essentially no correlation with education, income, or marital status. One possible trend is that families with higher income seem to desire fewer children. However, on the whole, the desire for a family size of 2-3 children and a lack of gender bias seem to be common to all socio-economic groups in Thailand (see table 8).

Table 8: Mean values of Coombs IN and IS scales by education, income and marital status

	IN scale	**IS scale**	**Number**
Education			
Primary	3.3	3.9	62
Lower secondary	3.0	3.5	20
Upper secondary/lower vocational	3.0	4.3	30
Upper vocational/university	3.4	4.6	20
Income (in Baht 1,000 per annum)			
<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

Note: This question was from the Coombs scale: only half the respondents were asked.

In conclusion, the results from the Coombs scales show that most Thai people still want 2-3 children of both sexes, even when controlling for socio-economic factors such as education, occupation and income. We found that those who have a better socio-economic status (i.e. professional workers) tend to prefer fewer children; however, most of them still want two children.

Conclusion

Recently, sex preference for children has become a matter of public concern and an important issue for research. Although this topic is not new to demographers, it has become a more important issue especially in NIEs and developing countries. In South-East Asia, there are two main lines of thought on the issue of sex preference. One group has shown trends towards a boy bias, such as in Malaysia, Singapore and Viet Nam. The other group has shown a trend of preference for both boys and girls, or no sex bias, such as in Indonesia, the Philippines and Thailand.

Social and cultural factors are likely to be substantial determinants of sex preference in South-East Asia as in the case elsewhere in Asia. Some Governments have attempted to solve the problems of sex bias by enforcing laws and regulations to prohibit and punish the medical doctors and their clients practising sex-selective abortion. Laws and regulations alone may temporarily alleviate the problem, but these methods cannot transform attitudes and beliefs that are hidden in cultural settings. Changing people's attitudes and beliefs is very difficult task and one that will take considerable time to accomplish. One of the ultimate solutions to this problem may be to conduct an IEC (information, education and communication) programme to change the attitudes of the people. As long as the traditional cultural setting still dominates, the problem of sex bias is likely to persist in many societies. IEC programmes have proved to be successful in gradually changing the attitudes and behaviour of populations, as show by the success of the family planning programme in Thailand, and the IEC programme to control the AIDS pandemic.

Also, the role of women will be crucial in shaping future reproductive behaviour. Although improving women's status is important, concentrating on improving women's status only without changing people's attitudes or norms may lead to higher expectations among women, with society unable to fulfill those expectations. Also needed is a programme to changes the attitudes and norms of people, starting with those in the very young age groups. Such attempts may take time, but the outcome will be worthwhile in the long run.

However, it should be emphasized that these policies and programmes will be successful only when we

have enough information on the social and cultural context underlying the sex bias. Therefore, further research on this topic is still needed. Previous research has rarely made a comparison among countries both in terms of sex preference for children and the causes underlying such a preference. This may have been due to the different methods used by each study. Many studies concentrated only on the sex ratio at birth as an indication of sex discrimination, despite the limitations of this method, as discussed previously.

One measure that may help in studying sex preferences is Coombs's scale. Coombs's scale can provide independent measures of the preference for number and gender composition, whereas these preferences are not independently measured by single first choice. The scales were successfully tested for the first time in Thailand in the pilot project described in the present article. It should also be possible to apply this method in the study of other Asian countries in which contraceptive methods have been widely used.

Moreover, further research should investigate in more detail the macroscopic and microscopic determinants of such sex preferences. If we can find specific reasons why individuals in different societies do or do not employ specific sex selection of their children, then these reasons can be used for drafting appropriate policy measures and solutions to alleviate the problems connected with gender discrimination.

Footnotes

1. ASEAN is the acronym for Association of South-East Asian Nations.

2. At the time this study was carried out, Viet Nam was not yet a member of ASEAN, which is composed of Brunei Darussalam, Indonesia, Malaysia, Philippines, Singapore, Thailand and (since July 1995) Viet Nam.

