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C.M. LANGFORD

The Fertility of Tamil Estate Workers in Sri Lanka

INTERNATIONAL STATISTICAL INSTITUTE
Permanent Office, Director: E. Lunenberg
428 Prinses Beatrixlaan, PO Box 950
2270 AZ Voorburg
Netherlands

WORLD FERTILITY SURVEY
Project Director:
Halvor Gille
35-37 Grosvenor Gardens
London SW1W 0BS, UK

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C.M. LANGFORD

London School of Economics and Political Science

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1 Introduction

1.1 THE PROBLEM

According to the Sri Lanka Fertility Survey, carried out in 1975 as part of the World Fertility Survey, women living on estates (the overwhelming majority are Indian Tamils) were considerably less well educated than women in other sectors, married younger and practised less contraception. At the same time, however, they apparently had, not more, but fewer children than other women (table 1). The main object here is to investigate and try to resolve this anomaly. To this end, a number of analyses based upon data from outside the survey, as well as a much more detailed analysis of the Sri Lanka Fertility Survey material itself, have been carried out.

1.2 GENERAL DEMOGRAPHIC BACKGROUND

The population of Sri Lanka more than doubled during the 30 years 1946–76, from some 6½ million to not much less than 14 million (table 2). Mortality dropped very substantially. The crude death rate was 20.4 in 1946 and only 8.0 in 1976. The major part of this decline occurred during the early part of the period, between 1946 and 1953. It was particularly marked during the years immediately following 1946, and undoubtedly this was connected with the near-eradication of malaria during that period. (A campaign of spraying was begun in 1946 and extended to all malarious districts during 1947.) However, mortality also declined substantially in non-malarious areas, so other factors were also clearly significant. The crude birth rate declined too, though proportionately less than the crude death rate, and rather later. The crude birth rate in 1953 was actually a little higher than in 1946, at 39.7, compared with 38.6 for the earlier year. It fell after 1953, to 34.6 in 1963 and 27.6 in 1976, ie by 30 per cent between 1953 and 1976. Most of this decline was due to structural changes, and particularly to a substantial rise in the age at

marriage for women. This rise in age at marriage may be seen very clearly in the figures on proportions single by age group shown in table 2. However, the changes in the marital general fertility rate indicate that there was also some decline in the level of marital fertility.¹

1.3 ETHNIC BACKGROUND

The population of Sri Lanka is made up of a number of different ethnic groups, the most important numerically being the Low Country Sinhalese and the Kandyan Sinhalese, the Sri Lanka Tamils, the Indian Tamils and the Sri Lanka Moors. At the time of the 1971 census these five groups accounted for 99 per cent of the population (table 3). The main difference between Low Country and Kandyan Sinhalese (the terms spring from their main areas of residence, these being, respectively, the coastal lowlands in the south and south-west of the island, and the area of the old Kandyan Kingdom which lasted until 1815, in the interior) is that the latter are, or are seen to be, in a number of respects more 'traditional' in their behaviour, having been less exposed to foreign influence. The Sri Lanka Tamils (referred to as Ceylon Tamils until 1972 when Ceylon was re-named Sri Lanka) are the descendants of very long established immigrants from south India, the Indian Tamils being much more recent immigrants, coming in mainly to work on tea (earlier, coffee) estates during the 19th and 20th centuries. The Sri Lanka Moors (Ceylon Moors until 1972) are the descendants of very long established Muslim immigrants. Sri Lanka Tamils live mainly in the northernmost part of the island, in and around the district of Jaffna, and on the east coast; Indian Tamils are heavily concentrated in the south central hill country, where most of the tea (and

¹ For a much more detailed discussion of these changes, see Langford (1981).

Table 1 Education, age at marriage, contraceptive practice and completed family size of women, by type of place of residence

Type of place of residence	N	% of women with > 5 years of education	For women aged 25 +, mean age at 1st marriage of those marrying before age 25 ^a	% of women who have ever used birth control	Mean live births to women aged 45–49
Urban	1255	57	18.8	53	5.5
Rural	4914	38	18.2	44	6.2
Estate	643	8	17.3	22	5.2

^a In this case, childhood type of place of residence.

Source: World Fertility Survey, Sri Lanka 1975, *First Report*, Department of Census and Statistics, Ministry of Plan Implementation, 1978, pp 52, 62, 78, 130, 174

Table 2 Population, mortality, fertility and nuptiality in Sri Lanka since the war^a

Year	Total population ^b (1000s)	Crude death rate ^c (per 1000 total population)	Crude birth rate ^c (per 1000 total population)	Marital general fertility rate ^d (per 1000 married women aged 15–49)	Percentage of women never married ^e		
					15–19	20–24	45–49
1946	6657	20.4	38.6	238	75.4	29.4	3.4
1953	8098	11.0	39.7	252	78.2	32.0	3.8
1963	10582	8.7	34.6	239	85.0	41.3	3.9
1971	12690	7.7	30.1	215	89.4	53.2	4.1
1976	13730	8.0	27.6	—	—	—	—

^aThe population totals shown, other than for 1976, are census counts. All vital rates, except those for 1976, were obtained by dividing the number of vital events in the year in question by the census count of the population concerned. No attempt was made to adjust the census figures to mid-year.

^bThe figure for 1976 is an official estimate of the population at mid-year, taken from the *Statistical Pocket Book of Sri Lanka*, Department of Census and Statistics, 1977.

^cThe rates for 1976 come from the 1977 *Statistical Pocket Book*.

^dLive births to women of all ages and marital statuses per 1000 married women aged 15–49. No data on illegitimacy are available for Sri Lanka, but it is thought to be very rare.

^eThe figures shown for 1953 are slightly modified figures, since there are errors in the census data on marital status for that year. Details are available in Langford 1981: Appendix 1.

Source: the Reports on the censuses of 1946, 1953 and 1971; various Reports of the Registrar-General of Ceylon on Vital Statistics and Bulletins on Vital Statistics; and unpublished data provided by the Sri Lankan Department of Census and Statistics

rubber) estates are located; most Sri Lanka Moors live in the east, north and north-west of the island. The Sinhalese are overwhelmingly Buddhist and the Tamils Hindu, though there are Christian minorities in both cases.

1.4 THE ESTATE SECTOR

Most of the estates (ie plantations) in Sri Lanka are situated in the south central part of the island, in the area comprising the administrative districts of Kandy, Matale, Nuwara Eliya, Badulla, Ratnapura and Negalle (figure 1). Tea is the main product, though there are some rubber estates. Tea estates are typically found at high or relatively high altitudes, from about 1000 feet to more than 6000 feet above sea level. The workforce mostly live in blocks of single-storey housing units, referred to as 'lines'. As has been noted, the overwhelming majority are Indian Tamils. The estate population is much less well educated than the Sri Lankan population as a whole and it tends to be characterized as generally rather unsophisticated. A distinctly 'modern' feature of the population, however, is the extremely heavy involvement of women in the labour force. The plucking of tea on estates is very much 'women's work' (men mostly carry out other agricultural tasks) and the great majority of women go out to work both before and after marriage.

Table 3 Percentage distribution of the population of Sri Lanka by ethnic group in 1971

Low country Sinhalese	Sri Lanka		Sri Lanka		Others
	Kandyan Sinhalese	Indian Tamils	Indian Tamils	Moors	
% 42.8	29.2	11.2	9.3	6.5	1.0

Source: Sri Lanka, Census of Population 1971, *General Report*, Department of Census and Statistics, 1978, p 79

1.5 THE SLFS SAMPLE AND ITS COVERAGE OF THE ESTATE POPULATION

The sample on which the Sri Lanka Fertility Survey (SLFS) was based was a nationally representative probability sample with a two-stage design. In the first stage, a sample of census blocks was chosen within predetermined geographical areas and strata. In the second stage, a sample of housing units was chosen within each selected block from a list of all housing units. Finally, within each selected housing unit, all households were included in the sample (and a short household schedule completed for them) and all ever-married women aged 12–49 were interviewed in detail. 6811 full interviews with eligible women were obtained, representing, according to the estimates made in the First Report (Department of Census and Statistics 1978) on the survey, a minimum response rate of 89.2 per cent. To compensate for different sampling fractions in different areas, and for differential response rates, the sample was weighted. However, weights were chosen so that the actual number of women interviewed and the weighted number were the same.

At the first stage of drawing the sample, the country was subdivided into six geographical areas (termed zones) on the basis of their different climatic and socio-economic characteristics. These zones were then further subdivided into strata: zone I, which was entirely urban, being Metropolitan Colombo, was split into four; zones II, III and VI were subdivided into their urban, rural and estate components; and zones IV and V, where the estate population was negligible, were split into their urban and rural parts. Thus there were 17 strata altogether, of which three made up the estate sector of the sample.

