



Scientific Reports

NUMBER 60 SEPTEMBER 1984

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Contraceptive Use and Fertility in the Commonwealth Caribbean

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The recommended citation for this publication is:

Abdulah, Norma and Jack Harewood (1984). Contraceptive Use and Fertility in the Commonwealth Caribbean. *WFS Scientific Reports* no 60. Voorburg, Netherlands: International Statistical Institute.

Printed in Great Britain
by J. W. Arrowsmith Ltd., Bristol

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Preface

The policy of WFS is to encourage and to support, where possible, further detailed analysis of the survey data following the publication of the First Country Report. The national meetings, as in the case of other participating countries, held in the three English-speaking Caribbean countries – Guyana, Jamaica and Trinidad and Tobago – and the two regional seminars provided the forum for identifying the topics and for preparing project proposals for such analyses. After a careful review of the proposals, the countries approved the choice of five topics: contraception, infant and child mortality, union patterns and fertility, fertility preferences and socio-economic differentials in fertility. It was also decided that work on the first three topics would be undertaken by experienced researchers in the region while the last two would be done by the two Caribbean nationals working with WFS. The programme was supported by WFS through the funds made available for second-stage analysis.

With the emphasis on country-specific analysis, the Caribbean programme was expected to produce an analytical report on each of the five topics for each of the three countries, which would have resulted in fifteen national reports. However, in view of the similarity of the questionnaires used in the three countries, it was decided to organize the research in such a way that each researcher would carry out the analysis on all three countries, using similar or the same methodology, and to publish one single report on each topic. This approach also had the advantage of allowing comparisons within a single report, for a given topic, and indeed the authors were requested to prepare a short comparative chapter in addition to the main chapters on individual countries.

All the papers have gone through two stages of review and revision. The first stage was a regional seminar, held at the University of the West Indies, St Augustine, Trinidad, in September 1982, where representatives from each country were invited and the papers were presented.

External reviewers commented on each paper: contraception (Halvor Gille), union patterns (Yves Charbit and Basia Beckles), infant and child mortality (Richard Lobdell), fertility preferences (Michael Vlassoff) and socio-economic differentials in fertility (Barbara Boland). The papers were revised following these reviewers' suggestions, and the second stage was a further evaluation of the revised draft reports, mainly done by assigned WFS staff members, but in two cases by external reviewers. A final version, in all cases involving substantial rewriting and condensation, then followed.

This report was prepared by Norma Abdulah and Jack Harewood, both of whom are on the staff of the Institute for Social and Economic Studies of the University of the West Indies, St Augustine. The authors took part in the design and execution of the Caribbean WFS surveys at all stages, and were therefore well qualified to carry out this analysis. The report draws upon the methodology of the WFS 'Illustrative Analysis' on contraceptive use, published as *Scientific Reports* no 5. It also benefited from evaluations by the discussant and participants at the regional seminar, and subsequently by an external reviewer assigned by WFS. I wish to thank all of them for their invaluable contribution.

I also wish to congratulate Susheela Singh, who not only volunteered to undertake this study along with her numerous other duties at WFS, but also successfully completed the report with her customary efficiency and promptness. We hope that this report, along with the other four, will provide valuable insights leading to better understanding of the demographic situation in the three countries and will be of use to the national policy-makers. In conclusion, I wish to thank the national survey directors and their staff for their continued support and most valuable collaboration.

HALVOR GILLE
Project Director

Acknowledgements

The tabulations used in this study were done at WFS London by Susheela Singh to whom we are especially grateful.

Halvor Gille, WFS Project Director, and Michael Vlassoff of the Population Division of the United Nations both attended a meeting in Trinidad in September 1982 to discuss the various studies in the Caribbean Programme of Research based on data collected in the Fertility Surveys conducted in the region. The former acted as discussant of the draft paper at that meeting while the latter subsequently forwarded some very useful comments and suggestions for improving it. We are indebted to them.

Bernadette Carrington of the ISER calculated the regression tables from the computer tabulations and Gloria Lawrence, also of ISER, was responsible for the typing of the earlier drafts as well as the text now presented. We are grateful to them.

1 Introduction

1.1 OBJECTIVE OF THE STUDY

During the last two decades there has been an impressive decline in the level of fertility of the three countries in which Fertility Surveys have been carried out within the WFS programme – Guyana, Trinidad and Tobago and Jamaica – as well as in most of the other countries of the Commonwealth Caribbean. During this period there has also been a striking increase in the practice of contraception, partly associated in the last two of the above countries with the introduction of national family planning programmes.

The purpose of this study is to analyse intra-country variations in contraceptive use and to assess the extent to which contraceptive use influenced the national level of fertility. A brief inter-country comparative summary of the main findings is also provided.

1.2 AN OUTLINE OF THE SURVEYS

The data used in this study were collected in sample surveys of fertility in Guyana (May – June 1975), Jamaica (November 1975 – January 1975) and Trinidad and Tobago (March – June 1977) undertaken under the auspices of the World Fertility Survey programme. Separate reports on the substantive findings of each survey have been published,¹ designated 'Country Reports' and referred to as such in this study.

Because in the Caribbean a large proportion of births occur outside wedlock, the Fertility Surveys were not confined to ever-married women. Instead, the women from whom detailed information was obtained were those who were 'ever in a union', where a union could be legal marriage, a common law relationship where a man and woman live together as man and wife but are not legally married, or a visiting relationship where they do not live together but have a more or less steady sexual relationship. To identify these 'ever in a union' women, questions had to be asked of all women 15–49 years of age though, to avoid probable resentment on the part of parents, girls 15–19 years of age who were still attending secondary school full time were excluded.

The number of 'ever in a union' women from whom complete questionnaires were obtained and on whom the analysis in the Country Reports and the present study are based is: 3616 for Guyana, 3482 in Trinidad and Tobago and 2765 for Jamaica.

