*Sri Lanka J. S. S.* 1984 7 (1 & 2)

# RECENT REGIONAL FERTILITY PATTERNS IN SRI LANKA

INDRA GAJANAYAKE

## Introduction

The fertility decline in Sri Lanka which became conspicuous in the early 1950's has been the subject of several investigations. (for example, see Jayawardene and Selvaratnam, 1967 ; N.H. Wright, 1968 ; D. F. S. Fernando, 1970 and 1972). The fertility decline between 1953 and 1963 has been attributed to (*i*) increase in the mean age at marriage, (*ii*) changes in the population age structure (*iii*) decline in the proportions of married women and (*iv*) decline in marital fertility (ESCAP, 1976). Change in the marital composition has been identified as the most significant contributory factor in the fertility decline between 1963 and 1969 (Fernando, 1972). Sixty percent of the decline in the birth rate between 1963 and 1971 has been attributed to changes in the proportions married and age structure, and only 40 percent to the lowering of marifertility (CICRED, 1974).

Detailed studies of fertility trends and differentials at district level during the period of transition are less numerous. The profile of crude birth rates in the administrative districts more or less retained the same pattern in the years 1963, 1971 and 1980. (Department of Census and Statistics, 1983). The crude birth rate has declined in all districts but not to the same extent. Variations in the crude birth rate result from differences in the population composition and/or age specific fertility. Standardization with respect to age has revealed that the 1971 birth rates in all districts except Batticaloa, Polonnaruwa and Moneragala would have been lower if there had been no change in the age structure (Dept. of Census & Statistics, 1983). Between 1953 and 1963 the total marital fertility rate in most districts actually increased and between 1963 and 1971 showed a rather modest decline (Langford, 1981).

This paper extends the line of research presenting an analysis of fertility levels and trends at district level between 1971 and 1981. The study attempts to decompose the observed fertility decline into the effects of rising age at marriage (malthusian control) and declining marital fertility (neo-malthusian control).

## Data

Basically this analysis utilizes data from two sources : the vital registration system and the census. Statistics on births classified by age of mother at childbirth and district were derived from the vital registration system, whereas the female population according to marital status and district were taken from the census reports.

Data on births derived from the registration system generally suffer from under-registration and mis-statements of age of the mother. In the present context, however, the former source of bias if at all would be more important. Under-registration in the years 1971 and 1981 probably was minimal for a survey undertaken as far back as in 1967 revealed that birth registration was 98.7 percent complete.

Statistics on the number of women classified by age and marital status are subject mainly to errors in age reporting. On the basis of evaluation of age, sex reporting using Myer's Index[1] (22.25 in 1971 and 11.00 in 1981) and the U. N. Age-Sex Accuracy Index[2] (25.6 in 1971 and 17.6 in 1981) age reporting can be regarded as reasonably reliable (Gunasekera, 1984). The same study further reveals that in 1981 the interdistrict variation in the female age-ratio score of the UN Age-Sex Accuracy Index was modest from 3.48 in Puttalam to 7.66 in Amparai. The study therefore is carried through on the presumption that the little misreporting that did occur was less prevalent among women between the ages 15 and 45. It is also assumed that illegitimate fertility was negligible during the period.

**Methodology**

Fertility rates specific to a time period always reflect the interaction between population structure (age, sex and marital status) and fertility itself. Direct comparison of fertility rates for the same population over time or for the same period across different regions is fraught with problems of confounding. It is possible, however, to separate out the impact of fertility itself from that of population composition by the technique of standardization.[3]

If population structures are known, even if the births are not classified by the age of mother it is possible to standardize fertility rates indirectly, making use of a reference (or standard) fertility schedule. An interesting extension of the procedure has been developed by Coale (1965) to separate out the impact on period fertility of marriage, legitimate fertility and illegitimate fertility.[4]

(1) Myer's Index measures age heaping at single digits. (Myer R. J. (1940)). "Errors and Bias in the Reporting of Ages in Census Data" Transactions of the Actuarial Society of America, Vol. 41. Part 2, No. 104, pp. 395-415.

(2) The U. N. Age-Sex Accuracy Index evaluates the general age-sex data. It is an average of sex ratio scores and age ratio scores weighted in the proportion 3 : 1 (United Nations, 1955).

(3) Standardization is a technique that can find application in many quantitative areas of study, apart from Demography. In Demography the technique is applicable also to measures of mortality and migration.

(4) Procedural details of the technique in relation to population are given in most standard text books on Demography.

Since this analysis attempts to decompose fertility into its two primary components : the roles of marital fertility and of age at marriage, use was made of the fertility indices developed by Coale.

The index of general fertility, $I_f$, is the ratio of the observed number of births to the number that would occur if women in every age interval had experienced the reference (standard) fertility schedule. The reference or standard fertility schedule recommended for use is the highest fertility experience on record (Appendix Table 1). The index of marital fertility, Ig, is the ratio of the number of births occuring to married women to the number that would occur if married women experienced the standard fertility schedule. It could also be interpreted as a weighted index of the fertility achieved in the study population as a proportion of the maximum fertility on record, the weights being higher for age groups where more women are married.

The index of the proportion married, $I_m$, is the ratio of the number of children married women would bear if they experienced the standard fertility pattern to the number all women would bear if they experienced the same rates. It is a weighted index of proportion married, where women in the more fertile age groups are given a larger weight.

The three indices are interrelated as follows :

$$I_f = I_g \times I_m$$

$$I_f = \frac{\Sigma f_i \, w_i}{\Sigma F_i \, w_i}$$

$$I_g = \frac{\Sigma g_i \, m_i}{\Sigma F_i \, m_i}$$

$$I_m = \frac{\Sigma F_i \, m_i}{\Sigma F_i \, w_i}$$

where, $f_i$ is the age specific fertility rate.

$w_i$ is the number of all women in each age group.

$m_i$ is the number of married women in each age group.

$F_i$ is the age specific fertility rate in the standard schedule.