The estate population analysed in the First Report was not, however, the entirety of that available from the sample: it was in fact the estate population of zone VI. Women living on estates in the other zones were included in the rural sector. The concentration of estates in zone VI was

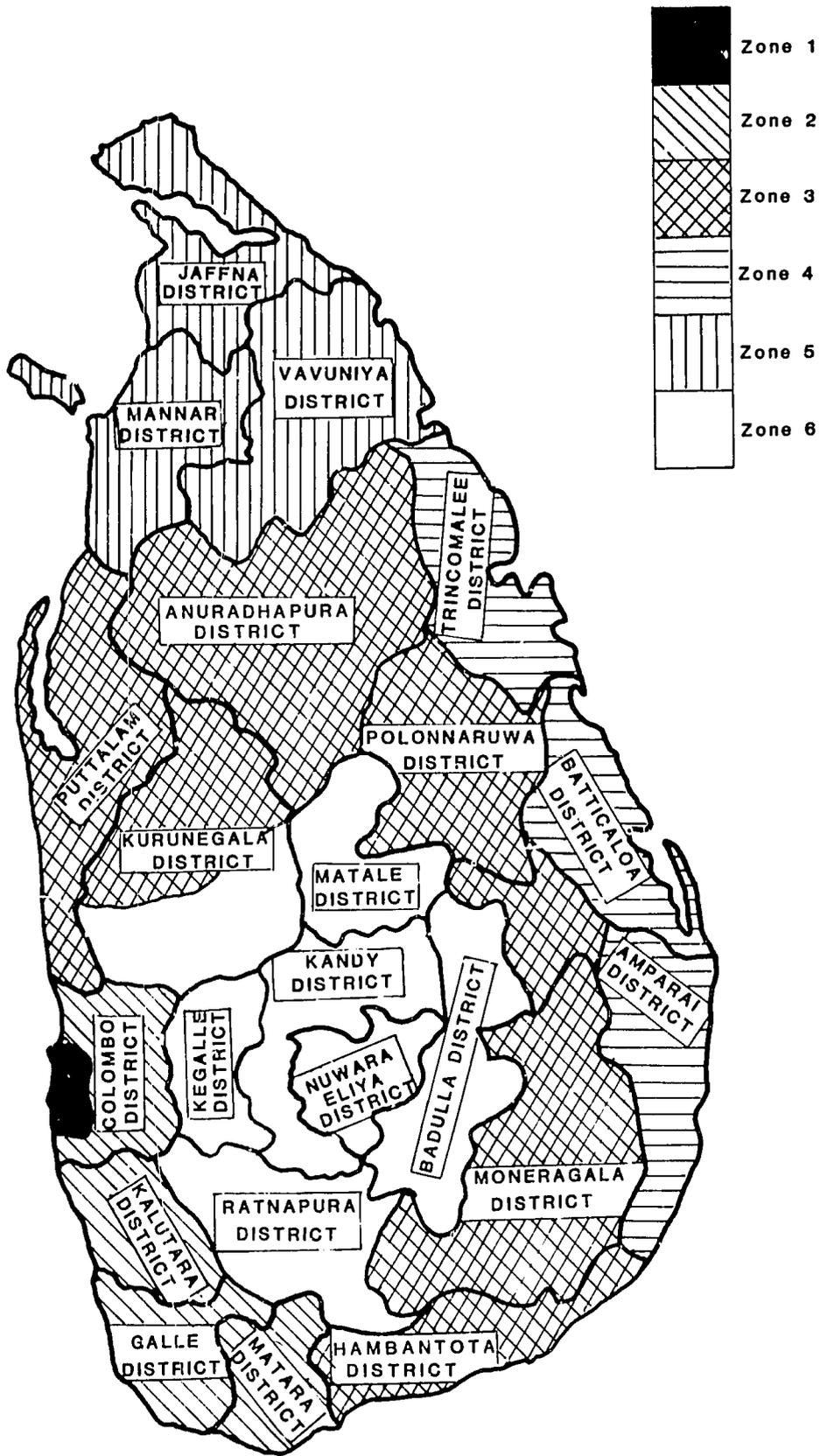


Figure 1 The six zones and districts of Sri Lanka. The estates are situated mainly in Kandy, Matale, Nuwara Eliya, Badulla, Ratnapura and Kegalle

Table 4 The ethnic composition of the whole survey population and of the estate population, before and after recoding, and some comparative figures from the 1963 and 1971 censuses

% distribution by ethnic group in						
Ethnic group	The survey population before recoding ^a	After recoding ^b	The population of Sri Lanka in 1971 ^c	The survey estate population, before recoding ^d	After recoding ^e	The female estate population of Sri Lanka in 1963 ^f
Sinhalese	71.2	71.2	72.0	6	6.4	13.0
SL Tamils	14.5	12.4	11.2	27	4.1	3.1
Indian Tamils	7.2	9.3	9.3	65	87.8	82.3
SL Moors	6.6	6.6	6.5	2	1.5	NA

Source:

(a) *First Report*, p 47.

(b) SLFS data tape.

(c) Sri Lanka, Census of Population 1971, *General Report*, Department of Census and Statistics, 1978, p 79.

(d) Inferred approximately from (a), (b) and (c).

(e) Data tape.

(f) Census of Population, Ceylon 1963, *10% Sample Tables*, vol 1, part 1, table 10, Department of Census and Statistics, 1967.

such, though, that this still meant that almost 90 per cent of women in the estate sector of the sample were treated as such in the analysis. 643 women were included in the estate population analysed in the First Report; 82 women living on estates outside zone VI were treated as part of the rural population.²

1.6 THE REPORTING OF ETHNICITY BY THE ESTATE POPULATION IN THE SURVEY

According to the First Report, 9.4 per cent (643) of the survey population lived on estates and 7.2 per cent (488) were Indian Tamils. Subsequently, however, it was felt that a fairly substantial number of Indian Tamils in the estate sector had been misreported as Sri Lanka Tamils. These were recoded, bringing the total number of Indian Tamils up to 632, or 9.3 per cent of the survey population. (Women in the estate sector reported as Sri Lanka Tamils who had had five or fewer years of education and had ever worked were recoded as Indian Tamils.) The net result was that 89.2 per cent of Indian Tamils in the sample were now in the estate sector and 87.8 per cent of the estate population were classified as Indian Tamils. 4.1 per cent of the estate population were still classified as Sri Lanka Tamils (table 4).

These changes were undoubtedly in the right direction. The representation of Sinhalese and Sri Lanka Moors in the original SLFS sample (no distinction was made in the survey between Low Country and Kandyan Sinhalese) was very close to their representation in the total population of Sri Lanka at the 1971 census (table 4). However, the proportion of Sri Lanka Tamils in the sample was too high and the proportion of Indian Tamils was too low. After recoding, the ethnic composition of the survey population was very similar in every respect to that of the whole population in 1971. Moreover, the proportional distribution of ethnic groups in the estate population covered by the survey, prior to recoding, was apparently quite different from the distribution at the time of the 1963 census³ (this in-

formation is not available from the 1971 census) whereas, after recoding, the distribution was much more reasonable. The representation of Sri Lanka Tamils (and almost certainly of Sri Lanka Moors also, given that most of those who were neither Sinhalese nor Tamil would probably be in this group) was about right. There were apparently rather too few Sinhalese and rather too many Indian Tamils. However, these discrepancies in no way call into question the fundamental wisdom of the recoding operation that was carried out. Not to have carried this out, or to have done so to a lesser extent, would have reduced the number of estate women classified as Indian Tamils but only by increasing the number classified as Sri Lanka Tamils; and of course the apparent underrepresentation of Sinhalese would have been unaffected. The most likely explanation for the discrepancies remaining is sampling error. There are many reasons for believing that Indian Tamils might be misreported as Sri Lanka Tamils but no reason at all (quite the contrary) to suppose that Sinhalese would be misreported as Tamils.

Sri Lanka Tamils are citizens of Sri Lanka as of right, whereas Indian Tamils are not. According to the 1963 census, only 11 per cent of Indian Tamils on estates in Sri Lanka had obtained citizenship; 89 per cent were non-citizens (Department of Census and Statistics 1967: vol 1, part 1, table 10). Under the Srimavo-Shastri Pact concluded between Sri Lanka and India in 1964, 300 000 persons of Indian origin in Sri Lanka together with their natural increase were to be granted citizenship, while 525 000 and their natural increase would be repatriated to India, these processes to take place simultaneously over 15 years (United Nations 1976:20). Very little out-migration under this agreement occurred before the 1970s, but since then it has been quite substantial. It is not at all difficult to believe that in these circumstances there might be a tendency for Indian Tamils to be misreported as Sri Lanka Tamils. There might be conscious misrepresentation by those not wanting to be repatriated; or genuine confusion among those who had obtained citizenship or expected (or hoped) to do so.

1.7 THE FOCUS OF THE PRESENT STUDY: THE TAMIL ESTATE POPULATION

The group concentrated on here is the Tamil estate popu-

²Of these 82 women only four were from zone III. Clearly, no estate stratum had really been necessary in that case.

³The ethnic composition of the estate population of Sri Lanka was very similar in each of the census years 1946, 1953 and 1963.

Table 5 The number of Tamil women living on estates and the numbers of women in other categories of the population in the SLFS sample

	All Sinhalese	SL Tamils not living on estates	All SL Moors	Tamils living on estates	Indian Tamils not living on estates	Others
Number of women	4850	779	449	655	41	37

Source: SLFS data tape

lation. Women living on estates outside zone VI have been included so as to provide as many cases as possible in the analysis. Sinhalese and Sri Lanka Moors in the estate sector have been excluded in order to make the group more ethnically homogeneous. No attempt has been made to exclude Sri Lanka Tamils, for two reasons. First, all the indications are that they amount to only a tiny proportion of the Tamil estate population, so including them cannot alter the results of the analysis. Secondly, not excluding them has the advantage of involving no commitment to any particular scheme of recoding Sri Lanka Tamils as Indian Tamils; and while the recoding operation carried out by the World Fertility Survey did apparently improve the situation, it was clearly arbitrary none the less. Had it been decided to exclude Sri Lanka Tamils, further recoding would have been necessary. Of the 65 Tamil respondents living on estates outside zone VI, 38 (57.7 per cent) were reported as Sri Lanka Tamils, clearly far too high a figure.

The total number of Tamil women living on estates in the Sri Lanka Fertility Survey sample was 655. Almost without exception, whatever analysis is presented for this group is also shown for a number of other groups in the population, so that comparisons can be made. The other

groups for which data are presented are: (1) all Sinhalese; (2) Sri Lanka Tamils not living on estates (clearly, almost all Sri Lanka Tamils); and (3) all Sri Lanka Moors. The number of cases in each of these groups is shown in table 5. The numbers in the sample of Indian Tamils not living on estates and of those belonging to ethnic groups other than the major ones were too few to permit separate analysis.

1.8 POSSIBLE EXPLANATIONS OF THE ANOMALY

Basically, there are three possible explanations for the apparently too low level of fertility among Indian Tamils indicated by the SLFS. The first is, simply, that they understated their fertility in this survey. The second is that they truly practised more birth control (including, possibly, abortion) than they reported in the survey. The third is that they really did have low fertility despite little contraceptive practice for some reason. For example, their fecundity might have been low because of poor health, or they might have had a very high rate of foetal wastage; or levels of coital frequency might have been low for cultural reasons or because of marital instability. All of these possibilities are considered here.