The study is based primarily on data recorded in sections 2, 4 and 5 of the questionnaires² used in the three surveys. In section 2, a complete pregnancy history of the respondent was recorded. Section 4 dealt with knowledge (not included in this study) and use of specific contraceptive methods; while section 5 related to current and past use of

any contraceptive method. In section 5, questions concerning the desire for future childbearing were also included so that this could be related in the use of contraception. In examining differential levels of contraceptive use and achieved fertility, some of the socio-economic characteristics of the women and of their partners (sections 1, 3 and 6) are used as independent variables.

1.3 RECENT FERTILITY TRENDS

As shown in table 1, the crude birth rates have fallen in all three countries in the 1960–70 intercensal decade and subsequently. In the 1960–70 decade the fall was greatest for Trinidad and Tobago and least for Jamaica. In the ensuing five years the decline was somewhat greater for Jamaica than for Guyana but much smaller for Trinidad and Tobago.

In both Guyana and Trinidad and Tobago the declines in crude birth rates are attributable, for the most part, to decreases in the level of fertility rather than changing age structure of the populations. Furthermore, the level of fertility among Indians, which had traditionally been much higher than that of non-Indians,³ showed a disproportionate decrease *vis-à-vis* their non-Indian counterparts. In Jamaica, on the other hand, the reduced crude birth rates between 1960 and 1975 have been due almost exclusively to a change in the age–sex structure of the population, a direct consequence of large-scale emigration in the 1960–70 intercensal period. However, the decline in the crude birth rate since 1970 is entirely due to the genuine decline in

Table 1 Crude birth rates in Guyana, Jamaica and Trinidad and Tobago 1960, 1970 and 1975

Crude birth rates	Guyana	Jamaica	Trinidad & Tobago
1960	43.1	42.1	38.4
1970	33.4	34.4	25.6
1975	29.7	30.1	23.7

Sources: 1960, 1970 – Derived from Population Census Reports of each country
1975 – Official estimates based on Vital Statistics Reports and published by the government statistical agencies of the three countries

¹ These reports are: (a) *Guyana Fertility Survey 1975: Country Report, Vol 1 and 2*, Statistical Bureau, Ministry of Economic Development, Guyana, 1978. (b) *Jamaica Fertility Survey 1975/76: Country Report, Vol 1 and 2*, Department of Statistics, Kingston, Jamaica, 1979. (c) *Trinidad and Tobago Fertility Survey 1977: Country Report, Vol 1 and 2*, Central Statistical Office, Port of Spain, Trinidad, 1981.

² Copies of the questionnaires used in the surveys appear as appendix 1 in vol 1 of each of the Country Reports.

³ See for example Roberts (1975) and Singh (1984).

fertility. Indeed, the change in the age—sex structure of the population during the period 1970–79 was conducive to an increase of 2.4 per thousand population in the crude birth rate and it was a very large decline of 9.7 per thousand attributable to declining fertility that caused the net decline of 7.3 per thousand population in the crude birth rate during this period.

1.4 POPULATION POLICY AND FAMILY PLANNING PROGRAMMES

Guyana

There is no official family limitation programme and no official sanction or support for family limitation activities. There is, however, a local Responsible Parenthood Association, established in 1974 and assisted by the IPPF. Moreover, the Association does receive some contraceptive supplies free of charge from the IPPF which are distributed through the Maternal and Child Health Clinics of the Ministry of Health. Officially, however, this service is for the care of high-risk mothers, and for assistance with child spacing and not with family limitation.

The principal concern of the Association is with fostering a better family life. To this end it advocates 'child spacing' and is also very involved with matters such as proper infant and child care, nutrition and health education.

In addition to the limited family planning service just mentioned, the women of Guyana have of course access to contraceptive supplies through their private doctors and the drug stores. These must, however, be getting increasingly scarce in view of the worsening foreign exchange problem facing the country. Nevertheless, the level of contraceptive use in 1975, the year of the survey, was high, as is shown later, and the use of non-supply methods is not greater than in Jamaica and Trinidad and Tobago.

In the absence of any previous surveys of contraceptive use in the country, and any data of the kind normally available from family planning clinics, we have no means of estimating the change in the level of use that has been taking place over time. We must, in fact, rely entirely on the 1975 Fertility Survey for our analysis of contraceptive use in Guyana.

Trinidad and Tobago

The family planning programme

A number of small family planning clinics were started in rural areas in Trinidad and Tobago in the period 1956–59 but none of them lasted very long. However, starting in 1959, in quick succession a clinic was opened in the capital, Port of Spain, a Family Planning Association was organized and another large urban clinic was started in the second main town, San Fernando.

Although there was strong opposition throughout this period from the Roman Catholic Church and indifference or even resistance from the Government, the voluntary family planning programme consolidated and grew, receiving support primarily from the IPPF.

By 1967 the attitude of both Government and the Catholic Church had changed to support for a family planning programme, and in 1968 a national family planning programme came into being involving Government clinics,

the Family Planning Association and the Catholic Marriage Advisory Council.

In the early years of the national programme there was a very rapid increase in the number of family planning clinics as well as in the family planning services being provided. After this initial increase there was some decline and there is evidence of a stabilization during the past four or five years. There are a number of reasons for this decline. One, of course, is that in the early years the programme had to service a large accumulated unmet need for contraception, but as this need was satisfied the number of new acceptors naturally declined.

Another reason is the growth of family planning services through private doctors and drug stores in particular. But the main causes are undoubtedly two changes in the programme itself. First, the family planning service has been integrated into the Maternal and Child Welfare service of the national health programme. As a result, FPA involvement has been considerably curtailed and the service is now primarily provided through general health clinics. This has resulted in a decline in the quality of the service, including the zeal of the workers involved. Secondly, the programme no longer devotes virtually all of its attention to contraception and, instead, has broadened its concern to all aspects of improving family life.