There are several advantages in the use of these indices over direct calculations of general fertility, marital fertility and proportions married. First the indices incorporate an indirect standardization for age distribution. Second, the indices can be interpreted in relation to the maximum level of fertility recorded in history. Third, in an analysis involving several time periods and/or population groups the indices are convenient to use since they reveal, in a succinct manner, trends and differentials in the components of fertility.

Obviously, selection of the standard fertility schedule is extremely important. By no means is it limited to the Hutterite population. In theory any fertility schedule could serve as the reference schedule or standard. The exact value of the indices, but not their relative magnitude would depend on the standard

used. The intuitive meaning of the indices when fertility is stated in relation to the maximum on record is considered sufficient reason by the author for use of the Hutterite fertility schedule as the standard in this paper. If, in a population all women were married and experienced marital fertility identical to that of the Hutterites, $I_m$, $I_g$ and $I_f$ would be 1.0. Among the Hutterites themselves where only about 70 per cent of women in the childbearing ages were married $I_m$, $I_g$ and $I_f$ would be 0.7, 1.0 and 0.7 respectively. Though an $I_f$ of 1.0 is theoretically possible, the highest values on record are about 0.7.

**Results and Discussion**

Table 1 shows the indices $I_f$, $I_g$, $I_m$ and their percent change between 1971 and 1981 calculated for each district on the basis of data in Appendix Tables 1, 2, 3 and 4.

Two features stand out at first glance in the $I_f$ series : there is considerable variation among districts in the level of general fertility and it has declined in every district between 1971 and 1981. In 1971, Vavuniya had the highest level of general fertility ($I_f$=.486) and Kegalle, the lowest level ($I_f$=.245). Ten years later, Moneragala ranked highest in the scale ($I_f$=.425) and Kegalle retained its lowest position ($I_f$=.223).

The decline in general fertility of the country has accompanied a modest canvergence of the districts towards the mean (s. d. (1971) = .068, s.d. (1981)=.057). However, the magnitude of the decline differs markedly from one district to another.[5] Amparai shows an exceptionally sharp decline of 32.8% in its $I_f$ value (Map 1). The districts of Colombo, Kurunegala, Matale, Polonnaruwa, Badulla, Nuwara Eliya and Vavuniya have experienced declines between 20 and 27 percent whereas the districts of Trincomalee, Kegalle, Kandy, Kalutara, Galle, Ratnapura and Moneragala have experienced rather modest declines of less than 10 percent.

The picture of a fertility decline in all districts, however, changes somewhat when attention is shifted to changes in marital fertility (Map 2). The index of marital fertility , $I_g$, has declined in the country as a whole while it has actually increased in a few districts. As a result, the districts are even more divergent in this respect than they were in 1971 (s. d. (1971) = .052 s.d. (1981)=.073). In the year 1981 Moneragala experienced the highest marital,

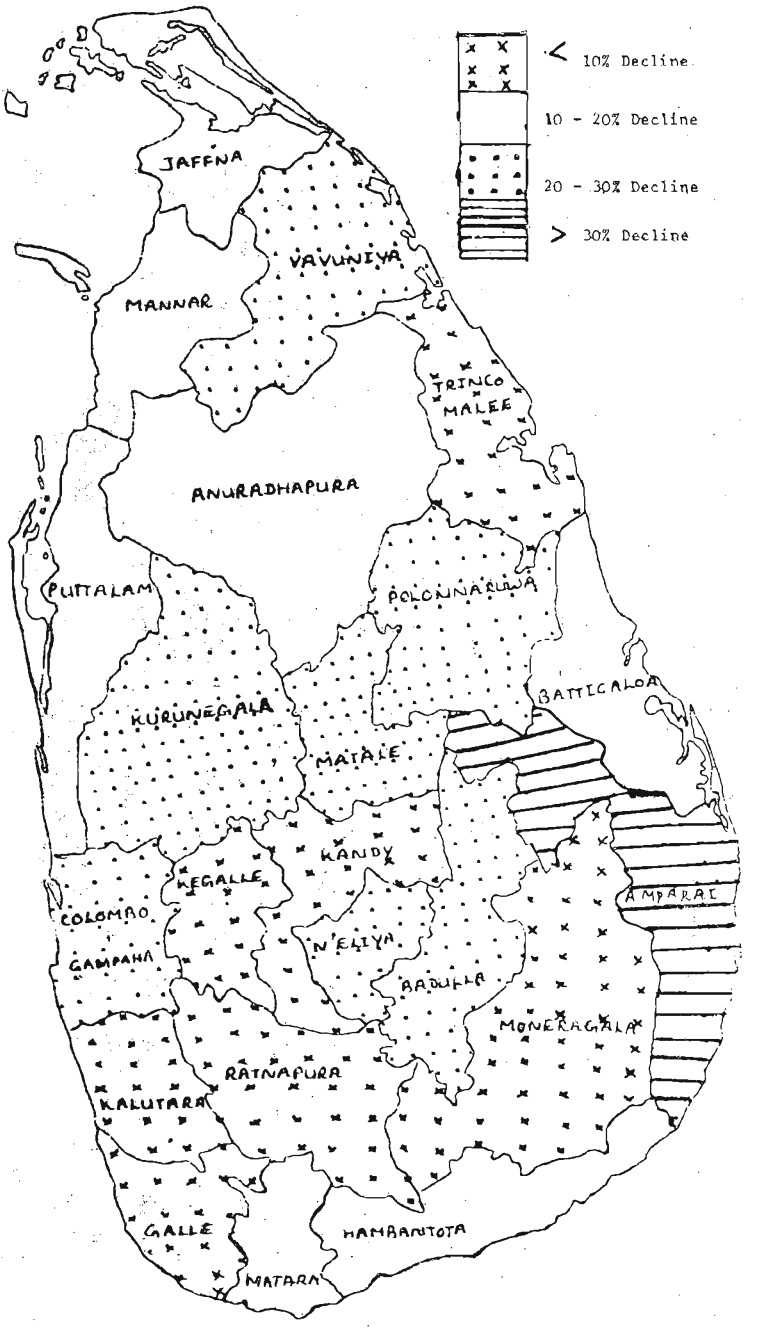
(5) The 1981 indexes for Jaffna, Mannar and Vavuniya have been estimated after proportionately redistributing among them the relevant number of births and women recorded as having occurred in Mullativu.