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The Influence of Family and Employment on Career Planning of Married Female Workers in a Society without Sex Preference (Demographers' Notebook)

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Increased equity for girls and women is one of the major goals of both the Bali Declaration on Population and Sustainable Development, adopted by the Fourth Asian and Pacific Population Conference in Bali, Indonesia in August 1992, and the Programme of Action, adopted by the International Conference on Population and Development (ICPD) at Cairo in September 1994.

The need for increased equity for females is a result of discrimination against them, which often starts at the earliest stages of life, i.e. with the practice of pre-natal sex selection. However, in societies such as Thailand, which has no so-called "son preference", other equity and equality issues need to be considered in order to achieve the full participation and partnership of both women and men, "including shared responsibilities for the care and nurturing of children and maintenance of the household" (United Nations, 1995).

Among the objectives of the Programme of Action in this regard are to "achieve equality and equity based on harmonious partnership between men and women and enable women to realize their full potential, and to ensure the enhancement of women's contributions to sustainable development through their full . . . participation in all aspects of production, employment, income-generating activities . . . as active decision makers, participants and beneficiaries" (United Nations, 1995).

Although Thailand is relatively free of a serious bias against females at all stages of life, the increased employment of women in recent decades has not been without cost to women: most married female workers now carry the double burden of work outside the home in addition to work inside the household.

Thai women are entering the labour force in larger proportions than at any point in the country's history, reflecting the important role of women in Thailand's industrial development. The proportion of women in the industrial sector is currently about 49 per cent (National Statistical Office, 1991). Because of the heavy concentration of industrial development activities in the Bangkok metropolitan area (BMA), this study was undertaken to assess some aspects related to the employment of growing number of female industrial workers in that area.

Briefly, it found that, even though women comprise about half of the labour force, the distribution of workers among occupational categories is different for men and women, with women tending to be employed in lower-level, unskilled or semiskilled jobs, and earning less than men. Even after adjusting for the influence of several other factors on workers' earnings, such as education, training received, occupational status, number of job changes and so on, the earnings of female workers have been found to be substantially lower than those of male workers (Tonguthai and Pattaravanich, 1992). Chaplow (1954) has provided reasons for the relegation of women to the bottom of the occupational hierarchy, the major one being that the primary status of women is that of mothers and housewives; they are only secondarily wage-earners. The inferior position of women leads to inequality and the de facto separation of work for males and females in the labour market. As a result, the range of jobs open to women is limited. In this situation, employers tend to hire women on a temporary basis and not to invest in training them, thus limiting them to jobs requiring only low skills.

There is yet another dimension. The changing role of women in Thai society, especially the increase of women in the labour force, generates conflict: most married female workers carry the double burden of work in the labour force and household duties. This could result in their lives being stressful with conflicts posed by both roles. They may be unable to handle both jobs effectively, and thus satisfaction in their work may be reduced. Therefore, in view of these factors, the purpose of the present note is to investigate some of the factors related to career planning, with reference to family and employment, among married women workers.

Data and method

The data on married women workers are taken from a survey on employment and occupational mobility in urban labour markets in the manufacturing sector undertaken between May and August 1991 by the Institute for Population and Social Research, Mahidol University. The size of the sample was 1,339 workers (633 male and 706 female) from 80 establishments throughout Bangkok and the greater metropolitan area. The objective of the survey was to compare job benefits for male and female workers in terms of living allowances, accommodation or accommodation allowance, transport or transport allowance, meals or meal allowance, education allowance, paid leave, bonus, pension and severance pay.

The present study focuses on aspects of career planning of married women only, because they are the ones who carry the double burden of work outside the home and household duties. Hence, the total sample was reduced in size to 280 married women workers. The definition of career planning was limited to two aspects: intention (a) to carry on with the woman's present job, without seeking to move elsewhere, and (b) to try to seek upward mobility (better wages and working conditions) in the present establishment, or elsewhere by changing jobs. In addition, a score was calculated for each of several job benefits. Percentage distributions have been used to present the respondents' characteristics, with the chi-square test for examining the relationships between career planning and the family and employment variables.

Findings

Background characteristics

As shown in table 1, about 23 per cent of the women were under age 25 years, 41 per cent were aged 25-34, and approximately 36 per cent were aged 35 or older; the average age was approximately 32 years. About half of the respondents were educated to a level less than junior high school, i.e. ninth grade.