This growth and then decline and stabilization in the national family planning programme can be seen from the figures of new acceptors in the programme. This number, which was well below 1000 up to 1963, jumped to 2270 in 1964 and 7870 in 1965 following the introduction of the pill in 1962 and the IUD in 1964 into what was still the voluntary programme. There was a return to about 3000 per year in the next two years, but in 1968, the first year of the national programme, the number of new acceptors increased to 12 800 and reached its highest level, 15 600, in the following year. Since then the number of new acceptors has varied between 8000 and 12 000. It was low (about 8000) in the years 1971 and 1972, increased to an average of 12 000 in the next four years, but has been at the level of 9000–10 000 per year since 1978. The number of clinic attendances has shown a similar movement.

The level of contraceptive use

The only available data on the national level of contraceptive use, as opposed to use through the family planning programme, are from the present survey and an earlier survey carried out in 1970 (Harewood and Abdulah 1971 and Harewood 1978). The period of rapid decline in the 1960s is therefore not covered.

At the 1970 survey, among women 15–44 years of age and over in a union, 63 per cent had ever used contraception. By 1977 this figure had increased to 80 per cent. Similarly, the level of current use had increased from 40 to 49 per cent of these women aged 15–44 years.

The indications are that this increase was quite general when we consider subgroups by age, level of education, ethnic origin and other usual background characteristics.

Jamaica

The family planning programme

Jamaica had an organized family planning service long before any other of the Commonwealth Caribbean countries. In 1939 a birth control clinic was opened in Kingston by the Jamaica Birth Control League despite

widespread controversy and opposition. In 1957 a number of voluntary organizations in the field of family planning grouped themselves to form the Jamaica Family Planning Association, which is affiliated to the IPPF.

Despite the financial support from the IPPF and other sources, the programme remained in serious financial straits until 1966. In this year a National Family Planning Programme was introduced by the Government under the Ministry of Health, and in the following year the National Family Planning Board was set up under the same Ministry.

At present both the NFPB and the JFPA have family planning clinics. However, since 1974 family planning has been integrated into the Government health services. Family planning service is now, therefore, provided regularly through the Government clinics and related facilities. Supporting the clinics is a new outreach programme, mainly in rural areas, which aims to take basic health as well as family planning service to the people in their homes and workplaces.

Detailed records of attendances of family planning clinics before 1971 are not available to the authors. Between 1971 and 1972, that is prior to the change, the number of clinics increased from 151 to 162, and remained more or less constant (161–163) up to 1975, the last year for which these data are available.

The number of clinic attendances showed a steady increase between 1971 and 1975, from 135 100 to 219 700, but has fluctuated since that year. In 1976 attendances numbered 191 400, a decline of 13 per cent in the year 1975–76. The number rose again in 1977 to 206 200 but once more declined to 196 200 in 1978. But increments in total attendance between 1971 and 1975 mask the fact that there was not a commensurate increase in the number of new acceptors during this period. Indeed, with the exception of 1973 when the number of new acceptors was 25 540, the number remained roughly the same, 22 000, between 1971 and 1974; rose again to 23 800 in 1975; and showed a drastic reduction to 18 600 in 1976. As in the case of total attendances, the number of new acceptors showed a dramatic increase, by 48 per cent to 27 500 in 1977, but then declined to 25 100 in 1978. To further illustrate the overall decrease in the national family planning programme between 1971 and 1976, new acceptors as a proportion of total attendances declined steadily from 16 per cent in 1971 to less than 10 per cent in 1976. During 1977 and 1978, the proportion was roughly 13 per cent.

The level of contraceptive use

Some data on the national level of contraceptive use, as opposed to use through the family planning programme, are available from two sample surveys conducted before the Jamaica Fertility Survey and one later survey. In 1956, Stycos and Back recorded a very low level of use – only 10 per cent – among a sample of 1200 women primarily of low socio-economic status. In a subsequent survey taken in 1972, the level of ever-use had risen to 45 per cent among a sample of 2765 women.)

In the Jamaica Fertility Survey, 1975/76, the proportion of 2765 women ever in a union who had ever practised contraception is recorded as 66 per cent, while in a 1979 Survey of Contraceptive Behaviour carried out among a representative sample of 2198 women by the Department

of Sociology, University of the West Indies at Mona, 70 per cent were ever-users.

While detailed comparison of the results of these four surveys is beyond the scope of this study, it appears that ever-use of contraception on a national level has shown a steady increase in the last two decades, despite the overall reduction in clinic attendances up to 1976 discussed above.

1.5 ORGANIZATION OF THE ANALYSIS OF DIFFERENTIAL CONTRACEPTIVE USE

The analysis of the variables associated with the use of contraception is carried out in sections 2–4 for Guyana, Trinidad and Tobago and Jamaica respectively and is confined to 'exposed' women – ie those women who were currently in a union, fecund and non-pregnant, including those sterilized for contraceptive purposes. Each of these sections is divided into five parts. The first deals with the overall level of current contraceptive use in the country and how that level varies according to the background characteristics of the women. The brief analysis here is based on three appendix tables. The first of these shows the per cent distribution of exposed women according to their characteristics, while the other two set out the percentages of each subgroup who were practising contraception at the time of the survey. Current age and number of living children are used as controls in these appendices. In the second part, current use of specific contraceptive methods is examined and, like the first part, is based on simple cross-tabulations. These two parts together constitute a simple, descriptive background to the more detailed analysis which follows.

The third part of each of the three sections deals more comprehensively with differentials in contraceptive use, using multiple regression techniques in furthering the analysis. This part also examines the explanatory power of the independent variables. Because this is the primary concern of the study of differential use, the methodology is set out in some detail in section 1.6.