## TABLE 1

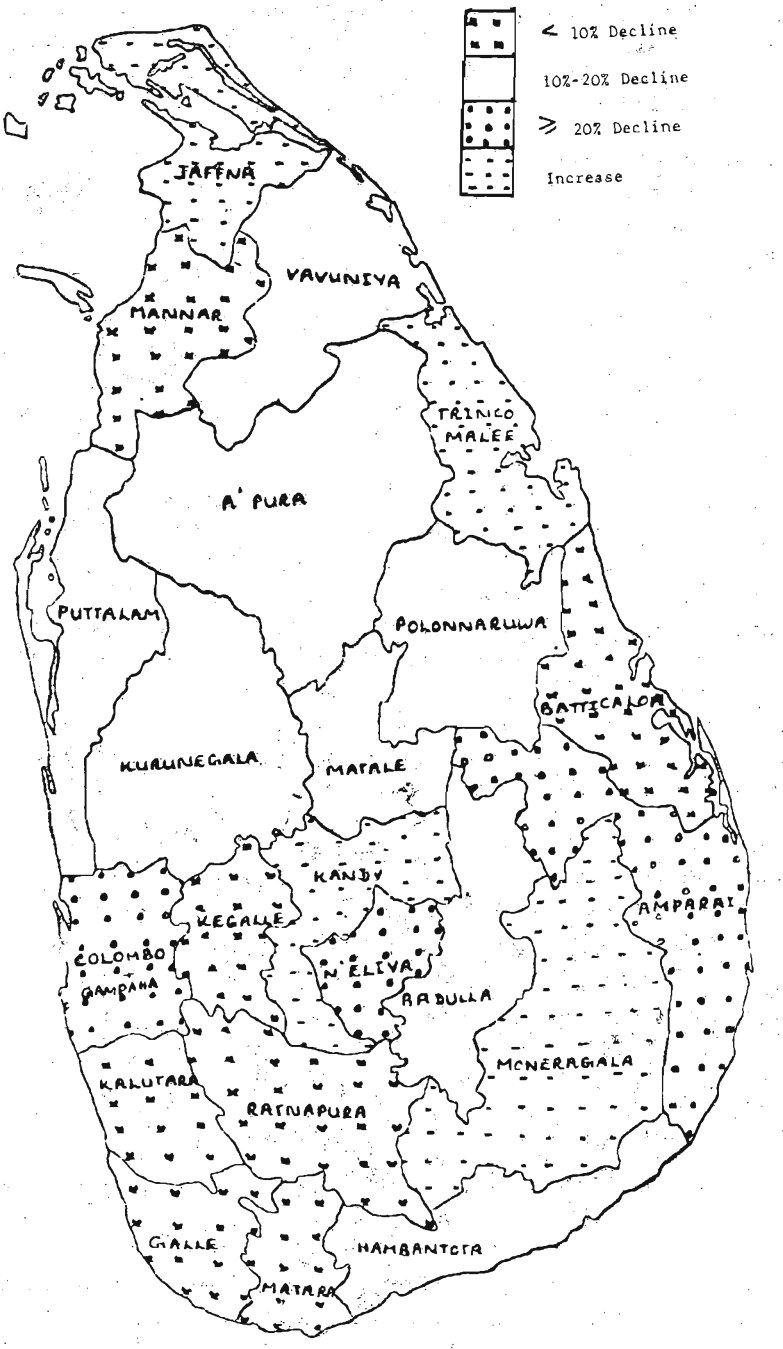
### Fertility indexes by district for the years 1971 and 1981

| District | $I_f$ | | | $I_g$ | | | $I_m$ | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1971 | 1981 | % change | 1971 | 1981 | % change | 1971 | 1981 | % change |
| Sri Lanka | ·331 | ·285 | −13·9 | ·567 | ·500 | −11·8 | ·584 | ·570 | − 2·4 |
| Colombo + Gampaha | ·308 | ·241 | −21·7 | ·563 | ·449 | −20·2 | ·548 | ·536 | − 2·2 |
| Kalutara | ·274 | ·262 | − 4·4 | ·503 | ·465 | − 7·5 | ·544 | ·562 | + 3·3 |
| Kandy | ·330 | ·319 | − 3·3 | ·587 | ·601 | + 2·4 | ·562 | ·531 | − 5·5 |
| Matale | ·373 | ·297 | −20·4 | ·602 | ·518 | −13·9 | ·619 | ·573 | − 7·4 |
| Nuwara Eliya | ·325 | ·249 | −23·4 | ·543 | ·420 | −22·6 | ·598 | ·593 | − 0·8 |
| Galle | ·274 | ·252 | − 8·0 | ·545 | ·493 | − 9·5 | ·502 | ·512 | + 2·0 |
| Matara | ·342 | ·301 | −12·0 | ·692 | ·625 | − 9·7 | ·494 | ·481 | − 2·6 |
| Hambantota | ·366 | ·298 | −18·6 | ·646 | ·558 | −13·6 | ·566 | ·533 | − 5·8 |
| Jaffna | ·357 | ·310 | −13·2 | ·545 | ·567 | + 4·0 | ·655 | ·546 | −16·6 |
| Mannar | ·441 | ·371 | −15·9 | ·595 | ·557 | − 6·4 | ·741 | ·666 | −10·1 |
| Vavuniya | ·486 | ·375 | −22·8 | ·664 | ·564 | −15·1 | ·731 | ·664 | − 9·2 |
| Batticaloa | ·484 | ·415 | −14·3 | ·645 | ·601 | − 6·8 | ·750 | ·690 | − 8·0 |
| Amparai | ·445 | ·299 | −32·8 | ·602 | ·449 | −25·4 | ·739 | ·666 | − 9·9 |
| Trincomalee | ·463 | ·420 | − 9·3 | ·619 | ·631 | + 1·9 | ·747 | ·666 | −10·8 |
| Kurunegala | ·321 | ·251 | −21·8 | ·524 | ·425 | −18·9 | ·612 | ·590 | − 3·6 |
| Puttalam | ·372 | ·317 | −14·8 | ·571 | ·467 | −18·2 | ·651 | ·677 | + 4·0 |
| Anuradhapura | ·423 | ·340 | −19·6 | ·616 | ·511 | −17·0 | ·687 | ·666 | − 3·0 |
| Polonnaruwa | ·405 | ·298 | −26·4 | ·566 | ·456 | −19·4 | ·716 | ·653 | − 8·8 |
| Badulla | ·364 | ·288 | −20·9 | ·599 | ·516 | −13·9 | ·608 | ·559 | − 8·0 |
| Moneragala | ·449 | ·425 | − 2·4 | ·636 | ·670 | + 5·3 | ·706 | ·634 | −10·2 |
| Ratnapura | ·331 | ·314 | − 5·1 | ·560 | ·528 | − 5·7 | ·591 | ·595 | + 0·6 |
| Kegalle | ·245 | ·223 | − 9·0 | ·447 | ·419 | − 6·3 | ·548 | ·532 | − 2·9 |