In terms of occupation, nearly half of the sample was composed of semiskilled and unskilled workers; about a quarter of the women were skilled workers; 20 per cent were clerical, sales and service workers; and only 7 per cent were professionals and managers. As for the occupation of their husbands, 30.3 per cent were clerical, sales and service workers, and 29.5 per cent were skilled workers. Around 25 per cent of the respondents' husbands were semiskilled and unskilled workers, while about 14 per cent were working as professionals and managers.

Table 1 also shows that the average monthly income of the respondents was 5,928 baht (US$1.00 = about 25 baht); nearly three-fourths of the sample earned 6,000 baht or less, whereas the average income of their husbands was 7,069 baht. About 60 per cent of the women said that their husbands earned 6,000 baht or less. The average monthly household income was 17,261 baht.

Nearly 40 per cent earned 9,000 baht or less. The majority (about 58 per cent) of the respondents stated that their husbands encouraged them in their careers. Only 5 per cent stated that their husbands disagreed with them pursuing a career. The same table shows that only 28 per cent of the women had high benefit scores (6 or more). More than 60 per cent of the women worked in non-unionized factories. Half of the women had worked in their current jobs for five years or more. While 26 per cent said that they would try to obtain better wages and working conditions in their present establishments, 15 per cent indicated that they would try to become upwardly mobile by quitting their jobs to get work in other establishments. Nearly 60 per cent of the married women workers expressed satisfaction with their career and said they would carry on with their current jobs.

Table 1: Percentage distribution of married women workers by various characteristics

Characteristic	%	Number
Age (years)		
Less than 25	23.2	65
25-34	41.1	115
35 or older	35.7	100
Total	100.0	280
Mean = 31.9	Maximum = 56	Minimum = 17
Education		
Not completed junior high school	51.4	114
Completed junior high school (ninth grade) or more	48.6	136
Total	100.0	280
Occupation		
Professional and managerial	7.1	20
Clerical, sales and service	20.4	57
Skilled	24.6	69
Semiskilled and unskilled	47.9	134
Total	100.0	280

Occupation of husband		
Professional and managerial	13.8	36
Clerical, sales and service	30.3	79
Skilled	29.5	77
Semiskilled and unskilled	26.4	69
Total	100.0	261 *
Income (baht per month)		
3,000 or less	28.9	81
3,000-6,000	42.9	120
6,001 or more	28.2	79
Total	100.0	280
Mean = 5,928	Maximum = 60,000	Minimum = 200
Income of husband (baht per month)		
3,000	26.3	70
3,001-6,000	38.0	101
6,001 or more	35.7	95
Total	100.0	266 *
Mean = 7,069	Maximum = 60,000	Minimum = 600
Income of household (baht per month)		
9,000 or less	38.0	103
9,001-18,000	29.5	80
18,001 or more	32.5	88
Total	100.0	266 *
Mean = 17,261	Maximum = 129,950	Minimum = 1,500
Husband's attitude towards woman's career		
Encouraging and cooperative	58.1	157
Tolerant or indifferent	37.0	100
Against	4.8	13
Total	100.0	270 *
Benefit score		
Low (less than 2)	23.7	54
Medium (3-5)	48.7	111
High (6 or more)	27.6	63
Total	100.0	228 *
Mean = 4	Maximum = 9	Minimum = 0
Existence of trade union		
Yes	37.4	95
No	62.6	159
Total	100.00	254 *
Duration in current job (months)		
1-36	38.9	109
37-60	11.1	31
61 or more	50.0	140
Total	100.0	280
Mean = 94	Maximum = 41	Minimum = 1
Career planning		
Continue with the current job, without any mobility	58.6	156
Try for upward mobility in the present establishment (to seek better wages and working condition)	26.3	70
Try for upward mobility in other establishments, or plan to quit job	15.0	40
Total	100.0	266 *

* Note: Excludes missing cases.