2 The Picture from the Census and Vital Statistics

2.1 INTRODUCTION

There have been four censuses of Sri Lanka since the war, in 1946, 1953, 1963 and 1971. Annual numbers of live births and deaths are available throughout from registration. The registration of marriages is, however, too incomplete for figures from this source to be used.

Ideally, age-specific and marital age-specific fertility rates would be constructed for the estate population and for Indian Tamils. It would then be possible to see directly whether these groups had lower fertility than others or not, and what part patterns of marriage played in this. However, given the data available, this is not possible. Such fertility measures as can be computed from the basic data, together with some information on mortality, are shown in table 6. A complete set of data is provided for Sri Lanka, and such information as there is for Indian Tamils, for the estate population and for the Indian Tamil component of the estate population. These three groups are obviously heavily overlapping, and can almost be thought of as one. However, information is sometimes available for one of them but not the others. So, in order to provide the most complete picture possible, it is necessary to show figures for all three.

2.2 THE INDICES CONSTRUCTED

The crude birth and death rates shown in table 6 are based on the number of live births or deaths in the year in question and the census count of the population concerned.⁴ No attempt was made to adjust the census counts to mid-year. It is possible that the rates shown for estates and for Indian Tamils on estates in 1946, 1953 and 1963 are slight underestimates. The census denominators relate to the entire estate population, whereas the numbers of live births and deaths are those registered on 'estates scheduled under the Medical Wants Ordinance'. The fact that these rates tie in so well with those for Indian Tamils, which do not suffer from this defect, means that the downward bias can only be very slight, however.

Numbers of live births by age group of mother are available for the whole population of Sri Lanka, and for its approximately 20 districts, from 1952 onwards, but not for any other subgroup of the population. Hence it is not possible to construct either age-specific or marital age-specific fertility rates for Indian Tamils or the estate population. Indeed, since there is also a complete lack of any census data on the composition of these populations by marital status and age group, no exact measure of marital fertility at all can be constructed for them.

⁴ In fact, the crude rates shown for estates in 1971 were not computed from the basic data but taken directly from Department of Census and Statistics (1979). *Bulletin on Vital Statistics 1977*.

Nor is it possible to examine their patterns of marriage directly. However, a number of general fertility rates (live births in the year in question divided by the census count of the number of women aged 15–49) could be computed, and these are shown in table 6. The general fertility rate for the estate population in 1946 suffers from the same defect that was mentioned earlier in connection with the crude rates. It also proved possible to construct a very rough index of marriage, and an approximate measure of marital fertility, for the years 1946 and 1953, in some cases. The marriage indicator, the 'estimated percentage of women aged 15–39 who had ever married', was obtained by subtracting the number of women aged 40 or older from the number of ever-married women, and dividing by the number of women aged 15–39, all these figures being taken from the census. It would be exact if all women were married by age 40 and none married before age 15. The 'estimated marital general fertility rates' shown in table 6 were computed by dividing the number of live births in the year in question by the number of ever-married women aged 15–39 estimated in the same way. Despite a number of obvious shortcomings, it was felt that these measures would be useful in indicating broad differences in levels of marital fertility between groups, and changes over time. The 'estimated marital general fertility rate' for estates in 1946 suffers from the same defect as was mentioned earlier in connection with the crude rates and general fertility rate.

So far as mortality is concerned, in addition to the crude death rates, a number of maternal death rates (maternal deaths in the year in question divided by the number of live births) and infant mortality rates (infant deaths in the year in question divided by the number of live births) are also shown in table 6. Most of these rates were computed from the basic data. However, the infant mortality rates shown for Indian Tamils on estates in 1946, 1953 and 1963 were taken directly from the Reports of the Registrar-General of Ceylon on Vital Statistics for those years, where they appeared as rates for 'Indian labourers' on estates; the infant mortality rate shown for the estate population in 1971 was taken from a report by another researcher, who had computed it from unpublished data supplied by the Sri Lankan Department of Census and Statistics (Meegama 1980: table 2).

2.3 THE MORTALITY, FERTILITY AND NUPTIALITY OF THE ESTATE POPULATION IN 1946

In 1946 the mortality of the estate population/Indian Tamils was rather lower than in the island as a whole: the crude death rate and infant mortality rate were a little lower, and the maternal death rate distinctly lower than in the whole population (table 6). Fertility, on the other hand, as both the crude birth rate and general fertility rate in-

Table 6 Indices of mortality, fertility and nuptiality for Indian Tamils, the estate population, Indian Tamils on estates and the population of Sri Lanka for 1946, 1953, 1963 and 1971^a

	Indian Tamils	Estates	Indian Tamils on estates	Sri Lanka
A 1946				
Crude birth rate	41.3	42.3	44.3	38.6
General fertility rate	174	168	NA	162
Estimated marital general fertility rate	257	253	NA	283
Estimated % of women aged 15-39 ever married	83	81	NA	69
Crude death rate	18.2	16.4	17.7	20.4
Maternal death rate	9.7	8.6	NA	15.5
Infant mortality rate	NA	131	134	141
B 1953				
Crude birth rate	33.0	35.0	34.2	39.7
General fertility rate	145	NA	NA	174
Estimated marital general fertility rate	219	NA	NA	305
Estimated % of women aged 15-39 ever married	80	NA	NA	69
Crude death rate	12.1	10.5	11.3	11.0
Maternal death rate	NA	3.7	NA	4.9
Infant mortality rate	NA	101	112	71
C 1963^b				
Crude birth rate	28.3	26.8	26.8	34.5
General fertility rate	118	NA	NA	155
Crude death rate	11.1	9.4	10.5	8.7
Maternal death rate	NA	2.9	NA	2.5
Infant mortality rate	95	100	111	56
D 1971				
Crude birth rate	30.3	33.1	NA	30.2
General fertility rate	120	NA	NA	127
Crude death rate	13.3	13.0	NA	7.7
Infant mortality rate	NA	93	NA	45

^aThe mode of computation of indices is described in the text. Crude birth and death rates are expressed per 1000 total population, general fertility rates per 1000 women aged 15-49 and estimated marital general fertility rates per estimated 1000 ever-married women aged 15-39. Maternal death rates and infant mortality rates are expressed per 1000 live births.

^bAll the census figures used in the computation of indices in this case are based on a 10 per cent sample of the census returns. Complete-count figures are obtainable for 1963 for the whole of Sri Lanka (and have been used in table 2) but not for Indian Tamils or the estate population; here it was thought preferable to use data from a single source. In fact, though, for Sri Lanka as a whole, there is virtually no difference between the two sets of indices obtained.

Source: The Reports on the censuses of 1946, 1953, 1963 and 1971; the Reports of the Registrar-General of Ceylon on Vital Statistics for 1946, 1953 and 1963; and various Bulletins on Vital Statistics

dicate, was higher than the average for the whole island. Indian Tamils living on estates had a particularly high crude birth rate, 44.3 (possibly a slight underestimate, as already explained), compared with 38.6 in Sri Lanka as a whole.

The estimated percentages of women aged 15-39 who had ever married shown in table 6 clearly indicate that there was a lower age at marriage in 1946 among women living on estates than in the whole population; the figures were 83 and 81 per cent for Indian Tamils and the estate population, respectively, compared with 69 per cent for Sri

Lanka as a whole. Given their mode of construction, these 'percentages' would be overestimates to the extent that there were ever-married women under the age of 15 in the population in question (obviously more a feature of younger-marrying populations) and underestimates to the extent that they included never-married women over the age of 40 (obviously more a feature of populations with a later age at marriage.) However, neither of these defects is likely to be very substantial where Sri Lanka is concerned. Moreover, even with such errors, these indicators would be

valuable nevertheless, since a difference between two populations would still imply a difference of age at marriage between them.

The 'estimated marital general fertility rates' shown in table 6 are not intended to be taken too seriously as such, but only as rough indicators of broad differences between groups, and of changes over time. Since the rates themselves depend on the estimated numbers of ever-married women aged 15-39, that for the whole population of Sri Lanka in 1946 may be slightly biased in an upward direction relative to the rates for the estate population/Indian Tamils. On the other hand, the tendency to lower mortality on estates in 1946 compared with the rest of the population might possibly operate in the opposite direction, in that, if there were a lower level of widowhood on estates, this might mean that a higher proportion of ever-married women aged 15-39 were currently married and hence exposed to the risk of childbearing: in this case, the rate for the whole of Sri Lanka would be slightly depressed relative to the rates for Indian Tamils and the estate population. (The possible impact of widowhood on the estimated marital general fertility rate was the reason this index was based on the 15-39 age group rather than the 15-49 age group.) In any case, the rate for the estate population/Indian Tamils in 1946 was quite noticeably lower than that for the whole island; so it probably was the case that marital fertility in this group was genuinely lower than in the population as a whole.

2.4 CHANGES BETWEEN 1946 AND 1953

As in Sri Lanka as a whole, the crude death rate for the estate population/Indian Tamils fell substantially between 1946 and 1953 (table 6). However, the fall in this group was proportionately less than in the whole population, with the result that whereas in 1946 it had enjoyed an advantage so far as mortality was concerned, in 1953 the crude death rate was about the same, or possibly even a little higher than in the island as a whole. The difference was very marked in the case of infant mortality. In 1946 the infant mortality rate for the estate population was 131, compared with 141 for Sri Lanka as a whole. However, while the Sri Lanka rate fell by 50 per cent between 1946 and 1953, to 71, that for estates fell only to 101. The rate for Indian Tamils on estates in 1953 was even higher, at 112.