**MAP – 1 Percent change in $I_f$ between 1971 and 1981**



**MAP – 2 Percent change in $I_g$ between 1971 and 1981**



fertility ($I_g$=.670) and Kegalle the lowest ($I_g$=.419). The districts showing an upward trend in marital fertility are : Jaffna, Trincomalee, Kandy and Moneragala. The sharpest decline has occurred in the district of Amparai (25.4%) and the lowest in Ratnapura (5.7%).

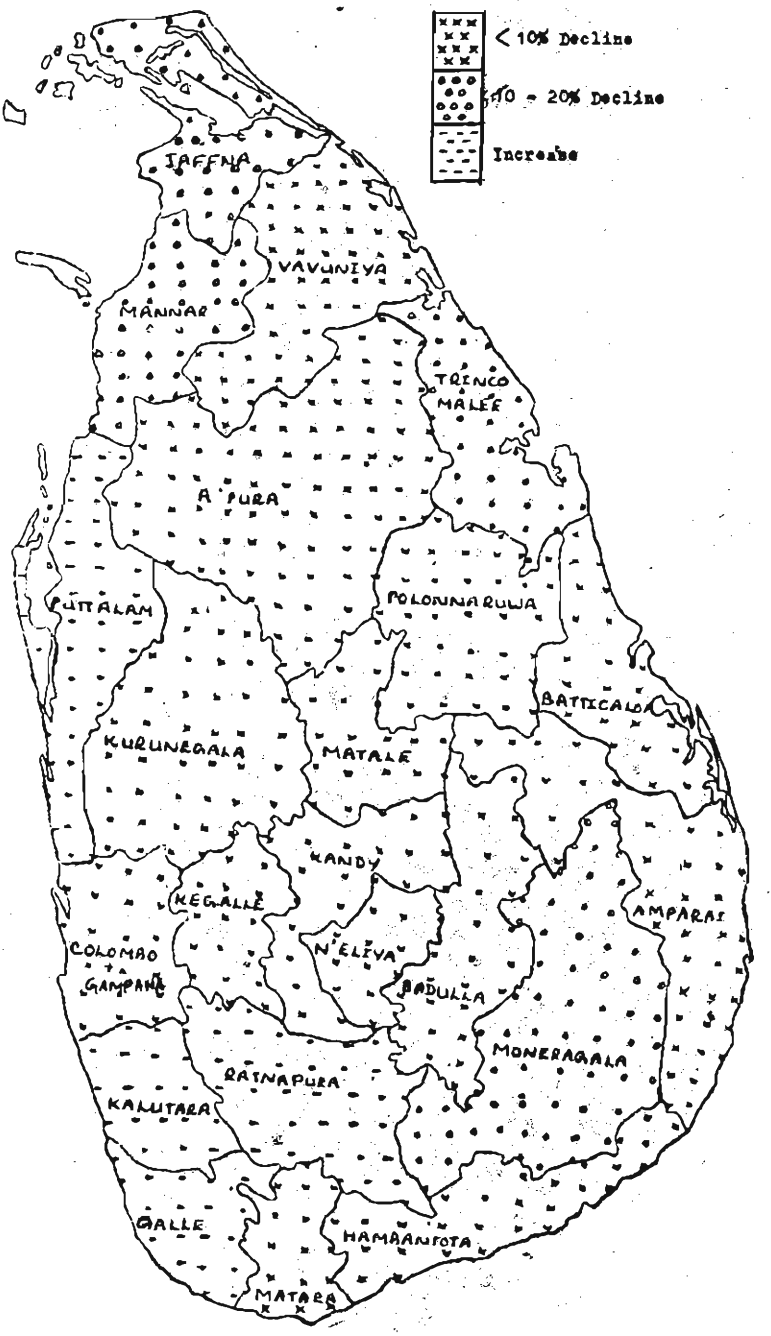
On an islandwide basis the index of proportions married, $I_m$, has remained relatively stable during this period, indicating that age at marriage has not increased drastically (Map 3). The index of proportions married is relatively high and shows a wider variation among districts in 1971 than in 1981 (s.d. (1971) = .082 ; s.d. (1981) = .062). However, not all districts have experienced a change in the same direction. Kalutara, Galle, Puttalam and Ratnapura have seen a modest increase whereas all other districts have seen a decline in proportions married within the more fertile age groups. Jaffna shows the largest decline (16.6%). Trincomalee, Moneragala and Mannar show declines between 10 and 11%.