In the fourth part, an attempt is made to assess the extent to which the contraceptive behaviour of the women is consistent with their expressed desire to cease child-bearing. For this purpose, certain assumptions have been made and the concepts used are described in section 1.7.

In the fifth and final part, the effect that the use of contraception appears to have had on the level of fertility is examined. The methodology used in this analysis is described in section 1.8.

1.6 ORGANIZATION AND METHODOLOGY OF THE ANALYSIS OF CURRENT USE

In the Country Reports, current contraceptive use was analysed by level of education, place of residence, religion and current union status, with number of living children and current age as control variables in each case. Religion was considered to be the least useful of these variables and, for this reason, was omitted from the discussion of this topic in volume 1 of the Trinidad and Tobago Country Report. For the present study the variable also has the disadvantage that the categories used in Jamaica are quite different from those used in the other two countries. On

the other hand, preliminary investigations indicated that the occupation of the respondent's partner would make a useful contribution to this analysis. Religion has therefore been omitted and partner's occupation added to the above list of independent variables.

Cross-classification of the data was the method of analysis adopted in the Country Reports. By this approach, the relationship between current contraceptive use and each of the first four independent variables above, when controlling for age and family size, was studied. The aim of the present study is to extend this to a consideration of each of the selected independent variables and contraceptive use when controlling for all the remaining independent variables.

The method of standardization, while used in the preliminary analysis is the first part of each section, is inadequate for the more detailed analysis carried out here as it would require a six-dimensional cross-classification of the data for which the samples are clearly inadequate. Furthermore, there are a number of statistical techniques which are more appropriate for analysing the relationship between a dependent variable and a set of independent variables. These involve fitting models which assume that certain specified high-order interactions between the variable are zero. Cleland, Little and Pitaktesombati (1979) gave as examples of such models: 'analysis of variance, which include as a special case multiple classification analysis (MCA), or log-linear and logit-linear models for cross-classified data'. While the logit-linear models are considered to be 'in many ways the most natural and appropriate' for dichotomous response variables such as contraceptive use, Cleland *et al* point out that for this and the other models mentioned the grouping of continuous variables is often cumbersome and inconvenient. For this reason, the fitting of more general regression models which treat the individual values of these continuous variables is to be preferred. Following Cleland *et al* we use this approach in this study, in studying the effect on contraceptive use of the two demographic variables as well as the four socio-economic variables mentioned above.

One approach to the analysis could be to include the six independent variables in a single regression equation. As Singh (1984) points out, this approach, which considers the effect of each variable only after adjusting for all others, is inappropriate where there is high multicollinearity between variables, as is likely to be the case wherever an attempt is made to obtain estimates of the effect of one variable, controlling for the effects of others. An alternative approach is to establish a causal order of the independent variables and consider the effect of each of these when controlling for causally prior variables only.

While this latter approach has many advantages, the causal ordering of the independent variables itself influences the analysis. But for studies such as this it is seldom possible to fully justify any strict causal ordering of the variables. For this reason, following Cleland *et al* (1979) and UN (1981) in their analysis of contraceptive use based on WFS data, a modification of this approach is used in this study. First, the unadjusted effects of each variable are calculated, then the independent variables are added to the regression equation in successive steps in a predetermined causal sequence as follows:

Current age (AGE)
Pattern of residence (RES)

Current union status (CUS)
Level of education (EDUC)
Partner's occupation (POCC).
Number of living children (LIVCHILD)

In the case of Indians, because most women currently in a union are married, only two current union status groups are used: married and non-married.

In ordering the variables, current age is put first as it is clearly not influenced by the other variables, while the number of living children is placed last on the basis that it would be influenced by all of the others. But it cannot be argued that the above ordering of the four intervening variables is unique or the best possible causal sequence. It seems likely that a woman's place of residence is more likely to affect her current union status than the other way round. But while both of these variables could affect the level of education, in many instances the causal order may be reversed or be in both directions. It can also be expected that in general a woman's educational level will affect the type of partner (in terms of occupation and other socio-economic characteristics) she will have. The partner's occupation is also likely to be affected by their pattern of residence, though any causal relationship need not always be in this direction. Perhaps least satisfactory is that current union status is placed before partner's occupation in the causal sequence. It might well be argued that the occupation of the partner is more likely to affect the type of union he would be involved in.

The equations used in the stepwise regression analysis in studying the effect of education on contraceptive use provide an example of the method which is used with all the independent variables:

Step 1 CUSE with EDUC;
Step 2 CUSE with EDUC, AGE;
Step 3 CUSE with EDUC, AGE, RES;
Step 4 CUSE with EDUC, AGE, RES, CUS;
Step 5 CUSE with EDUC, AGE, RES, CUS, POCC;
Step 6 CUSE with EDUC, AGE, RES, CUS, POCC,
LIVCHILD.

Each of these independent variables is introduced in the form of a dummy variable. The categories used for subdividing each independent variable into dummy variables are set out below, the reference category being shown in parentheses:

Current ages	(15-19), 20-24, 25-29, 30-34, 35-39, 40-44, 45-49
Pattern of residence	(Movers), Always urban, Always rural
Current union status	<i>Indian</i> : (Common law + Visiting), Married <i>Non-Indian</i> : (Married) Common law, Visiting
Level of education	<i>Guyana and Jamaica</i> (Up to five years' primary) Six-seven years' primary <i>Trinidad & Tobago</i> (Up to seven years' primary)
	Eight years' primary Incomplete secondary

Partner's occupation	Complete secondary (Professional, administrative and clerical workers), Manual workers – skilled and unskilled agricultural workers, including the 'never worked', sales and service workers
Number of living children	(None), One, Two, Three, Four, Five, Six, Seven, Eight, Nine or more

- 1 Want *no more* children and *practising* contraception
- 2 Want *more* children and *not practising* contraception
- 3 Want *more* children and *practising* contraception
- 4 Want *no more* children and *not using* a contraceptive

The proportional distributions of the women into these four groups are shown in tables 11, 21 and 31 for Guyana, Trinidad and Tobago and Jamaica respectively. The women in group (4) are considered as those whose contraceptive use is inconsistent with their fertility preferences and who are at risk of unwanted pregnancies.