Fertility in Sri Lanka as a whole apparently rose slightly between 1946 and 1953 (table 6): the crude birth rate, general fertility rate and estimated marital general fertility rate all registered small increases (Langford 1981). The lack of any change in the estimated percentage of women aged 15-39 who had ever married suggests that there was little or no change in the pattern of marriage during the period. It is worth noting that the increase in the estimated marital general fertility rate between 1946 and 1953 for the whole island was 8 per cent, compared with a rise of 6 per cent (table 2) in the actual marital general fertility rate. The lack of any change in the estimated percentage of women aged 15-39 who had ever married is much what would be expected, given the similarity of the percentages of women never married by age group in 1946 and 1953 shown in table 2. This correspondence provides quite strong evidence of the usefulness of these approximate measures. By con-

trast with the situation in Sri Lanka as a whole, on the other hand, very clearly, the fertility of the estate population/Indian Tamils fell noticeably between 1946 and 1953, the crude birth rate, general fertility rate and estimated marital general fertility rate all showing marked declines. It is possible that there was also a small increase in the age at marriage of estate women during this period, since the estimated percentage of women aged 15-39 who had ever married among Indian Tamils fell slightly. The conclusion that there was a decline in marital fertility in this group is inescapable, however: not only is the difference between the figures for 1946 and 1953 substantial, but the mortality changes that occurred in this period, in that they would presumably reduce the extent of widowhood, would mean that the measure of marital fertility for 1946 was biased in a downward direction relative to that for 1953, and so the decline would be understated.

2.5 THE SITUATION SINCE 1953

Between 1953 and 1971 in Sri Lanka as a whole, there was some further improvement so far as mortality was concerned, though naturally nothing so dramatic as had happened earlier. The crude death rate fell from 11.0 to 7.7 and the infant mortality rate from 71 to 45 (table 6). Fertility declined quite markedly during this period: both the crude birth rate and the general fertility rate fell between 1953 and 1963 and again between 1963 and 1971. No measure of marital fertility for the whole island is shown in table 6 for 1963 or 1971, since none could be constructed for the estate population or any related group for these years. However, it was noted previously (from table 2) that most of the decline in fertility during this period was due to structural changes, and particularly to a substantial rise in the age at marriage of women, but that there was also some decline in the level of marital fertility.

In the case of the estate population/Indian Tamils, there was possibly a little general improvement so far as mortality was concerned between 1953 and 1963, in that there was some decline in the crude death rate, but no fall in infant mortality (table 6). Between 1963 and 1971, on the other hand, the crude death rate actually rose, though there was apparently some improvement in infant mortality during this period. The net result was that whereas in 1946 the level of mortality for the estate population/Indian Tamils had been a little below that of the population as a whole, by 1971 this group was quite a lot worse off than the population in general. The crude death rate for Indian Tamils in 1971 was more than 70 per cent higher, and the infant mortality rate for the estate population more than double that for the island as a whole.

The fertility of the estate population/Indian Tamils fell still further between 1953 and 1963, with both the crude birth rate and the general fertility rate showing marked declines, so that despite the fall in fertility in Sri Lanka as a whole during this period, the level in the estate population/Indian Tamils in 1963 was still noticeably lower than that in the whole island (table 6). Between 1963 and 1971, however, the fertility of this group apparently remained at about the same level: the general fertility rate for Indian Tamils was 118 in 1963 and 120 in 1971. The increase in the crude birth rate in this group during this period must

have been due to changes in the age and sex structure of the population. The result was, given the continuing decline in fertility in the whole island during this period, that by 1971 the general fertility rate for the estate population was only slightly lower than that for Sri Lanka as a whole.

On the basis of official data alone, it is not possible to be sure what changes occurred after 1953 in the marriage patterns and levels of marital fertility of the estate population/Indian Tamils, since even the approximate measures used for 1946 and 1953 could not be constructed for later years. If women living on estates did share in some degree in the general trend after 1953 towards a later age at marriage, then to some extent the decline in fertility in this group between 1953 and 1963 was a reflection of this, rather than of a decline in marital fertility. On the other hand, given the substantial decline in marital fertility that occurred between 1946 and 1953 in this group, it seems extremely unlikely that there would have been no further decline in marital fertility between 1953 and 1963. If there was an increase in the age at marriage of women in the estate population/Indian Tamils between 1963 and 1971, the implication would be that there might actually have

been an increase in marital fertility in this group during this period.

2.6 POSTSCRIPT

It will be seen in the next chapter that the evidence from the SLFS suggests that the age at marriage of women had been rising in the 20 or 25 years prior to the survey in all of the major ethnic groups in the island. It seems likely, then, that the decline in fertility of the estate population/Indian Tamils between 1953 and 1963 was, indeed, in some degree due to this, as well as to a decline in marital fertility as such. Between 1963 and 1971, as indicated above, it is possible that there might have been some increase in their level of marital fertility. However, Sri Lanka Fertility Survey data indicate that in 1971 (as in general) the age at marriage for estate Tamil women was lower than that for all women (see table 9). Since the general fertility rate in 1971 was the same in both cases, the implication is that the level of marital fertility of the estate population/Indian Tamils was still lower in 1971 than in the population as a whole.

3 Some Factors which Might Lead to Lower Fertility

3.1 INTRODUCTION

It has already been noted that according to the First Report on the Sri Lanka Fertility Survey, the estate population had lower marital fertility than the population of Sri Lanka as a whole. This finding was strongly supported by the evidence from the census and vital registration considered in the previous chapter. Detailed data from the survey for estate Tamils and for other groups are shown in table 7. It may be seen that, without exception, irrespective of their duration of marriage, estate Tamil women had had fewer children on average by the time of the survey than the women of other groups. (With only trivial exceptions, this is also true for women who married before the age of 20, and those who married at age 20 or older.) It was also noted previously that women living on estates had reported less contraceptive practice than other women. This may be seen from the data presented in table 8. Among those married for less than 20 years at the time of the survey, fewer estate Tamil women reported having used any method of contraception, and fewer reported having used efficient methods, than women in other groups. Among those married for 20 years or more, the reported levels of ever-use were fairly similar in the cases of Sri Lanka Tamils and estate Tamils, but both these groups reported rather less contraceptive practice than the Sinhalese. Only among the Sri Lanka Moors was there apparently less use than among Tamil women on

estates. Clearly, far from providing an explanation for the lower marital fertility of the Tamil estate population, the survey data on contraceptive practice generally suggest that their marital fertility should have been higher than that of other women.

3.2 AGE AT MARRIAGE AND DURATION OF MARRIAGE

Mean ages at first marriage for women who married before the age of 20, those who married before the age of 30, and all women, are shown in table 9, so that changes over time can be examined. Comparisons between ethnic groups, at the same duration of marriage, are perfectly legitimate. However, figures for different marriage durations may not be directly comparable because of the age at marriage bias introduced by the fact that no one over the age of 50 was included in the survey. Any women who had been married for 30 years or more in 1975, for example, must have been married before the age of 20. So the mean age at first marriage of women in this group could not but be extremely low. Those columns of figures in table 9 which are directly comparable have been marked with the same letter, a capital A, B or C. The mean ages at first marriage for women who married before the age of 20 in different periods are directly comparable for women who married

Table 7 Mean number of children ever born to Tamil women on estates and to other groups in the population, by age at marriage and duration of marriage^a

Years since 1st marriage	Age at 1st marriage	Sinhalese	SL Tamils ^b	SL Moors	Estate Tamils	All ^c
< 5	All ages	0.96	0.86	0.85	0.73	0.92
	< 20	1.05	0.94	0.79	0.81	0.98
	20 +	0.92	0.79	0.91	0.66	0.89
5-9	All ages	2.44	2.57	2.89	1.98	2.44
	< 20	2.64	2.73	2.89	1.95	2.61
	20 +	2.31	2.29	-	2.01	2.29
10-19	All ages	4.25	4.39	4.88	4.00	4.28
	< 20	4.65	4.71	4.99	4.15	4.62
	20 +	3.79	3.69	(4.47)	3.49	3.79
20 +	All ages	6.37	6.13	6.77	5.46	6.29
	< 20	6.70	6.48	7.05	5.58	6.58
	20 +	5.34	4.53	-	(4.63)	5.21
All	All ages	3.94	3.95	4.35	3.63	3.94
	< 20	4.89	4.55	4.80	4.12	4.75
	20 +	2.86	2.65	2.89	2.35	2.81

^a In this and subsequent tables, () indicates a figure based on 20-39 cases; - indicates that no figure is shown because there are fewer than 20 cases. Numbers of cases are shown in appendix A.

^b Strictly, this should be 'Sri Lanka Tamils not living on estates' (see section 1.7).

^c This includes 78 women who are not members of any of the four groups shown (see section 1.7).

Source: SLFS data tape

Table 8 Ever-use (percentage) of any method of contraception, and of efficient contraception,^a by Tamil women on estates and by other groups in the population, by duration of marriage

Years since 1st marriage		Sinhalese	SL Tamils	SL Moors	Estate Tamils	All
< 5	Any	36	14	17	6	30
	efficient	18	7	12	4	15
5-9	Any	59	30	29	18	50
	efficient	34	21	19	12	29
10-19	Any	60	40	35	25	53
	efficient	38	30	25	22	35
20 +	Any	44	26	21	24	39
	efficient	20	16	11	17	19
All	Any	50	29	26	20	44
	efficient	28	20	17	16	25

^aContraception includes sterilization. Efficient methods are pill, IUD, other female scientific, condom, female and male sterilization and injection.

Source: SLFS data tape

Table 9 Mean age at first marriage of women, for estate Tamils and for other groups in the population, by age at marriage and duration of marriage^a

Years since 1st marriage	Age at 1st marriage	Sinhalese	SL Tamils	SL Moors	Estate Tamils	All
< 5	All ages	22.9	20.9	20.4	21.3	22.4 (A)
	< 20	18.1	17.6	17.2	17.9	17.9 (C)
	< 30	22.2	20.7	20.2	21.0	21.7 (B)
5-9	All ages	22.0	19.3	17.6	19.7	21.1 (A)
	< 20	17.4	16.9	16.2	17.6	17.2 (C)
	< 30	21.1	19.0	17.5	19.6	20.5 (B)
10-19	All ages	20.4	18.5	16.7	17.6	19.6
	< 20	16.9	16.2	15.1	16.0	16.6 (C)
	< 30	20.0	18.2	16.5	17.4	19.3 (B)
20-29	All ages	18.3	17.1	16.2	16.7	17.9
	< 20	16.5	15.7	15.0	15.6	16.2 (C)
	< 30	18.3	17.1	16.2	16.7	17.9
30 +	All ages	14.9	14.5	(14.7)	14.7	14.9
	< 20	14.9	14.5	(14.7)	14.7	14.9
	< 30	14.9	14.5	(14.7)	14.7	14.9
All	All ages	20.3	18.5	17.3	18.1	19.7
	< 20	16.8	16.2	15.5	16.1	16.5
	< 30	19.8	18.3	17.2	17.9	19.3

^aMean ages at marriage were computed on the assumption that a woman aged x years last birthday at marriage had in fact married when she was x years and 6 months old.