The increase in the index $I_m$ for a district could arise not only from a lowering of the age at marriage but also from selective outmigration of unmarried women and/or selective inmigration of married women in the prime childbearing ages. Similarly a decrease in the index for a district could arise from a rise in the age at marriage, selective inmigration of unmarried women and/or selective out migration of married women in the fertile age groups. The data currently available, however, do not permit a finer analysis of these factors at district level. At country level, a reasonable speculation would be that the exodus of young females for employment in the Middle East has contributed to the modest lowering of $I_m$.

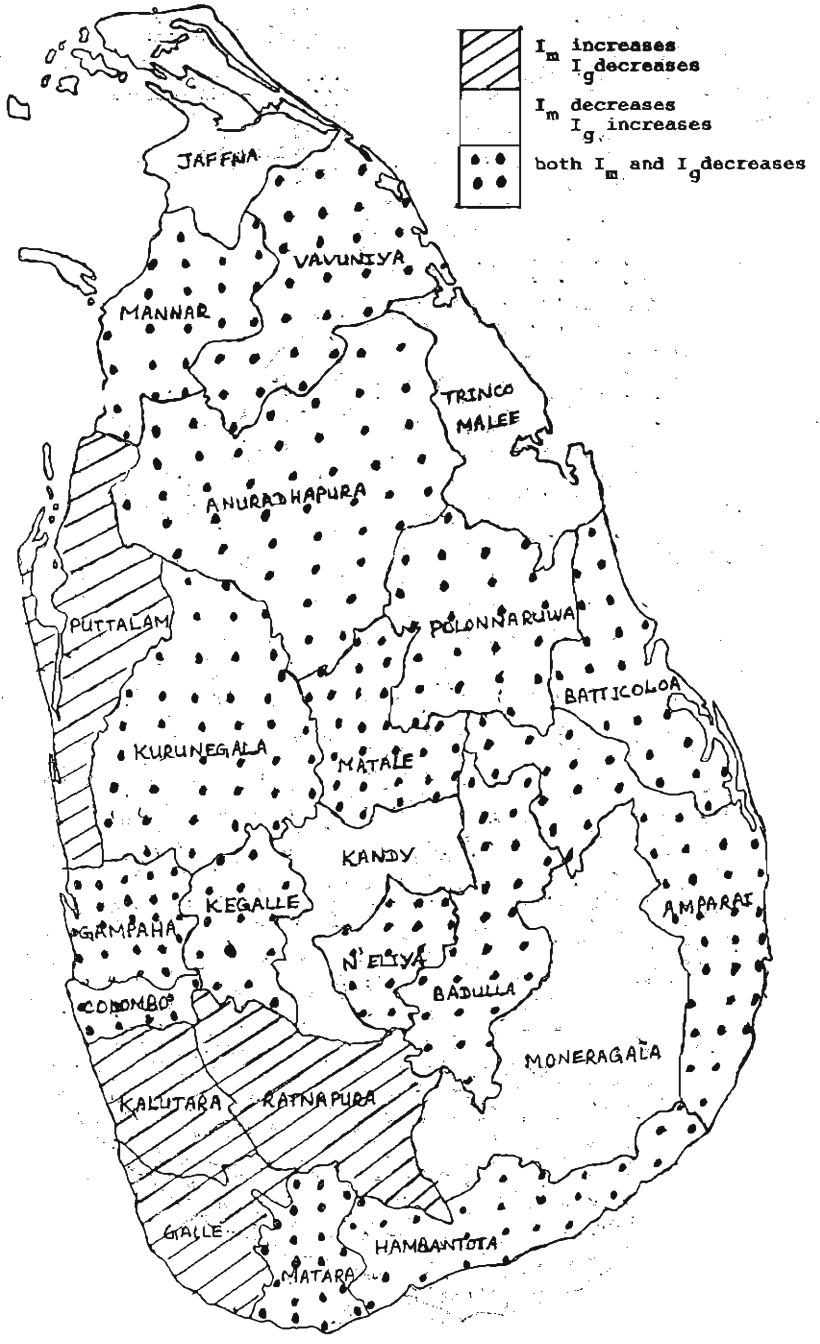
A point to note in this context is that all districts that show a rise in proportions married show a concomitant decline in marital fertility (map 4). Also, all districts that show a rise in marital fertility show a decline in proportions married. In all these districts therefore, the decline in general fertility appears modest because the two components-proportion married and marital fertility-are changing in opposite directions. Among the districts that show a decline in proportions married as well as marital fertility the change in both components is not equal. In a large majority a reduction in marital fertility stands out as the principal factor underlying the observed decline in general fertility (Table 2).

In the districts of Colombo and Nuwara Eliya the decline in general fertility in almost entirely brought about by a reduction in fertility. In the exceptional districts of Mannar and Batticaloa the lowering of fertility is largely brought about by a decrease in the proportions married which taken by themselves appear to be quite modest. The last two districts however, have not experienced an exceptionally high rise in the age at marriage. The singulate age at marriage in Mannar has changed from 20.2 in 1971 to 21.5 years in 1981

**MAP - 3 Percent change in $I_m$ between 1971 and 1981**



**MAP – 4 Patterns of change in the proportion married and marital fertility**



whereas in Batticaloa it has increased from 20.1 to 20.9 during the same period. Compared to the countrywide change from 23.5 to 24.4 these changes are minimal.[1] The inference that could be drawn from this observation is that fertility control is minimal in these districts.

**TABLE 2**

**Classification of districts according to the major transitional factor in the fertility decline between 1971 and 1981**

| *Marital Fertility* | *Proportion Married* |
|---|---|
| Colombo - Gampaha | Mannar |
| Kalutara | Batticaloa |
| Matale | Jaffna |
| Nuwara Eliya | Trincomalee |
| Galle | Moneragala |
| Matara | Kandy |
| Hambantota | |
| Vavuniya | |
| Amparai | |
| Kurunegala | |
| Puttalam | |
| Anuradhapura | |
| Polonnaruwa | |
| Badulla | |
| Kagalle | |
| Ratnapura | |

By international standards Sri Lanka has yet to go a long way towards fertility transition (Table 3). For example, the index of marital fertility of Sri Lanka for 1981 is comparable to those of U.S.A. for 1900 and Japan for 1930. By 1960 both these countries had lowered their fertility to a level far below that of Sri Lanka in 1981.