Career planning and individual characteristics

Table 2 shows that more than half of the respondents who were aged 25 or older were satisfied in their current jobs, but about 57 per cent of the women who were aged under 25 were dissatisfied and said they would seek mobility in their careers. They were followed in frequency by those aged 25-34 and 35 or older, respectively. This means that the younger the women, the more likely it is that they would seek mobility in their careers. Among the women who were dissatisfied with their careers, most had attained a junior high school or higher level of education. Moreover, career planning differences were found by age and education, with the differences being statistically significant.

Table 2: Percentage distribution of career planning in the future by age and education

Career planning/characteristics	Plan to continue, with present job	Plan to seek mobility	Total (N)
Age (years)			
Less than 25	43.3	56.7	100.0 (60)
25-34	54.1	45.9	100.0 (111)
35 or older	73.7	26.3	100.0 (95)
Mean	33.6	29.3	
Chi-square = 15.63 * *			
Education			
Not completed junior high school	65.2	34.8	100.0 (138)
Have attended high school or more	51.6	48.4	100.0 (128)
Chi-square = 5.11 *			

Notes: * * p<.01; * p<.05.

Career planning and family variables

Although most of the women were satisfied in their current jobs, there were many respondents who expressed dissatisfaction with their careers and said they would seek mobility in their jobs (table 3). In comparing women who planned to carry on with their current jobs and those who planned to seek mobility, it was found that the average income of their husbands was not very different, i.e. 7,577 and 6,981 baht, respectively. Additionally, a comparison of the women who planned to continue in their current position with those who planned to seek upward mobility revealed that the average household income was 17,595 and 16,647 baht, respectively. Thus, the difference in career planning by husband's income and household income was not significant. In addition, women whose husbands were clerical, sales, service, semiskilled or unskilled workers were found to be planning to seek upward mobility in their careers more than others, although the differences were not significant. As might be expected, the women whose husbands were encouraging them in their careers planned to carry on with their current job, while women whose husbands disapproved of their careers were planning to seek mobility in their current job, by taking work in other establishments, or simply by quitting their current job. Differences in career planning were found to be significantly associated with the husbands' attitude towards their wives' career.

Table 3: Percentage distribution of career satisfaction by family variables

Career planning/ characteristics	Plan to continue with present job	Plan to seek mobility	Total (N)
Income of household (baht per month)			
9,000 or less	58.6	41.4	100.0 (99)
9,001-18,000	56.6	43.4	100.0 (76)
18,001 or more	59.8	40.2	100.0 (82)
Mean	17,595	16,647	
Chi-square = 0.17			
Income of husband (baht per month)			
3,000 or less	60.3	39.7	100.0 (60)
3,001-6,000	50.0	50.0	100.0 (111)

6,001 or more	62.5	37.5	100.0 (95)
Mean	7,577	6,981	
Chi-square = 3.31			
Occupation of husband			
Professional and managerial/skilled	63.2	36.8	100.0 (106)
Clerical, sales and service/ semiskilled and unskilled	51.8	48.2	100.0 (141)
Chi-square = 4.01			
Husband's attitude towards woman's career			
Encouraging and cooperative	64.5	35.5	100.0 (152)
Tolerant or indifferent	52.7	47.3	100.0 (91)
Against	23.1	76.9	100.0 (13)
Chi-square = 10.16 *			

Note: * p<.01.

Career planning and employment variables

Most of the sample who had a skilled, professional or managerial job were satisfied in their present job, whereas most of clerical, sales, service, semiskilled or unskilled workers were dissatisfied in their career and planned to seek mobility. The difference in career planning by the women's occupation was statistically significant (see table 4). There was a clear difference among women who had been working in their current job for five or fewer years and those who had been in their job for more than five years. The average durations in current job when comparing women who planned to continue with their current jobs with those who planned to seek mobility in their careers were 109 months (around 9 years) and 77 months (around 6 years), respectively. This means that a long duration in the women's current job was related to the women continuing with their careers in that place of employment. Moreover, the difference in career planning was found to be significantly related to duration in the women's current job. The more money the women earned, the more likely it was for them to be satisfied in their current job and to plan to continue working in that job. The average incomes, when comparing women who planned to continue in their current job with those who planned to seek mobility in their careers, were 6,657 and 5,371 baht, respectively. This indicates that high income provides women with an incentive for continuing in their current job, whereas a low income provides an incentive for trying to seek upward mobility in their careers, although the relationship is not significant. A higher proportion of women who had high scores on the benefit measure planned to continue working at their current job compared with women with low scores. However, the average of the benefit scores was not very different between the women who planned to carry on with their present jobs and those who planned to seek mobility in their careers, i.e. 4.2 and 4.0, respectively. Women who worked in non-unionized factories planned to seek mobility more than those who worked in unionized factories. However, the difference in terms of career planning with regard to unionization was found to be not significant.