Source: SLFS data tape

up to 30 years before the survey; those for women who married before the age of 30 are directly comparable for women married up to 20 years before the survey; and those for all women are directly comparable for women married up to ten years before the survey. (Although, in principle, women who married in the five years just before the survey might have been any age up to 49 at marriage, in fact virtually all of them were under the age of 40 when they married.) These data indicate very clearly that the mean age at first marriage of women had risen quite substantially in the 20 or 25 years before the survey in all of the major ethnic groups in the island.

Other things being equal, women marrying at younger ages would be expected to have more children than those marrying later because a greater part of their reproductive lives will be spent in the younger, more highly fecund age ranges. And, indeed, it may be seen from table 7 that whether because of this, or for other, possibly social reasons, with only one or two apparent exceptions in the case of women who had been married for a relatively short period at the time of the survey, in all ethnic groups women who had married before the age of 20 had had more children on average than those who had married at age 20 or older. However, as was noted previously, far from a higher age at

Table 10 Mean number of children that would be born in a five-year period, to Tamil women on estates and to other groups in the population (on certain assumptions^a), by age at marriage and duration of marriage

Years since 1st marriage	Age at 1st marriage	Sinhalese	SL Tamils	SL Moors	Estate Tamils	All
< 5	All ages	2.03	1.79	1.97	1.37	1.94
	< 20	2.13	1.76	1.85	1.39	1.95
	20 +	1.99	1.83	2.10	1.36	1.94
5-9	All ages	1.71	1.80	2.02	1.51	1.73
	< 20	1.84	1.90	2.00	1.44	1.82
	20 +	1.63	1.63	—	1.60	1.64
10-19	All ages	1.50	1.51	1.72	1.42	1.51
	< 20	1.61	1.60	1.74	1.45	1.60
	20 +	1.36	1.32	(1.63)	1.32	1.37
20 +	All ages	1.29	1.24	1.36	1.09	1.27
	< 20	1.31	1.29	1.37	1.09	1.29
	20 +	1.21	1.02	—	(1.10)	1.19
All	All ages	1.42	1.40	1.55	1.24	1.41
	< 20	1.43	1.44	1.55	1.23	1.42
	20 +	1.40	1.28	1.59	1.30	1.39

^aThe exact mode of computation of these figures is described in the text.

Source: SLFS data tape

marriage providing an explanation for the lower marital fertility of estate Tamil women, on the contrary, the mean age at first marriage for women in this group tended to be lower than that for most other women in the population. In general (table 9), Sri Lanka Moors had the lowest age at marriage for women and estate Tamils the next lowest; Sri Lanka Tamils married a little later than estate Tamils, and the Sinhalese latest of all. In the ten-year period before the survey, the relative positions of estate Tamils and Sri Lanka Tamils seem to have been reversed, but still the mean age at first marriage of estate Tamil women in this period was noticeably lower than that of Sinhalese women who, of course, comprised the overwhelming majority of the population.

Table 7 is inherently standardized for duration of marriage, at least roughly, in that figures are shown separately for different broad marriage-duration groups. And, indeed, when a more elaborate standardization was carried out, involving the adjustment of the mean numbers of children ever born shown in table 7 for differences between groups of women in the numbers of months since first marriage, by and large the same picture emerged. The data presented in table 10 take account not only of differences in the period since first marriage but also of differences of exposure associated with differential widowhood, divorce and remarriage. The figures were computed by dividing the mean number of children ever born to a particular group of women by the mean number of months those women had spent in the married state altogether, and multiplying (arbitrarily) by 60. They thus represent the mean number of children a group of women would have in a five-year period of uninterrupted marriage, if they were to bear children at their average rate, when married, since their marriages began. Too much importance should not be attached to the detail of these figures since the reporting by women of the relevant dates, i.e. of marriage, widowhood,

divorce and remarriage, could all too easily be inaccurate. The main point is that the low marital fertility of estate Tamils continues to show through. For women who married before the age of 20, there is no real suggestion that differences of marriage duration or patterns of widowhood, divorce and remarriage between estate Tamils and other groups might be responsible for their lower marital fertility. In the case of women who married at age 20 or older (more than five years ago), such differences were, on the face of it, entirely responsible for the lower marital fertility of estate Tamil women. However, the original differential was not so pronounced for these women in any case. And it is important to note that, even after standardizing for the number of months women had spent in the married state, there was certainly no suggestion in this case that Tamil women living on estates had higher marital fertility than other women.

3.3 THE LEVEL OF PREGNANCY WASTAGE

The level of marital fertility in a population will obviously reflect not only the rate at which women become pregnant but also their ability to bring pregnancies to term. A high level of pregnancy wastage (miscarriages and still births) will depress the level of marital fertility. The mean numbers of wasted pregnancies reported by women in the Sri Lanka Fertility Survey are shown in table 11. It may be seen that Tamil women on estates reported more wasted pregnancies than other women. The difference may be seen more clearly in the data of table 12, where the ratios of wasted pregnancies to live births are presented. It is apparently not the case, however, that a higher level of foetal wastage was the only factor in the lower marital fertility of estate Tamil women. As may be seen from table 13, they not only reported having had fewer live births than other women, but

fewer pregnancies as well. Moreover, of itself, a high rate of pregnancy wastage in a group would be likely actually to increase, rather than decrease the total number of pregnancies experienced by the group, since a woman suffering a miscarriage or still birth would be exposed to the risk of a further pregnancy rather sooner than a woman having a live-born child.⁵ On the face of it, then, one factor in the lower marital fertility of Tamil women on estates was a

higher rate of foetal loss than other women; but another factor was their tendency to become pregnant less often.

⁵ The actual period of pregnancy will be longer in the case of a live birth than a wasted pregnancy, and the ensuing period of post-partum infecundity will be longer. Where the child is breastfed, the period of post-partum infecundity will be longer still (see, for example, Menken, Trussell and Watkins 1981).

Table 11 Mean number of wasted pregnancies,^a for Tamil women on estates and for other groups in the population, by age at marriage and duration of marriage

Years since 1st marriage	Age at 1st marriage	Sinhalese	SL Tamils	SL Moors	Estate Tamils	All
< 5	All ages	0.08	0.10	0.07	0.11	0.08
	< 20	0.04	0.11	0.10	0.09	0.06
	20 +	0.09	0.08	0.04	0.11	0.09
5-9	All ages	0.19	0.15	0.12	0.35	0.20
	< 20	0.17	0.18	0.12	0.40	0.20
	20 +	0.21	0.12	—	0.27	0.20
10-19	All ages	0.27	0.39	0.24	0.31	0.29
	< 20	0.27	0.41	0.26	0.37	0.30
	20 +	0.27	0.35	(0.18)	0.11	0.27
20 +	All ages	0.38	0.36	0.31	0.43	0.37
	< 20	0.37	0.32	0.32	0.47	0.37
	20 +	0.42	0.52	—	(0.15)	0.40
All	All ages	0.25	0.28	0.21	0.32	0.26
	< 20	0.27	0.30	0.23	0.39	0.29
	20 +	0.23	0.25	0.12	0.16	0.22

^aWasted pregnancies include miscarriages and still births. In addition, seven women reported having had an induced abortion.

Source: SLFS data tape

Table 12 Ratio of mean number of wasted pregnancies to mean number of live births, for Tamil women on estates and for other groups in the population, by age at marriage and duration of marriage^a

Years since 1st marriage	Age at 1st marriage	Sinhalese	SL Tamils	SL Moors	Estate Tamils	All
< 5	All ages	0.08	0.12	0.08	0.15	0.09
	< 20	0.04	0.12	0.13	0.11	0.06
	20 +	0.10	0.10	0.04	0.17	0.10
5-9	All ages	0.08	0.06	0.04	0.18	0.08
	< 20	0.06	0.07	0.04	0.21	0.08
	20 +	0.09	0.05	—	0.13	0.09
10-19	All ages	0.06	0.09	0.05	0.08	0.07
	< 20	0.06	0.09	0.05	0.09	0.06
	20 +	0.07	0.09	(0.04)	0.03	0.07
20 +	All ages	0.06	0.06	0.05	0.08	0.06
	< 20	0.06	0.05	0.05	0.08	0.06
	20 +	0.08	0.11	—	(0.03)	0.08
All	All ages	0.06	0.07	0.05	0.09	0.07
	< 20	0.06	0.07	0.05	0.09	0.06
	20 +	0.08	0.09	0.04	0.07	0.08

^aThe ratios were computed by dividing the figures shown in table 11 by those of table 7.

Source: SLFS data tape

Table 13 Mean number of pregnancies (excluding current pregnancies), for Tamil women on estates and for other groups in the population, by age at marriage and duration of marriage

Years since 1st marriage	Age at 1st marriage	Sinhalese	SL Tamils	SL Moors	Estate Tamils	All
< 5	All ages	1.03	0.96	0.92	0.83	1.00
	< 20	1.08	1.06	0.88	0.91	1.04
	20 +	1.00	0.87	0.95	0.78	0.98
5-9	All ages	2.61	2.69	3.00	2.29	2.61
	< 20	2.79	2.88	3.00	2.31	2.78
	20 +	2.48	2.36	—	2.25	2.46
10-19	All ages	4.48	4.72	5.10	4.27	4.53
	< 20	4.88	5.05	5.23	4.46	4.88
	20 +	4.02	3.98	(4.61)	3.58	4.01
20 +	All ages	6.69	6.40	7.00	5.82	6.59
	< 20	7.00	6.72	7.29	5.99	6.88
	20 +	5.70	4.95	—	(4.68)	5.55
All	All ages	4.15	4.17	4.53	3.90	4.16
	< 20	5.12	4.79	5.00	4.46	4.99
	20 +	3.05	2.86	2.99	2.48	3.00

Source: SLFS data tape

3.4 THE ABILITY TO CONCEIVE

If estate Tamil women breastfed their children for a longer period than other groups in the population, this might help explain their lower pregnancy rate. It is well known that prolonged lactation tends to increase the period of post-partum infecundity in women.⁵ However, the evidence from the Sri Lanka Fertility Survey does not suggest that this was the case. Estate Tamil women reported having breastfed their last child for some 18 months on average; the figures for Sri Lanka Moors, Sri Lanka Tamils and Sinhalese were 16 months, 17 months and 21 months, respectively.⁶ In the case of the child before last, all groups reported mean periods of breastfeeding in the range of 15-17 months,⁷ and estate Tamil women were at the lower end of this range; the proportions of women still breastfeeding at 12 months in the different groups were virtually identical. Moreover, the fact that the level of participation in the labour force by estate Tamil women was so much higher than for other women (reflecting of course the fact that the plucking of tea is almost exclusively a female occupation) would probably mean earlier supplementary feeding of infants in this group, and hence some weakening of the impact of breastfeeding. (95 per cent of Tamil women on estates had worked since marriage, compared with 41 per cent for Sinhalese, 22 per cent for Sri Lanka Tamils and 18 per cent for Sri Lanka Moors.)