The foregoing analysis thus reveals that behind a low level of general fertility exists a considerably high level of marital fertility which quantified in terms of $I_g$ shows a wide variation among the districts. The study also demonstrates that the major factor responsible for the fertility decline in most districts is a reduction in marital fertility rather than a reduction in proportion married. However, there are a few districts which, for yet unidentified reason/s, show an increase in marital fertility or proportion married. Finally this analysis suggests that it would not be prudent to be complacent about the apparently advanced position we occupy in the path of fertility transition for we have a long way ahead judging by the performance of countries that have completed the process.

(1) *Source :* Dept. of census and Statistics. Socio-economic development and fertility decline in Sri Lanka. 1983, Page 110, Table 5.5.

**TABLE 3**

**Fertility indexes for selected populations**

| *Population* | $I_f$ | | | $I_g$ | | | $I_m$ | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1900 | 1930 | 1960 | 1900 | 1930 | 1960 | 1900 | 1930 | 1960 |
| England and Wales .. | 0·27 | 0·15 | 0·22 | 0·54 | 0·29 | 0·29 | 0·48 | 0·50 | 0·71 |
| France .. | 0·24 | 0·19 | 0·22 | 0·38 | 0·30 | 0·31 | 0·57 | 0·58 | 0·67 |
| European Russia .. | 0·55 | 0·42 | 0·24 | 0·77 | 0·65 | 0·35 | 0·70 | 0·63 | 0·62 |
| United States .. | 0·29 | 0·20 | 0·28 | 0·49 | 0·31 | 0·36 | 0·58 | 0·63 | 0·75 |
| Japan .. | — | 0·37 | 0·17 | — | 0·51 | 0·29 | — | 0·68 | 0·58 |

*Source :* Coale (1965), page 209, Table 3.

## APPENDIX

### TABLE 1

**Standard schedule of births per woman in each age group**

| Age group | 15–19 | 20–24 | 25–29 | 30–34 | 35–39 | 40–44 | 45–49 |
|---|---|---|---|---|---|---|---|
| Births per woman | 0·300 | 0·550 | 0·502 | 0·447 | 0·406 | 0·222 | 0·061 |

*Source :* Coale (1965), page 209, Table 1.

## TABLE 2

**Number of currently married females according to age, district and period**

| District | 1971[a] | | | | | | 1981[b] | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 15-19 | 20-24 | 25-29 | 30-34 | 35-39 | 40-44 | 15-19 | 20-24 | 25-29 | 30-34 | 35-39 | 40-44 |
| Sri Lanka .. | 69850 | 289389 | 348753 | 302110 | 318909 | 236192 | 80387 | 331310 | 433769 | 448781 | 356232 | 289540 |
| Colombo } .. | 10131 | 51666 | 70811 | 65016 | 65248 | 53132 | 6780 | 32494 | 44565 | 52257 | 41406 | 32725 |
| Gampaha } | | | | | | | 6039 | 26973 | 40258 | 44857 | 35343 | 28708 |
| Kalutara .. | 2792 | 13466 | 18911 | 18485 | 19311 | 15544 | 3397 | 15774 | 22612 | 24953 | 21687 | 18859 |
| Kandy .. | 4504 | 26346 | 35923 | 29770 | 29803 | 20504 | 4044 | 21596 | 31299 | 35752 | 28948 | 22589 |
| Matale .. | 2001 | 8013 | 8989 | 7387 | 7839 | 5364 | 2079 | 9075 | 10883 | 10687 | 7808 | 6767 |
| Nuwara Eliya .. | 1872 | 11496 | 15665 | 12030 | 11458 | 7105 | 1967 | 12138 | 17452 | 18358 | 15412 | 11377 |
| Galle .. | 2161 | 11304 | 16963 | 17658 | 18736 | 16189 | 2907 | 14354 | 19225 | 22836 | 20624 | 17278 |
| Matara .. | 1586 | 9092 | 13296 | 12742 | 14848 | 12225 | 1650 | 9926 | 15193 | 18248 | 14836 | 13275 |
| Hambantota .. | 1696 | 7442 | 7596 | 6623 | 8590 | 6509 | 2031 | 8901 | 12429 | 11740 | 8271 | 7568 |
| Jaffna(c) .. | 3756 | 16604 | 18504 | 17404 | 18065 | 15132 | 3386 | 14890 | 23178 | 27089 | 20656 | 17473 |
| Mannar(c) .. | 1109 | 2625 | 2094 | 1651 | 1701 | 1244 | 1335 | 3675 | 4142 | 3655 | 2391 | 1837 |
| Vavuniya(c) .. | 1073 | 3016 | 2632 | 1990 | 2133 | 1485 | 952 | 4228 | 4322 | 3849 | 2763 | 2228 |
| Batticaloa .. | 4822 | 8318 | 7026 | 5843 | 6203 | 4222 | 5046 | 11800 | 10462 | 8716 | 6823 | 5312 |
| Amparai .. | 3739 | 8767 | 8425 | 6235 | 6173 | 4000 | 4261 | 12110 | 12695 | 10371 | 8403 | 5951 |
| Trincomalee .. | 2938 | 6262 | 5497 | 4089 | 4074 | 2755 | 3175 | 7477 | 8087 | 6752 | 5125 | 3940 |
| Kurunegala .. | 6594 | 26848 | 27518 | 23482 | 26516 | 19330 | 6972 | 30075 | 39698 | 37695 | 29241 | 23759 |
| Puttalam .. | 3454 | 11649 | 11146 | 8556 | 9573 | 7151 | 4909 | 15362 | 17071 | 15820 | 11262 | 9244 |
| Anuradhapura .. | 4108 | 11931 | 10048 | 8387 | 9274 | 6095 | 6049 | 19387 | 20325 | 16230 | 11024 | 9163 |
| Polonnaruwa .. | 1496 | 4923 | 4825 | 3699 | 3826 | 2272 | 2009 | 7771 | 8660 | 7195 | 5311 | 4272 |
| Badulla .. | 3040 | 14315 | 19457 | 15673 | 15698 | 9543 | 3412 | 15076 | 18298 | 18501 | 16166 | 13047 |
| Moneragala .. | 1834 | 5713 | 5693 | 4034 | 4758 | 2611 | 1879 | 6959 | 7898 | 6790 | 5065 | 3870 |
| Ratnapura .. | 3052 | 16044 | 19539 | 15710 | 17847 | 11465 | 4064 | 18873 | 25283 | 24823 | 20183 | 15295 |
| Kegalle .. | 2092 | 13549 | 18195 | 15646 | 17235 | 12315 | 2044 | 12396 | 19754 | 21572 | 17483 | 15003 |