The contraceptive practice of the other three groups is 'consistent' with their stated fertility preferences. Groups (1) and (2) are practising or not practising in accordance with their wish to cease childbearing or to have (more) children respectively. Group (3), those who want more children but are currently using a contraceptive method, can also be considered to be acting consistently, if, as is assumed for this study, they are motivated by the wish to control the timing of their next births – ie to 'space' their children. This last group could, conceivably, include some women who are acting inconsistently with their own preferences, for example while bowing to the wishes of their parents in preventing conception. The number of such cases are, however, likely to be very small and would not affect the analysis.

It should be mentioned here that in each of the three countries somewhat less than 10 per cent of the women to whom the relevant question was posed were uncertain as to whether they wanted any more children or not. For the purposes of this study women are categorized as wanting to cease childbearing only if they gave a definite, negative response to the question: 'Do you want to have any (more) children?'

1.8 THE ANALYSIS OF THE FERTILITY INHIBITING EFFECTS OF CONTRACEPTIVE USE

A matter of evident interest is the extent to which the prevalence of contraceptive use has affected the level of fertility in the three countries. A number of different methodologies have been developed for the purpose of measuring the impact of contraception on fertility, but most of these are concerned with the impact of *family planning programmes* rather than of *contraceptive prevalence* (see United Nations 1979 for a review of these methodologies).

For this study it was decided to attempt to measure the impact of contraceptive prevalence by a method for which the data requirements could, for the most part, be met from the Fertility Surveys. In this connection, because of the limitations of the data on contraceptive use available from the surveys, the analysis here is confined to an assessment of current contraceptive use on the fertility of women during the year preceding the survey. Another limitation of many of these methodologies is their heavy data demands.

The methodology developed by Bongaarts (1978 and 1980) is a simple approach to evaluating the effect of contraceptive prevalence and it has been applied to data from some WFS-supported Fertility Surveys (Bongaarts and Kirmeyer 1982). This is the methodology adopted in the present study. A detailed description is given in the general appendix.

The effect of each of the selected independent variables, when controlling for the others, is determined by stepwise regression analysis. In the tables giving these results, steps which have little impact on the regression coefficients of the variable being studied are omitted. For each control variable shown in these tables, the step at which the variable was entered in the regression analysis is shown in parentheses.

In addition to providing measures of the effect of each independent variable on contraceptive use, the multiple regression technique also indicates whether the observed effects are significant or are likely to be due to sampling error. Following Little and Perera (1981), this statistical significance is measured by chi-squared values derived as:

$$\chi^2(A|B) = \frac{\{SS(A + B) - SS(B)\}}{\text{residual mean square}}$$

That paper also discusses the limitations of χ^2 as a test of significance, and points out that 'large substantive differences in the adjusted means do not necessarily yield large chi-square values' since χ^2 is 'sensitive to the number of individuals in the sample base, and the distribution of individuals with respect to the variable of interest'.

The final application of the regression analysis is to determine the degree of linear dependence of contraceptive use on each independent variable at the various steps. For this, use is made of the added (or partial) R^2 , which represents the proportion of the variance of contraceptive use which is explained by the independent variable concerned.

1.7 CONCEPTS IN ANALYSING FERTILITY PREFERENCES AND CONTRACEPTIVE USE

In the Country Reports (table 3.1.1) for each of the three countries it has been shown that the desire to cease childbearing is directly related to the already achieved family size regardless of the background characteristics of the woman. Furthermore, except in Jamaica, the total number of children desired does not vary according to the characteristics of the women when the mean number desired is standardized for the number of living children. Therefore, the extent to which fertility levels vary between the socio-economic groups is a reflection of the level of unwanted pregnancies within the groups – more so in Guyana and Trinidad and Tobago. If the high-risk groups can be identified and the risk diminished, this could have important implications for the individual women as well as for the overall level of fertility.

In this study, exposed women are divided into four groups as follows:

2 Guyana

2.1 LEVEL OF CURRENT USE BY BACKGROUND CHARACTERISTICS

This preliminary descriptive analysis of current use by background characteristics is based on appendix A, B and C (pp 24–26), as described in section 1.

Of the 2713 women who were exposed to the risk of conception at the time of the survey 1011 (37.3 per cent) were practising contraception. Prevalence of use increased with age up to the 30–39 group, but declined for the 40–49 group to about the same level as for the 20–29 age group. There was a steady increase in the percentages who were using contraception at the time of the survey as the number of living children increased.

Urban women had a higher level of current use than did rural women. But the precedence of urban over rural women in level of use did not apply to the 40–49 age group or to women with four or more children. Since the number of women with four or more children was more than 50 per cent higher among rural than among urban women, the observed differential for all women is only three-fifths of what it would have been if the parity distributions of the two groups had been the same as for all exposed women. The differing age distributions of the two groups similarly affected the urban/rural differential, though to a much smaller extent.

Of the three current union types, prevalence of use was highest among married women (40 per cent) and least among women in a common law union (25 per cent). The proportion of users among visiting women was intermediate (35 per cent). The high proportion of young women, with few children, who were in a visiting union accounts in part for the size of the married/visiting differential, for if both union types had had the same age distribution as obtained for all exposed women, the difference between them in level of use would have been reduced by 28 per cent. A reduction of 45 per cent in the differential would have resulted if the family-size distributions of the two groups had been the same.

On the other hand, the age and family-size distribution of married and common law women did not differ substantially. The large difference between them (14.8 percentage points) in the proportion of current users was therefore less affected by these two variables.