Table 4: Percentage distribution of career satisfaction with regard to employment variables

Career planning/characteristics	Plan to continue with present job	Plan to seek mobility	Total	(N)
Occupation				
Professional and manegeria/skilled	67.5	32.5	100.0	(83)
Clerical, sales and service/semiskilled and unskilled	54.6	45.4	100.0	(183)
Chi-square = 3.87 * *				
Income (baht per month)				
3,000 or less	59.0	41.0	100.0	(73)
3,001-6,000	56.1	43.9	100.0	(112)
6,001 or more	62.2	37.8	100.0	(81)
Mean	6,657	5,371		

Chi-square = 0.68				
Benefit scores				
Low	56.9	43.1	100.0	(51)
Medium	54.7	45.3	100.0	(106)
High	66.7	33.3	100.0	(60)
Mean	4.2	4.0		
Chi-square = 2.33				
Existence of trade union				
Yes	63.0	37.0	100.0	(92)
No	55.4	44.6	100.0	(148)
Chi-square = 1.36				
Duration in present job (months)				
1-36	49.0	51.0	100.0	(104)
37-60	57.1	42.9	100.0	(28)
61 or more	66.4	33.6	100.0	(134)
mean	109.1	77.5		
Chi-square = 7.32 *				

Note: * $p<0.1$

Discussion and conclusion

In summary, the study found that the majority of the respondents were in the age group 25-34 years, semiskilled and unskilled workers with limited education. The average income of respondents, their husbands and their households were 5,928, 7,069 and 17,261 baht, respectively. Only one-fourth of the women enjoyed high benefits in their job. Nearly 60 per cent of the women stated that their husbands encouraged them in the pursuit of their careers.

The study revealed that career planning is associated significantly with age and education, i.e. the younger is the woman, the more likely it is that she will seek mobility in her career. Also, other factors related significantly to career planning are occupation and duration in the current job. Women who had clerical, sales, service, semiskilled and unskilled jobs were found to be more likely to seek mobility in their careers than those who had skilled, professional, or managerial jobs. The longer the woman's duration in her current job, the more likely it was that she would carry on with her present career. Among the reasons for this might be that women who have worked a long time in a certain place are likely to be in a relatively high position so they may not want to change their job or, if their salary-benefits package is high, may not be able to find equally remunerative employment in a competitive job market.

A study by Chaplow (1954) on the position of women in the labour market suggested that the range of jobs open to women is limited because of the discontinuous nature of their working life, i.e. they also have status as mothers and housewives. Thus, women are relegated to low-skilled, low-status and low-paid jobs, since employers would not want to invest for the long term in employees who may frequently take off from work for pregnancy or family reasons, actions which would likely have an impact on the employer's competitiveness. Because of strong competition in business, firms are under pressure to keep wages and salaries and other production costs low if they are to continue in business, which leads to dissatisfaction among those employees in low-pay positions.

The study suggests that the attitude of husbands is an important factor regarding women's participation in the labour force. Hicks and others (1983) found that, because women workers fulfil a dual role of work outside the home and in the household, it is difficult to maintain a balance between maternal and occupational roles without the support of husbands. Further, although the attitude of husbands is associated with the career planning of women, it is not an easy matter to change rapidly a husband's attitude if it is a negative one.

Thus, one of the implications for policy purposes is that attitudinal change must be initiated early. For example, educators should begin to train their students how to deal with the problems posed by a dual work-career life-style. Moreover, measures should be taken to socialize children -- boys and girls alike -- so that they will be able to become competent members of a household, being able to perform all household duties.