*Source :* (*a*) Unpublished data of the 1971 census (*b*) Department of Census and Statistics, 1982 Census of Population and Housing, Sri Lanka 1981. Preliminary Release No. 2. (*c*) Figures for 1981 estimated on the basis of area composition of Mullativu District.

## TABLE 3

### Number of all female according to age, district and period

| District | 1971[a] | | | | | | 1981[b] | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 15-19 | 20-24 | 25-29 | 30-34 | 35-39 | 40-44 | 15-19 | 20-24 | 25-29 | 30-34 | 35-39 | 40-44 |
| Sri Lanka .. | 671248 | 631115 | 475188 | 352034 | 358567 | 271876 | 792365 | 756490 | 635837 | 553334 | 415721 | 337587 |
| Colombo } Gampaha } .. | 134509 | 133876 | 104191 | 77423 | 74709 | 61659 | 88478 71186 | 88868 69701 | 74544 61639 | 66183 55849 | 49124 41007 | 38751 33098 |
| Kalutara .. | 36915 | 35737 | 29169 | 22791 | 22049 | 17949 | 40932 | 38849 | 34056 | 31892 | 25975 | 21886 |
| Kandy .. | 64757 | 63323 | 49217 | 34832 | 33743 | 23927 | 62514 | 58770 | 48953 | 45291 | 34552 | 26815 |
| Matale .. | 17302 | 15241 | 11237 | 8270 | 8640 | 6106 | 20484 | 19721 | 15363 | 12987 | 8907 | 7691 |
| Nuwara Eliya .. | 23902 | 24654 | 19980 | 13708 | 12885 | 8225 | 27425 | 27513 | 24419 | 22439 | 17513 | 13119 |
| Galle .. | 38262 | 35179 | 28770 | 22883 | 22037 | 18823 | 42181 | 39728 | 33013 | 30672 | 25610 | 20664 |
| Matara .. | 33186 | 28604 | 21949 | 15900 | 16939 | 13965 | 34308 | 32431 | 27192 | 25265 | 18104 | 15543 |
| Hambantota .. | 20308 | 16131 | 9873 | 7499 | 9559 | 7405 | 23288 | 22786 | 19197 | 14357 | 9451 | 8558 |
| Jaffna(c) .. | 37400 | 35154 | 24345 | 19787 | 20001 | 17287 | 48679 | 40497 | 34546 | 32656 | 23472 | 20109 |
| Mannar(c) .. | 3949 | 3502 | 2308 | 1776 | 1830 | 1413 | 6763 | 6153 | 4972 | 4053 | 2713 | 2056 |
| Vavuniya(c) .. | 4506 | 4159 | 2938 | 2133 | 2288 | 1670 | 6843 | 7016 | 5208 | 4232 | 3045 | 2543 |
| Batticaloa .. | 13329 | 10925 | 7979 | 6414 | 6946 | 5095 | 18772 | 17269 | 12563 | 10022 | 7910 | 6578 |
| Amparai .. | 13380 | 11826 | 9425 | 6756 | 6903 | 4827 | 22843 | 19149 | 15109 | 11668 | 9408 | 7111 |
| Trincomalee .. | 9008 | 8396 | 6198 | 4474 | 4500 | 3180 | 14395 | 11510 | 10195 | 7855 | 5837 | 4664 |
| Kurunegala .. | 58727 | 51885 | 34083 | 26337 | 29096 | 21913 | 66149 | 64597 | 55191 | 44827 | 33543 | 27637 |
| Puttalam .. | 20256 | 19795 | 13662 | 9602 | 10705 | 8219 | 24908 | 24222 | 21631 | 18330 | 13127 | 10601 |
| Anuradhapura .. | 20801 | 18029 | 11568 | 9046 | 10003 | 6795 | 31683 | 31143 | 25140 | 18429 | 12165 | 10271 |
| Polonnaruwa .. | 7731 | 7177 | 5441 | 3952 | 4094 | 2474 | 13805 | 13101 | 10690 | 8168 | 5852 | 4737 |
| Badulla .. | 32546 | 30048 | 24656 | 17625 | 17439 | 10962 | 38581 | 34533 | 26158 | 22612 | 18596 | 15352 |
| Moneragala .. | 9724 | 8389 | 6383 | 4336 | 5143 | 2918 | 13274 | 12405 | 10025 | 7674 | 5561 | 4605 |
| Ratnapura .. | 34733 | 34484 | 26210 | 18127 | 19728 | 12955 | 38563 | 40753 | 35564 | 30527 | 23434 | 17811 |
| Kegalle .. | 36017 | 34601 | 25606 | 18363 | 19330 | 14109 | 36282 | 35746 | 30463 | 27346 | 20816 | 17376 |

*Source :* (*a*) Unpublished data of the 1971 census (*b*) Department of Census and Statistics, 1982. Census of Population and Housing, Sri Lanka 1981. Preliminary Release No. 2. (*c*) Figures for 1981 estimated on the basis of area composition of Mullativu District.