Among all exposed women, there was no variation in level of current use between the three primary education groups. The level was somewhat lower among women who had an incomplete secondary education, while among the most educated groups the proportion of current users was very much higher than among less educated groups. As shown in appendix A (p 24), the most educated group comprised mainly women under 30 years of age with fewer

than four children, while the less educated were older with larger families. It follows that distributions of the five education groups according to age and number of living children will have affected their levels of contraceptive use. When the effects of age and number of living children are eliminated by standardization, the level of use shows a slight but steady increase up to the incompleting secondary level. Even when standardized for age and number of living children, the proportion of users among education groups suggests almost a dichotomy between women with a completed secondary certificate and those with less education in level of contraceptive use.

Ethnicity is strongly associated with place of residence, with Indians being mainly rural dwellers and non-Indians mainly urban. It would therefore have been expected that the level of contraceptive use among non-Indians would have exceeded that of Indians. But because of the high incidence of sterilization among Indians with two or more children or 30 years and older contraceptive use is higher for Indians in these groups. Furthermore, as is seen in appendix A (p 24), a relatively large proportion of non-Indians have fewer than two children. The difference in contraceptive use between the two ethnic groups is therefore greatly reduced whenever differences in family-size structure are controlled for through standardization. Standardization by age also reduces the differential but to a lesser extent.

Current contraceptive use is highest among women with partners in professional, administrative and clerical occupations, followed, in descending order, by sales and service workers, manual workers and agricultural workers and those who were not working at the time of the survey. The above ranking of use by partners' occupations is common to all age groups except the oldest (40–49) and all family-size groups except the largest (six or more children). If all four groups had had the same family-size distribution as had all exposed women taken together, the level of use among the 'no work and agriculture' group would have been nearly three and a half percentage points lower, and that of sales and service workers one and a quarter percentage points higher; the proportions of users among the other groups would have been affected only minimally.

From the above it will be noted that the low-use groups – rural women, common law wives, those with less education and those with agricultural workers (for unemployed men) for partners – are those which are usually associated with low social status. The comparatively high level of use by Indians who in Guyana are comparatively low social status is accounted for in great measure by the very high proportion of this ethnic group with large families and, as stated earlier, by the high incidence of sterilization among older women. More rigorous analysis of differential fertility is discussed in section 2.3.

2.2 CURRENT USE OF SPECIFIC CONTRACEPTIVE METHODS

Table 2 shows that oral contraceptives (the pill) were being used by the largest proportion of women, followed closely by female sterilization. Next in popularity is the intra-uterine device (IUD). Much less in current use are the condom and 'other female scientific methods'.

It is interesting to contrast the popularity of the pill and sterilization among the different demographic and socio-economic groups of women. While the pill is by far the most popular method among women under 30 years of age, female sterilization is the most popular for older women. Indeed, the use of the pill declines, while that of sterilization increases, with age. The pill is used by a greater proportion of urban and sterilization by more rural women. Among the three current union status groups, the greatest use of the pill is by visiting women and of sterilization by common law wives. Roughly the same proportion of married women use each method. Sterilization is much more popular among Indian women and the pill among non-Indians. Finally, as regards level of education, the use of the pill increases and that of sterilization declines as education increases. The proportion of women with a secondary education who have been sterilized is very small as compared with less educated women.

The third most popular method — the IUD — was

used more by Indian than non-Indian women, by rural than by urban women and by married women than those in non-legal unions. Its use was highest among women with six–seven years of primary education but did not differ much among the other education groups. It was very low among young women under 20 years of age and older women 40 years and over.

It may be important to bear in mind the differential use of sterilization by Indian and non-Indian women when comparing their levels of contraceptive use. This is shown in table 3, which gives the proportions of Indians and non-Indians currently using contraception (a) including sterilization and (b) excluding sterilization, by current age, type of residence, current union status and level of education. While the use of contraception, including sterilization, is higher for Indian women, when sterilization is excluded it is the non-Indians who have the higher use. Contraceptive use is in either case higher for non-Indians among women under 30 years of age. For older women this ethnic group also has the higher level of use when sterilization is excluded. Indians have the higher use in each current union type when sterilization is included, and again the situation is reversed for each type when sterilization is excluded. The pattern is not changed, however, for the breakdown by level of education and type of residence: non-Indians have the higher use among women with complete secondary education and Indians the higher use for less educated

Table 2 Per cent distribution of exposed women who were currently using any contraceptive method according to method currently used, by selected characteristics of the women (Guyana)

Selected characteristics	Exposed women		Specified contraceptive methods (% of current users)					
	Total number	Number currently using any method ^a	Pill	Female sterilization	IUD	Condom	Other female scientific	All other
All women	2713	1011(37)	29	27	18	9	6	11
<i>Current age (years)</i>								
Under 20	253	58(23)	50	—	5	9	14	22
20–29	1099	380(35)	42	5	24	11	5	13
30–39	841	387(46)	22	35	18	10	6	9
40–49	520	186(36)	8	62	9	4	6	11
<i>Type of residence</i>								
Urban	978	392(40)	39	15	10	13	8	15
Rural	1735	619(36)	22	35	23	7	5	9
<i>Current union status</i>								
Married	1958	783(40)	27	29	21	7	5	10
Common law	353	89(25)	26	36	11	7	2	18
Visiting	402	139(35)	38	10	4	21	12	15
<i>Ethnic origin</i>								
Indian	1509	590(39)	23	35	23	7	4	8
Non-Indian	1204	421(35)	37	16	10	12	9	16
<i>Level of education</i>								
Primary under 6 yr	463	173(37)	13	56	17	6	2	5
Primary 6–7 yr	663	247(37)	18	36	25	7	4	9
Primary 8 yr	620	221(37)	32	29	15	6	8	10
Secondary — no cert.	654	192(29)	37	8	18	16	8	14
Secondary — cert.	313	170(54)	47	5	13	12	9	14

^aPercentage of all exposed women shown in parentheses.