Two other factors which could conceivably be relevant to the matter of pregnancy rates in different groups, which it was possible to examine with data from the SLFS, were the extent to which the husbands of women reporting themselves as currently married were nevertheless apparently not

living in the same household, and the age difference between husbands and wives. A high level of husband absenteeism might possibly depress the pregnancy rate, and, in principle, so might a substantial age difference between husband and wife, through a lowering of coital frequency or reduction in male procreative capacity. However, there does not seem to have been much difference between estate Tamil women and others in these respects. The percentage of women who reported themselves as married whose husbands did not appear on the household schedule (all usual residents and visitors should have been included) was between 5 and 6 in all groups. The mean age difference between husband and wife was 6.5 years for Sinhalese, 7.2 years for Sri Lanka Tamils, 8.2 years for Sri Lanka Moors and 7.6 years for estate Tamils. (In the few cases where the wife was older than the husband, the age difference was counted as 0 years.)

3.5 THE APPARENT ANOMALY OF THE CURRENT PREGNANCY RATE

It seems that, in some degree, a tendency to a higher rate of foetal loss among estate Tamils compared with other groups might have been responsible for their lower marital fertility. But, on the face of it, they also had a lower pregnancy rate than other women, and this has yet to be explained. The data of table 14 introduce a further difficulty. It may be seen that, at the time of the survey, far from showing signs of a lower pregnancy rate than other groups, a higher percentage of estate Tamil women were actually pregnant than women in other groups. Only in the case of some older women among the Sri Lanka Moors (a group with generally high marital fertility in any case) was there actually a higher current pregnancy level than among estate Tamils. Unless there was something special or different about the period when the survey was carried out, the survey data are clearly inconsistent in this respect. This question will be taken up again in the next chapter.

⁶ Based upon 3723 cases. Women with no live born children, those still breastfeeding, those currently pregnant and those not answering the question are excluded.

⁷ Based upon 5344 cases. Women with fewer than two live born children and those not answering the question are excluded.

Table 14 Percentage of women currently pregnant, for estate Tamils and for other groups in the population, by age at marriage and duration of marriage

Years since 1st marriage	Age at 1st marriage	Sinhalese	SL Tamils	SL Moors	Estate Tamils	All
< 5	All ages	20	21	20	28	20
	< 20	22	20	19	29	22
	20 +	19	21	21	28	20
5-9	All ages	12	16	15	17	13
	< 20	15	18	15	16	16
	20 +	11	11	-	18	11
10-19	All ages	7	8	17	11	8
	< 20	8	10	19	12	10
	20 +	5	6	(10)	6	5
20 +	All ages	2	2	2	1	2
	< 20	2	3	3	1	2
	20 +	1	0	-	(0)	1
All	All ages	9	10	13	11	9
	< 20	8	10	13	10	9
	20 +	10	10	13	15	10

Source: SLFS data tape

4 Possible Explanations

4.1 INTRODUCTION

It was suggested earlier that there are three possible explanations for the apparently too low level of marital fertility among estate Tamils indicated by the Sri Lanka Fertility Survey: that they understated their fertility; that they truly practised more birth control than they reported; or that they really did have comparatively few children despite little contraceptive practice, for some reason. The census and registration data considered previously (table 6) effectively ruled out the first of these possible explanations. The data indicate that estate Tamil women did indeed have lower marital fertility than women in general at every stage between 1946 and 1971. The data also indicate that there was a substantial fall in marital fertility in this group between 1946 and 1953, and a further decline between 1953 and 1963. This suggests very strongly the introduction or accelerated spread of the deliberate control of fertility by some means. Given the period, and the fact of an unsophisticated population in a poor country, it is clearly extremely likely that some folk method, such as abstinence, withdrawal or induced abortion, was responsible rather than modern contraception. The suggestion that there was, after all, substantial practice of birth control among estate Tamils does not necessarily mean that other factors did not play some part. It might still have been the case that, for some reason, estate Tamil women were more likely to suffer miscarriages or experience delay or difficulty in becoming pregnant than other women, and that these factors also contributed to their comparatively low marital fertility.

4.2 FACTORS OTHER THAN BIRTH CONTROL PRACTICE WHICH MIGHT REDUCE THE LIKELIHOOD OF CONCEPTION

A number of factors which could affect the chances of women becoming pregnant, examined with SLFS data, were considered in the previous chapter. Women's age at marriage, the duration of marriage, taking dissolution into account, the extent of husband absenteeism and the age difference between husband and wife were examined, as well as the duration of breastfeeding of children. None of the data provided any positive indication that, through the operation of these factors, the probability of conception was likely to be lower for estate Tamil women than others in the population.

In principle, poor health or an inadequate diet⁸ might

⁸ However, the authors of a recent review concluded that 'little support is provided for the existence of a significant link between food intake and childbearing in situations of chronic or endemic malnutrition (in which the availability of food may vary cyclically with the harvest, but the overall level of nutrition is low)', though they did believe that famine or starvation conditions reduced fertility (Menken, Trussell and Watkins 1981).

result in a lower pregnancy rate, either directly (by reducing women's and men's capacity to conceive), or indirectly (by lowering coital frequency). So far as health is concerned it is virtually impossible to establish what differences there may have been between estate Tamil women and others in the population, because of the absence of reliable morbidity statistics. However, such evidence as there is does not suggest that estate Tamil women were especially prone to relevant illnesses. Venereal disease, which obviously could result in lower fertility, does not seem to have been common on estates. In 1969, for example, for estates covered by the Planters' Association Estates' Health Scheme, a rate of 0.02 cases of venereal disease per 1000 population was reported (*Medical Director's Report for the Year 1969*:15). There has been some resurgence of malaria, which very probably does depress fertility (Langford 1981), in Sri Lanka since the late 1960s. However, there is no reason to believe that this would have affected estates particularly. Since malaria-transmitting mosquitoes are not found above 2500 feet, and many estates are at higher altitudes than this, the converse might have been expected. It is often suggested that estate women are anaemic. The *Medical Director's Report for the Year 1969* for estates covered by the Planters' Association Estates' Health Scheme spoke of 'the extreme anaemia of most estate mothers'. But this might well also be true of Sri Lankan women in general. So far as diet is concerned, there is also a shortage of evidence. According to a survey carried out in 1969-70, the estate population was nutritionally better off than the population in general, both so far as energy and protein intake were concerned (Department of Census and Statistics 1972). However, it has been suggested that the situation would be likely to fluctuate, depending on the world price of tea and hence the prospects of employment on estates (Meegama 1980).

4.3 THE INCIDENCE OF PREGNANCY WASTAGE

It has already been noted that, according to the Sri Lanka Fertility Survey, estate Tamil women had a higher rate of pregnancy wastage than women in general. It is also the case that a higher proportion of their wasted pregnancies were described as still births, rather than miscarriages. However, it is said that miscarriages tend to be reported as still births on estates so that the women concerned can claim maternity benefits (*Medical Director's Report for the Year 1969*: 8), so this apparent difference is probably spurious. The reporting of wasted pregnancies is notoriously poor; indeed, in the case of miscarriages, particularly early miscarriages, it is difficult to see how it could be otherwise. However, there is no reason to believe that Tamil women on estates should be any better at remembering the miscarriages they have had than other women, so it seems

unlikely that the higher rate of pregnancy wastage indicated by the Sri Lanka Fertility Survey for that group is an artifact of differential reporting error. On the assumption that there was nothing unusual about the time the survey was conducted (more on this later), the fact that their current pregnancy rate was higher than other women's, though they reported having had fewer pregnancies in the past, suggests that estate Tamil women were actually more inclined than other women to under-report their wasted pregnancies. Hence, in reality, their tendency to suffer more miscarriages or still births than other women may have been even more pronounced than it appeared from the survey. (It is worth noting, too, in relation to the discussion earlier, that a corollary is that their rate of conception had been higher than other women's in the past, rather than lower, so that the need to invoke special factors which might reduce the likelihood of conception to explain the lower marital fertility of estate Tamils falls away.)

It is possible that, for some reason, estate Tamil women did indeed have a very high rate of spontaneous foetal loss. This would imply that some fairly serious predisposing condition was common, but the failure previously to find positive evidence of poor health in this group certainly does not constitute proof that this could not have been the case. The low marital fertility of Tamil women on estates could therefore be explained by the fact that these women were practising more birth control than they had reported, having begun to do so in the late 1940s, or possibly even earlier, and that they also suffered a high rate of pregnancy wastage. Another possibility, however, and one the writer is more inclined to accept, is that the additional wasted pregnancies reported, and those not reported, were not miscarriages or still births at all, but induced abortions.