## TABLE 4

### Number of births, according to age, district and period

| District | 1971 | | | | | | 1981 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 15–19 | 20–24 | 25–29 | 30–34 | 35–39 | 40–44 | 15–19 | 20–24 | 25–29 | 30–34 | 35–39 | 40–44 |
| Sri Lanka .. | 26834 | 116297 | 110253 | 70108 | 46988 | 10768 | 29748 | 130531 | 128345 | 82022 | 37691 | 8775 |
| Colombo } .. | 4809 | 22437 | 23417 | 14660 | 8227 | 1973 | 3456 | 14454 | 14870 | 10610 | 4112 | 891 |
| Gampaha } | | | | | | | 2011 | 8226 | 8581 | 5597 | 2169 | 179 |
| Kalutara .. | 978 | 5067 | 5469 | 3944 | 2584 | 701 | 1211 | 5835 | 6496 | 4617 | 2313 | 566 |
| Kandy .. | 1826 | 11089 | 11723 | 7146 | 4614 | 1106 | 1707 | 10868 | 12033 | 7989 | 3590 | 789 |
| Matale .. | 799 | 3305 | 2893 | 1769 | 1301 | 285 | 809 | 3652 | 3262 | 1895 | 845 | 167 |
| Nuwara Eliya .. | 680 | 4394 | 4672 | 2476 | 1772 | 313 | 593 | 4355 | 4669 | 2605 | 1347 | 300 |
| Galle .. | 756 | 4399 | 5396 | 4272 | 3045 | 916 | 998 | 5259 | 5853 | 4745 | 2525 | 740 |
| Matara .. | 673 | 4515 | 5224 | 4051 | 3069 | 862 | 820 | 5010 | 5835 | 4472 | 2421 | 652 |
| Hambantota .. | 680 | 3334 | 2610 | 1862 | 1631 | 413 | 684 | 3777 | 4045 | 2340 | 1155 | 294 |
| Jaffna .. | 1405 | 6245 | 6018 | 4028 | 2411 | 598 | 1310 | 6335 | 8114 | 6164 | 2582 | 655 |
| Mannar .. | 374 | 946 | 654 | 399 | 266 | 58 | 339 | 1267 | 1089 | 618 | 255 | 78 |
| Vavuniya .. | 434 | 1210 | 876 | 554 | 405 | 101 | 336 | 1180 | 997 | 546 | 247 | 66 |
| Batticaloa .. | 1723 | 3232 | 2347 | 1535 | 1022 | 195 | 1857 | 4464 | 3293 | 1842 | 1000 | 232 |
| Amparai .. | 1508 | 3366 | 2673 | 1281 | 872 | 139 | 1316 | 3825 | 2945 | 1586 | 807 | 163 |
| Trincomalee .. | 1148 | 2323 | 1735 | 988 | 612 | 117 | 1189 | 3271 | 2584 | 1506 | 801 | 181 |
| Kurunegala .. | 2258 | 10128 | 7770 | 4890 | 3625 | 756 | 2397 | 10597 | 9543 | 5362 | 2331 | 583 |
| Puttalam .. | 1376 | 4688 | 3412 | 1860 | 1172 | 237 | 1741 | 5559 | 4364 | 2272 | 929 | 181 |
| Anuradhapura .. | 1294 | 4653 | 3266 | 2122 | 1648 | 320 | 1862 | 7003 | 5286 | 2765 | 1410 | 291 |
| Polonnaruwa .. | 489 | 1815 | 1394 | 834 | 592 | 117 | 647 | 2445 | 2138 | 1194 | 525 | 135 |
| Badulla .. | 1123 | 6079 | 6303 | 3752 | 2530 | 518 | 1137 | 6590 | 5966 | 3127 | 1517 | 344 |
| Moneragala .. | 688 | 2296 | 1780 | 1112 | 889 | 133 | 877 | 3574 | 2777 | 1361 | 783 | 215 |
| Ratnapura .. | 1125 | 6242 | 5959 | 3699 | 2753 | 501 | 1513 | 7647 | 7755 | 5040 | 2353 | 498 |
| Kegalle .. | 684 | 4525 | 4644 | 2871 | 1946 | 409 | 756 | 4602 | 5205 | 3362 | 1467 | 286 |

*Source :* Unpublished data from the Department of Registrar General.

## REFERENCES

(1) CICRED. *The Population of Sri Lanka,* Colombo, 1974.

(2) Coale, A. J. Factors associated with the development of low fertility: a historic summary. *Proceedings of World Population Conference*, 1965, Vol. II, pp. 205-209.

(3) Department of Census and Statistics. *Socio-economic development and Fertility decline in Sri Lanka*—1983. page 151, Appendix Table 7.

(4) Fernando, D. F. S. *Fertility trends in Ceylon*, 1953-1968 *and the National Family Planning Programme.* Monograph No. 17, Department of Census and Statistics, Colombo 1970.

(5) Fernando, D. F. S. Recent fertility decline in Ceylon. *Population Studies.* 26(3), 1972, pp. 445-453.

(6) Gunasekera, H. R. *An evaluation of age-sex data of* 1981 *census in Sri Lanka.* DTRU working paper, University of Colombo No. 2, 1984.

(7) Jayawardane, C. H. S. and Selvaratnam, S. Fertility levels and trends in Ceylon. *Paper presented to the IUSSP conference*, Sydney, 1967.

(8) Langford, C. Fertility change in Sri Lanka since the war : an analysis of the experience of different districts. *Population Studies*, 35(2), 1981, pp. 285-306.

(9) Myers, R. J. Errors and Bias in the reporting of ages in Census data. *Transactions of the Actuarial Society of America*, Vol. 41, part 2, No. 104, 1940, pp. 395-415.

(10) United Nations. *Methods of (Appraisal of Quality of Basic Data for Population Estimates).* Manual 2, 1955, p. 42.

(11) Wright, N. H. Recent fertility change in Ceylon and prospects for National Family Planning Programme. *Demography*, 5(2), 1968, pp. 745-746.