Table 3 Percentage of exposed women currently using any contraceptive method (a) including sterilization, (b) excluding sterilization, by ethnic origin and selected other characteristics (Guyana)

Selected characteristics	(a) Sterilization included			(b) Sterilization excluded		
	Total	Indian	Non-Indian	Total	Indian	Non-Indian
All women	37.3	39.1	35.0	27.2	25.6	29.3
<i>Current age (years)</i>						
Under 20	22.9	18.0	27.5	22.9	18.0	27.5
20–29	34.6	33.5	35.9	32.7	30.7	35.1
30–39	46.0	48.8	41.5	29.7	27.5	33.2
40–49	35.8	42.9	28.7	13.7	12.7	14.6
<i>Type of residence</i>						
Urban	40.1	45.4	38.2	34.0	37.5	32.9
Rural	35.7	37.8	30.0	23.3	23.1	23.9
<i>Current union status</i>						
Married	40.0	40.3	39.3	28.4	26.8	32.1
Common law	25.2	26.7	24.5	16.1	11.2	18.6
Visiting	34.6	33.3	34.7	31.1	24.2	31.7
<i>Level of education</i>						
Primary under 6 yr	37.4	38.5	26.7	16.5	17.5	6.7
Primary 6–7 yr	37.3	40.4	28.7	23.7	24.7	21.0
Primary 8 yr	37.3	43.9	33.6	27.1	29.4	25.8
Secondary – no cert.	29.4	31.1	28.0	27.1	28.7	25.8
Secondary – cert.	53.7	48.9	55.7	51.1	46.7	52.9

women; use is higher among Indians in urban areas, while in rural areas use is higher for Indians when sterilization is included and roughly equal when sterilization is excluded.

2.3 DIFFERENTIALS IN THE CURRENT USE OF CONTRACEPTION

We now investigate the relationship between each of the selected demographic and socio-economic variables and current contraceptive use.

Current age

The generally observed relationship between age and current contraceptive use is that use is relatively low among

young women because most of them have not yet had the number of children they want. As age, and the number of living children increases, so does contraceptive use, which is at a maximum among women aged 25–34 years. Contraceptive use is less frequent among older women partly because they are less fertile and cohabit less frequently than at younger ages. In addition, older women tend to be more traditional minded.

This pattern is observed in the unadjusted figures for both ethnic groups, except that for the non-Indians use at age 30–34 is not higher than at age 25–29, while among Indians contraceptive use does not decline after age 35 (table 4). The Indians are predominantly rural and, among older women, less well educated than non-Indians. For these reasons as well as because of their historical and cultural background they are more traditional minded than non-Indians, which might explain why the decline in use

Table 4 Effects of current age on the current use of contraception among exposed women (Guyana)

Current age (years)	Percentage of current users								
	Unadjusted			Adjusted up to:					
	Non-Indian	Indian	Difference	Education (4)			Number of living children (6)		
Non-Indian				Indian	Difference	Non-Indian	Indian	Difference	
15–19	27.9	18.2	– 9.7	28.9	15.7	– 13.2	39.0	34.8	– 4.2
20–24	31.9	29.4	– 2.5	30.3	25.9	– 4.4	36.2	33.7	– 2.5
25–29	41.2	38.0	– 3.2	33.8	37.4	– 1.4	40.4	38.4	– 2.0
30–34	40.2	53.2	+ 13.0	40.6	55.3	+ 14.7	37.7	49.2	+ 11.5
35–39	43.9	43.0	– 0.9	46.6	44.8	– 1.8	39.0	38.4	– 0.6
40–44	33.3	42.5	+ 9.2	34.1	45.1	+ 11.0	27.8	38.9	+ 11.1
45–49	21.8	43.6	+ 21.8	24.4	45.1	+ 20.7	19.6	36.8	+ 17.2
Std mean	35.4	39.2	+ 3.8	35.4	39.2	+ 3.8	35.3	39.1	
χ^2 (6 DF)	24.2***	62.8***		21.9**	62.9***		19.3**	14.2*	

according to table 4 is at an earlier age for Indians. On the other hand, it would have been expected that for the same reasons use would be higher among non-Indians. This is generally believed to have been true in earlier years but is not the case even for the oldest women in the sample. The fact that current use does not decline for older Indian women is related to the high and increasing level of use of sterilization with age (table 3).

Better educated women are more likely to use contraception than the less educated (table 8), and this partly explains the lower use among older, and less educated women, as is clear when adjustment is made for education. On the other hand, contraceptive use tends to increase with number of living children when broad family-size groups are used (see appendix B). The level of use among older women is therefore higher than it would be if these women did not have a higher than average number of living children. Conversely, the level of use among young women under 30 years of age would have been higher.

Comparing the two ethnic groups, use is slightly higher for non-Indians 20–29 years of age. For older women, except at age 35–39 where there is little difference between the ethnic groups, use is very much higher for Indians. Adjustment for education, parity and the other independent variables does not affect these differences between the two ethnic groups much. Among very young women under 20 years of age, use is much higher among non-Indians. When the two figures are adjusted for parity the difference is greatly reduced.

Although pattern of residence has little effect on the percentage of each age group using contraceptives, partial R for age drops from 0.142 to 0.059 when residence is controlled in the case of non-Indians. According to this measure, then, more than one-half of the age differences can be attributed to age differences in patterns of residence. In the case of Indians, about one-third of the age differences is attributable to residence. When adjustment is made for all independent variables, partial R is reduced to only 0.022 for non-Indians and 0.013 for Indians.