4.4 THE POSSIBILITY THAT INDUCED ABORTION MIGHT BE THE EXPLANATION

Given the data available, it cannot be demonstrated beyond doubt that the comparatively low marital fertility of Tamil women on estates was due to induced abortion. However, this does seem the most likely explanation. It has been observed that marital fertility in this group fell substantially between 1946 and 1953 (and further, subsequently) and suggested that the use of some folk method of birth control was likely to be responsible. Of course, it is possible that coitus interruptus was used, or abstinence, or even rhythm. However, it is much less likely that estate Tamil respondents were reluctant to report their use of these methods (the figures showed one per cent ever-use of coitus interruptus, six per cent abstinence, one per cent rhythm and nought per cent 'other methods'⁹), than to report induced abortions. (Only seven women in the entire Sri Lanka Fertility Survey sample reported having had an induced abortion, and none

⁹Women were asked about their use of the pill, IUD, female and male barrier methods, spermicides, injection, female and male sterilization, douching, withdrawal, rhythm and abstinence. They were also asked whether there were any other methods they had used. They thus had an opportunity to mention any additional folk methods, but in fact none did so.

Women were first asked what methods they knew about and whether they had used them. Then, systematically, all other methods were described and they were asked about these. Thus they should have been aware that withdrawal, rhythm and abstinence were regarded as methods.

of them were estate Tamils.) Moreover, the suggestion that these women were using induced abortion is consistent with the other available data. It is entirely possible that estate Tamil women would report some of their induced abortions as miscarriages or even still births and so appear to have a particularly high rate of foetal loss, which, of course, if this view is correct, they did. It is also plausible, even likely, that they would not mention some of their induced abortions at all, and so appear to have a low conception rate.

It has been taken as axiomatic that women would be reluctant to report induced abortions. It has been the virtually universal experience with surveys of this kind that no or few induced abortions have been reported, even when many have been suspected. In a national sample survey of fertility and contraceptive practice in Great Britain carried out in 1967-8 (see Langford 1976), only 24 out of the 2309 married women interviewed reported having had an induced abortion, although most observers believe that its true incidence in Britain was quite high. Even after induced abortion had been legalized in 1968, women in Britain still tended to under-report the abortions they had had. In another national sample survey carried out in Great Britain in 1976, the number of abortions reported by women was only about one half of the number that would have been expected on the basis of national figures on the rate of incidence (Dunnell 1979).

Induced abortion is illegal in Sri Lanka, except where necessary to save the life of the mother (United Nations 1976: 336-7). However, most Sri Lankan women seem to have been aware of the method. When asked the question, 'Some women resort to induced abortion to terminate a pregnancy. Have you ever heard of abortion?', almost 70 per cent of respondents in the SLFS replied that they had heard of the method. Although the proportion was lower than this among estate Tamil respondents, at 53 per cent, this was a considerably larger proportion of Tamil women on estates than said they were aware of the other folk methods. Only five per cent of Tamil women on estates reported that they knew of, or had heard of, coitus interruptus; and the corresponding figures for rhythm and abstinence were 8 and 14 per cent, respectively. (For the whole population, the figures were: coitus interruptus 20 per cent; rhythm 44 per cent; and abstinence 31 per cent.) Moreover, in a study that focused on the incidence of abortion, carried out in a town in Tamil Nadu in south India (and presumably, therefore, having a population ethnically similar to that of the estate sector in Sri Lanka), a very high ratio of 30 induced abortions per 100 live births was reported.¹⁰

A further hint, although no more than that, is provided by the data of table 15. It may be seen that among estate Tamil women, though not others, there was apparently a slightly higher level of pregnancy wastage among those who had ever used birth control than among those who never

¹⁰See Mandelbaum, D.G. (1974), *Human Fertility in India*, Berkeley. The study, based on 100 women over a three-year period, was carried out by the Institute of Rural Health and Family Planning, Gandhigram, Tamil Nadu, India. The sources cited by Mandelbaum are: 'A Report on the Study of the Incidence of Abortion in a Weaver Community in the Project Area' and 'A Brief Report on the Base Line Survey on Attitude, Knowledge and Practice of Family Planning in a Few Selected Villages in the Project Area', both in the *Bulletin of the Pilot Health Project, Gandhigram 4 (3)*, 1963.

Table 15 Percentage of pregnancies^a wasted, for Tamil women on estates and for other groups in the population, depending on whether women had ever used birth control

	Sinhalese	SL Tamils	SL Moors	Estate Tamils	All
Never used birth control	7	8	5	8	7
Ever used birth control	6	5	4	10	6

^a Excluding current pregnancies.

Source: SLFS data tape

had. This might possibly be taken as indicating that wasted pregnancies were indeed in some degree 'motivated' among estate Tamil women in much the same way as birth control practice was.

4.5 THE SIGNIFICANCE OF THE PARTICULAR TIME OF THE SURVEY

More than 85 per cent of the Sri Lanka Fertility Survey interviews were conducted during August and September 1975 and almost all the remainder during October of that year. The question is: was there something special about the particular time the survey was carried out which would explain the unexpectedly high rate of current pregnancy observed among estate Tamil women?

There is no doubt that the previous year, 1974, was a special year so far as the estate population was concerned. The early 1970s was a difficult time, economically speaking, for Sri Lanka in general. The situation was exacerbated by poor harvests in 1973 and 1974. The estate population was particularly affected. The number of marriages of Indian Tamil couples registered in 1971, 1972 and 1973 exceeded 7000 each year (table 16); in 1974 the number dropped below 5000; in 1975 there was a recovery, though the number of marriages was still less than 7000. (In 1976 and 1977, as it happens, the number shot up, to well over 8000 in each case.) In the remainder of the population, the number of marriages increased from year to year throughout this period. Mortality increased dramatically on estates in 1974. The number of deaths each year in the periods 1971-3 and 1975-6 ranged from something under

12000 to nearly 14000 (table 16). In 1974, the number of deaths registered on estates was 19748. Mortality also rose in 1974 in the non-estate sector of the population, but the increase was proportionately very much less than for the estate population.

The extremely difficult situation on estates in 1974 would clearly have tended, if anything, to reduce the already low level of marital fertility still further. This might happen because more estate Tamil women used birth control than usual, whether induced abortion or another method, or because their miscarriage rate increased or conception rate decreased as a result of illness or poor diet. It might then have been the case that, after this period of difficulty was over, marital fertility rose above the usual level (preceded, of course, by the pregnancy rate) because women stopped using birth control, or because more of them were exposed to the risk of pregnancy precisely because they had not recently had a child. However, the available data do not suggest that this was the explanation of the unexpectedly high rate of current pregnancy observed among estate Tamil women at the time of the survey. The survey data are consistent with the suggestion that there may have been a recent dip in marital fertility in this group (table 10) and certainly 12 per cent fewer births were registered on estates during 1973-4 than during 1971-2 (table 16). The survey data are also consistent (table 12) with there having been a particularly high miscarriage or induced abortion rate among estate Tamil women recently, though a more likely explanation is simply that older women were more inclined to under-report foetal loss than younger women. Moreover, more births were indeed registered on estates in 1975 and 1976 than in 1974 (table 16). However, this upswing was simply not large enough to account for the rate of current pregnancy found among estate Tamil women by the survey.

Suppose that the number of married women of reproductive age on estates, relative to the number in the whole population of Sri Lanka, did not alter between 1974 and 1976. Suppose also that in 1974 the pregnancy rate among married women on estates was six per cent lower than in the whole population. Then, all other things remaining the same, an increase in the pregnancy rate among married women on estates of 30 per cent would have been required to produce the situation in 1975 where their current pregnancy rate was 22 per cent higher than that in the whole population, as was observed in the survey. Moreover, although estate Tamil women had had six per cent

Table 16 Numbers of births, deaths and marriages registered on estates and in the whole of Sri Lanka in the years 1971-6

		1971	1972	1973	1974	1975	1976
Births	SL	382 668	385 462	367 158	365 902	375 857	380 702
	Estates	30 985	28 900	26 174	26 421	27 841	28 536
Deaths	SL	97 209	103 918	100 678	119 518	115 108	106 506
	Estates	12 197	13 590	11 797	19 748	13 876	12 841
Marriages	SL	86 095	90 311	93 162	91 730	94 166	104 659
	Indian Tamils ^a	7 269	7 011	7 087	4 918	6 695	8 460

^a Marriages where both partners were Indian Tamils.

Source: *Bulletin on Vital Statistics 1977*, Department of Census and Statistics, Colombo 1979.

Table 17 Percentage of births during 1964–6 registered in different periods of the year, for Nuwara Eliya district and the whole of Sri Lanka

	Percentage of all births during 1964–6 registered in periods		
	Sept–Nov	Dec–Feb	Sept–Feb
Sri Lanka	24	25	49
Nuwara Eliya	26	24	49

Source: The Reports of the Registrar-General of Ceylon on Vital Statistics for the years 1964, 1965 and 1966

fewer pregnancies, not counting current pregnancies, on average, over the entire course of their reproductive lives, precisely what is under consideration here is the possibility that in 1974 these women may have had an even lower pregnancy rate than usual. And had a shortfall of ten per cent in 1974 been assumed, for example, the required increase in the pregnancy rate among estate Tamil women would have been not 30 per cent but 36 per cent. In addition, at the same time as there was an upswing in the number of births on estates, there was also an upswing in Sri Lanka as a whole. There were three per cent more births registered in Sri Lanka in 1975 than in 1974 and four per cent more in 1976 than in 1974 (table 16). Hence, on these grounds, too, a greater increase in the pregnancy rate than 30 (or more) per cent would have been required among married women on estates to explain their rate of current pregnancy. In fact, though, there were only five per cent more births registered on estates in 1975 than in 1974 and eight per cent more in 1976 than in 1974 (table 16).

It is possible that the number of married women of reproductive age on estates, relative to the number in the whole population of Sri Lanka, did decline between 1974 and 1976, but it is extremely unlikely that it could have declined so dramatically as to account for this discrepancy. Official estimates show a three per cent decline in the numbers of both Indian Tamils and the estate population between 1974 and 1976 (Department of Census and Statistics 1979). In principle, a difference in the seasonality of births between the estate population and Sri Lanka as a

whole might be responsible. However, as may be seen from table 17, there is no evidence of such a difference. Nuwara Eliya is the administrative district of Sri Lanka with the largest proportion of Indian Tamils (57 per cent at the time of the 1963 census). However, when the distribution of births over the relevant part of the year in this district was compared with that for Sri Lanka as a whole for the period 1964–6 (1966 is the most recent year for which this information is available), no real difference was found between them.