Employers should perceive that a conflict between women's maternal and occupational roles is associated with their career planning, which has an important impact on them with regard to industrial productivity. Hence, employers could help to reduce the pressure on women by increasing the availability of child-care centres in factories. In this regard, Tonguthai and Pattaravanich (1992) indicated that less than 5 per cent of women workers said that their children were taken care of in such centres, which were not arranged by factories. Thus, the availability of child-care centres is likely to be another important factor in women's career planning. Their availability is likely to relate also to the husbands' favourable attitude towards their wives' careers, because most husbands expect their wives to emphasize maternal and housewife roles over that of work outside the home. If child-care centres were more widely available in factories, they might feel that their wives could remain close to their children and this in turn would help to reduce conflicts about women's maternal role. Furthermore, it is important for new attitudes to be developed at the administrative and managerial level of industry regarding the hiring of women, knowing that married women workers face a double work burden.

With regard to age, occupation and duration in the current job, all of which were found to be significant factors for career planning, it was found that the older the woman or the longer is her tenure in her job, the more likely she would be holding a high position, a situation which would have a positive impact on her wanting to continue working in her current job. Thus, in order to retain capable persons, employers should have a policy on their promotion to higher positions or the provision of merit increments. In view of the fact that less educated married women are more likely to seek mobility, it would be wise for employers also to adopt policy measures that would enable skill improvements through training and the provision of other human resources development opportunities.

A final implication is the need to continue to strive for the full participation of both men and women in the household along with efforts aimed at achieving greater equality in the workplace.

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Extracts from the ICPD Programme of Action (Demographers' Notebook)

Principle 4

. . . The human rights of women and the girl-child are an inalienable, integral and indivisible part of universal human rights. The . . . eradication of all forms of discrimination on grounds of sex, are priority objectives of the international community.

Chapter IV. Gender equality, equity and empowerment of women

B. The girl child

Basis for action

4.15. 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 realize their full potential and become equal partners in development. In a number of countries, the practice of pre-natal sex selection, higher rates of mortality among very young girls, and lower rates of school enrolment for girls 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 fetal sex, resulting in abortion of female fetuses. Investments made in the girl child's health, nutrition and education, from infancy through adolescence, are critical.

Objectives

4.16. The objectives are:

(a) To eliminate all forms of discrimination against the girl child and the root causes of son preference, which results in harmful and unethical practices regarding female infanticide and pre-natal sex selection;

(b) To increase public awareness of the value of the girl child, and concurrently, to strengthen the girl child's self-image, self-esteem and status;

(c) To improve the welfare of the girl child, especially in regard to health, nutrition and education.

Actions

4.17. Overall, the value of girl children to both their family and to society must be expanded beyond their definition as potential child-bearers and caretakers and reinforced through the adoption and implementation of educational and social policies that encourage their full participation in the development of the societies in which they live. Leaders at all levels of the society must speak out and act forcefully against patterns of gender discrimination within the family, based on preference for sons. One of the aims should be to eliminate excess mortality of girls, wherever such a pattern exists. Special education and public information efforts are needed to promote equal treatment of girls and boys with respect to nutrition, health care, education and social, economic and political activity, as well as equitable inheritance rights.

4.18. Beyond the achievement of the goal of universal primary education in all countries before the year 2015, all countries are urged to ensure the widest and earliest possible access by girls and women to secondary and higher levels of education, as well as vocational education and technical training, bearing in mind the need to improve the quality and relevance of that education.

4.19. Schools, the media and other social institutions should seek to eliminate stereotypes in all types of communication and educational materials that reinforce existing inequities between males and females and undermine girls' self-esteem. Countries must recognize that, in addition to expanding education for girls, teachers' attitudes and practices, school curricula and facilities must also change to reflect a commitment to eliminate all gender bias, while recognizing the specific needs of the girl child.

4.20. Countries should develop an integrated approach to the special nutritional, general and reproductive health, education and social needs of girls and young women, as such additional investments in adolescent girls can often compensate for earlier inadequacies in their nutrition and health care.

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4.23. Governments are urged to take the necessary measures to prevent infanticide, pre-natal sex selection . . . .