4.6 THE EXPLANATION OF THE HIGHER CURRENT PREGNANCY RATE AMONG ESTATE TAMILS

Given that there was nothing special about the particular time the Sri Lanka Fertility Survey was carried out which might account for the higher current pregnancy rate among Tamil women on estates, two different basic views of the data are possible. The first is that Tamil women on estates are very much better than other women at recognizing and reporting their current pregnancies, or report themselves as pregnant when this is not the case, so that, in reality, fewer of them, rather than more, were truly pregnant. The second is that their current pregnancy rate really was higher than other women's, and that the discrepancy between this observation and the fact that they reported fewer past pregnancies than other women is due to their under-reporting of the latter. As already indicated, the writer inclines to the second of these views; and it has been suggested that a possible explanation for the under-reporting of past pregnancies by Tamil women on estates may be that many of those omitted were induced abortions. However, this is very much a matter of individual judgement; and it has not proved possible, unfortunately, to carry out any other analysis which would decide the matter definitively.

4.7 CONCLUSION

The available evidence does not by any means put the matter beyond dispute. However, the most likely explanation of the decline in marital fertility among estate Tamils is recourse by them to induced abortion.

5 Postscript

Quite apart from the question of whether induced abortion was the method of birth control they used, the fact that Indian Tamils started to control their fertility as early as they did is of considerable interest in itself. The fall in fertility in Sri Lanka as a whole has interested demographers, both as an example of fertility decline in the absence of economic development and as an example of the possible force of nuptiality changes in producing fertility decline (Kirk (1969) has even referred to Sri Lanka as the 'Ireland of Asia'). Arguably, the country, though not developed in a commercial or industrial sense, is nevertheless quite highly developed in terms of education and literacy, provision of health services and ease of internal communications; and these factors could have been important in the fertility decline that occurred. However, among Indian Tamils, the decline in mortality, particularly infant mortality, has been less marked than in the population as a whole. They are considerably less well educated than others, and they are thought of as generally rather unsophisticated. Yet, it now seems, they began to control their fertility within marriage before the population in general.

On the face of it, not only did they begin to control their marital fertility, but also achieved this through the spacing of their children as well as by limiting the total number. Little and Perera (1981) constructed indices of marital fertility in different segments of married life from SLFS data and found that estate women had lower marital fertility than others, even in the first ten years of married life. They observe, 'a comparison across cohorts does not suggest omissions for the older cohorts of estate workers, and if correctly reported the low fertility in early marriage would suggest a distinctive pattern of fertility control and/or spacing'. Alam and Cleland (1981) computed age-specific fertility rates, marital age-specific fertility rates and duration-specific marital fertility rates for different periods from SLFS data and also drew attention to this distinctive pattern among women on estates. However, they were suspicious of what they found, as it implied 'a sophisticated pattern of family formation involving postponement of first births and spacing of second births', and felt that errors in the data might be responsible. The writer agrees with them. As may be seen from appendix B, the total fertility rates computed by Alam and Cleland for the estate population, as well as the pattern of decline they show, are at odds with the picture presented by official statistics. Since these rates make use of the detail of the birth histories provided by women, it is clearly possible that these contain quite serious errors where the estate population is concerned; and it would obviously be unwise to attach too much importance to analyses based on them. It may not, then, be the case that the decline in marital fertility among women on estates involved the spacing of their children early in marriage. On the other hand, the basic fact that their marital fertility

was lower than other women's remains, of course, since in this respect SLFS data and official statistics are in agreement.

There are a number of possible explanations for the decline in marital fertility among Indian Tamils. It might be, for example, that the decline set in for fairly classical demographic transition reasons. There is clearly the world of difference between peasant agriculture and the large-scale, highly organized, wage labourer-based production of estates, and in many ways the situation of estate workers is perhaps akin to that of workers in the industrial sector. The fertility aspirations of Indian Tamils may have changed, despite their apparent unsophistication, in response to the quasi-industrial nature of estate life. It is interesting to note in this connection that there may have been a very rapid and substantial fall in fertility on tea estates in Assam in the 1960s (Gilroy 1970). Another possibility is that the extremely heavy involvement of women in the labour force might have been a factor in the decline in marital fertility. (It is a common research finding that working women have fewer children than non-working women.) In this respect, the estate population is not just 'modern' but 'super-modern': the SLFS data indicate not only that almost all estate women had gone out to work since marriage but that 90 per cent or more of them worked at each stage of family building, before the first birth, between the first and second births, and so on.¹¹ (By contrast, in a survey carried out in Great Britain in the late 1960s, although almost 80 per cent of women had gone out to work at some stage since their marriage, only about 60 per cent had worked between marriage and their first child, about one in four between their first child and their last, and fewer than half in the period since their last child.¹²) It is clearly possible that such a very high level of female participation in the labour force might act to discourage large families. There has been a system of paid maternity leave for many years on estates (in 1979, a mother was entitled to six weeks' leave), but the longer-run costs of children, in terms of work missed and inconvenience, might easily weigh much more heavily than this. Moreover, the usual recipient of the maternity benefit is the husband. It is worth noting that payment

¹¹ To be exact, 90 per cent or more of them had worked in the first seven birth intervals, counting the period between marriage and first birth as the first interval; for later intervals the figures were slightly lower. Moreover, these are minimum figures: in every case, the great majority of women who did not report having worked had not stated whether they had worked in the interval or not. In every case, the figures referred to are based on the number of women who had actually experienced a birth interval of the appropriate type.

¹² See Langford (1976). The figures cited refer to women married in the period 1941-65, with ages at marriage below 35, as at the time of survey in 1967-8. Last child means most recent at time of survey.

for the plucking of tea depends upon the achievement of a certain quota by the woman, and that there may sometimes be the possibility of bonus payments for plucking more than this. Another, rather different kind of possible explanation for the decline in marital fertility is that the wish for fewer children might have stemmed from a general

feeling of political insecurity after Sri Lanka gained its independence in 1948. However, all of this is no more than conjecture, and raises questions rather than answering them. An entirely adequate explanation of the decline in marital fertility among Tamil estate workers in Sri Lanka could only emerge after further research.

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Appendix A Sample Distribution by Marriage Duration and Age at Marriage

Table A1: The distribution of the Sri Lanka Fertility Survey sample by marriage duration and age at marriage, for Tamil women on estates and other groups in the population

Years since 1st marriage	Age at 1st marriage	Sinhalese	SL Tamils ^a	SL Moors	Estate Tamils	All ^b
< 5	All ages	933	146	85	105	1280
	< 20	277	69	43	44	438
	20 +	656	77	42	61	842
5–9	All ages	881	142	80	110	1231
	< 20	347	91	65	64	574
	20 +	535	51	15	46	656
10–19	All ages	1544	245	142	222	2175
	< 20	822	169	113	174	1294
	20 +	722	76	29	48	881
20 +	All ages	1492	246	141	219	2125
	< 20	1132	201	122	191	1669
	20 +	359	44	19	28	455
All	All ages	4850	779	449	655	6810
	< 20	2578	530	344	473	3975
	20 +	2272	249	105	182	2835

^aStrictly, this should be 'Sri Lanka Tamils not living on estates' (see section 1.7).

^bThis includes 78 women who are not members of any of the four groups shown (see section 1.7).

Source: SLFS data tape

Appendix B Comparison of Survey and Other Fertility Rates

Table B1: A comparison of total fertility rates (TFRs) computed from SLFS data and some measures derived from official statistics

	Time period													
	73-74	72-73	71-72	70-71	69-70	68-69	67-68	66-67	65-66	64-65	63-64	62-63	61-62	60-61
<i>SLFS data</i>														
Sri Lanka TFR ^a	3.58	3.68	3.98	4.22	4.41	4.61	4.62	4.78	4.95	5.05	5.24	5.28	5.28	5.50
Estates TFR ^a	2.98	2.99	3.50	3.71	4.01	4.29	4.40	4.47	4.70	5.00	5.25	5.26	5.57	5.70
<i>Official data</i>														
Sri Lanka TFR ^b				4.12							5.04			
GFR ^c			127								155			
Indian Tamils GFR ^c			120								118			
			1971								1963			

^aTaken from Alam and Cleland 1981, table 13.

^bComputed from census and registration data. For convenience, taken from Langford 1981, table 1.

^cTaken from table 6. GFR means general fertility rate.

NOTE: The measures based upon official statistics are presented for the census years 1963 and 1971. Roughly speaking, these may be compared with figures from SLFS data about mid-way between those for the periods 1962-3 and 1963-4, and the periods 1970-1 and 1971-2, respectively.

All in all, there is a very close correspondence between official data and survey data where Sri Lanka as a whole is concerned. For around 1971, the total fertility rates from official and survey sources are almost identical, 4.12 in the former case and 4.10 (implied, approximately) in the latter. For around 1963, the total fertility rate based upon survey data is about 4 per cent higher than that from official statistics; which to regard as more correct is debatable. The fall in the total fertility rate between 1963 and 1971, according to the survey, was 22 per cent; from official statistics, it was 18 per cent. The fall in the general fertility rate calculated from official data was also 18 per cent.

In the case of the estate population, on the other hand, the situation is quite different. The general fertility rate for Indian Tamils based upon official data (which it is very difficult to believe is not at least roughly correct) hardly changed between 1963 and 1971. The total fertility rate would be expected to behave in a similar fashion, just as the general fertility rate and total fertility rate for the whole of Sri Lanka changed together during the period. However, as may be seen, the total fertility rate based upon survey data fell from about 5.25 to about 3.60 between 1963 and 1971, a fall of more than 30 per cent. On the rather rough and ready basis that the relationship between total fertility rates and general fertility rates for Indian Tamils is the same as that shown by official data for the whole population of Sri Lanka, and assuming further that values for Indian Tamils and the estate population are the same, the survey estimate of the 1971 total fertility rate for estates was 8 per cent too low (it should have been 3.9¹³) and the 1963 estimate (it should have been 3.8) was 37 per cent too high.

¹³ $3.9 = (120/127) \times 4.12$ or $(120/155) \times 5.04$.