Number of living children

A relationship similar to that outlined between age and contraceptive use might be expected to exist between

parity and the practice of contraception. It is unlikely that many women who are childless or have very few children will be practising contraception but, up to a point, the more children a woman has the more likely she is to use a contraceptive. Thereafter contraceptive use is likely to decline as parity increases for the same reasons that it tends to decline among older women.

In the case of Indians, the variables are curvilinearly related up to parity six but not at higher parities. No linear relationship emerges in the case of non-Indians. For both ethnic groups, but particularly for non-Indians, there is a decline in use at parity seven, while use among women with eight children is exceptionally high (table 5).

For Indians, the low level of use among women with fewer than three children is partly associated with the fact that these are relatively young women while, on the other hand, the level of use among women with more than three children would be less if they included as large a proportion of young women as the standard population.

There is a simple relationship between pattern of residence and contraceptive use (see below) and its effect is seen for both Indians and non-Indians. Since contraceptive use is highest among urban women, and urban women are more likely to have small families, when we adjust for pattern of residence CUSE is decreased for women with fewer than three children but increased for those with six or more.

Controlling the level of education shows that, for both ethnic groups, the variable contributes importantly to the level of contraceptive use among women with three or fewer children, but not to use among those with more children, among whom, if the level of education were higher, use would be more widespread.

The high level of contraceptive use among women with eight children is largely accounted for by the high proportion of women at this parity who have been sterilized for contraceptive purposes.⁴ There is no obvious reason for the much higher incidence of sterilization at parity eight than at parity seven. One possibility is that since sterilization for contraceptive purposes is only recently available, many of these women did not have an opportunity to be sterilized at an earlier parity. A high incidence of contraception at

⁴ Country Report: table 3.1.1 and table 4.5.3.

Table 5 Effects of number of living children on the current use of contraception among exposed women (Guyana)

Number of living children	Percentage of current users											
	Unadjusted			Adjusted up to:								
	Non-Indian	Indian	Diff.	Age (2)			Residence (3)			Education (5)		
Non-Indian				Indian	Diff.	Non-Indian	Indian	Diff.	Non-Indian	Indian	Diff.	
0	30.3	8.4	– 21.9	30.2	11.0	– 19.2	29.0	8.6	– 20.4	22.7	6.5	– 16.2
1	25.7	24.4	– 1.3	25.4	27.0	+ 1.6	24.9	26.2	+ 1.3	22.5	23.0	+ 0.5
2	38.5	35.7	– 2.8	36.1	37.0	+ 0.9	35.1	36.1	+ 1.0	34.0	34.8	+ 0.8
3	35.9	41.1	+ 5.2	34.4	40.9	+ 6.5	33.6	40.2	+ 6.6	35.4	41.2	+ 5.8
4	34.2	41.9	+ 7.7	33.0	40.4	+ 7.4	32.8	40.9	+ 8.1	34.6	41.9	+ 7.3
5	43.3	48.2	+ 4.9	43.6	46.2	+ 2.6	44.5	46.6	+ 2.1	47.3	47.8	+ 0.5
6	41.3	52.4	+ 11.1	41.0	50.2	+ 9.2	42.4	51.0	+ 8.6	47.3	52.3	+ 5.0
7	33.9	43.3	+ 9.4	38.1	42.1	+ 4.0	40.3	43.6	+ 3.3	45.0	44.7	– 0.3
8	67.3	59.4	– 7.9	70.6	58.9	– 11.7	74.1	60.5	– 13.6	79.1	60.9	– 18.2
9 +	34.7	48.8	+ 14.1	40.3	49.1	+ 8.8	42.6	51.5	+ 8.9	46.4	52.8	+ 6.4
Std mean	35.3	39.1	+ 3.8	35.3	39.1	+ 3.8	35.3	39.1	+ 3.8	35.3	39.1	+ 3.8
χ^2 (9 DF)	39.4***	109.0***		36.0***	56.6***		43.0***	66.0***		63.5***	75.3***	

parity eight has also been observed in Jamaica (table 25) and, to a lesser extent, in Trinidad and Tobago among non-Indians (table 15). Sample fluctuation due to the small size of the base population at particular parities may also contribute to erratic or random variation in the per cent using contraception. Further information and investigation is needed to fully explain this phenomenon.

Comparing the two ethnic groups at a like parity, contraceptive use is very much higher for non-Indians without children, while for those with one or two children there is little difference between the two ethnic groups. At all higher parities use is greater among Indians except for parity eight. This pattern of differences is not much affected when current age and the other independent variables in the regression model are controlled.

More than one-half of the differences in union type is attributable to family-size difference in the age groups in the case of non-Indians, and nearly three-quarters in the case of Indians, partial R falling from 0.171 to 0.082 for the former ethnic group and from 0.262 to 0.074 for the latter when current age is controlled. Controlling for the other variables has little effect on partial R.

Pattern of residence

Urban women are the greatest users of contraceptives, while women classified as 'always rural' have the lowest level of use for both Indians and non-Indians. Adjustment for the other independent variables does not appreciably affect the differential levels of use. In each residence category use is higher among Indians. The difference in the overall level of use between the two ethnic groups would, therefore, have been larger if Indians were not so predominantly rural (table 6).

Much of the differences in use according to residence is attributable to age and, in the case of non-Indians to a lesser extent, to education. Thus partial R is reduced by

two-thirds for non-Indians and by three-quarters for Indians when adjustment is made for age, while for the former group, further adjustment for education reduces partial R to a mere ten per cent of the unadjusted figure.

Current union status

For both ethnic groups, table 7 shows that contraceptive use is much higher among married women than among other women in a union. In the case of non-Indians, use is higher among visiting women than among common law wives. Adjustment for current age results in an increase in use by visiting women as this type has a large proportion of young women with relatively low levels of use. On the other hand, use by married women is reduced. To some extent, use is low among common law wives because they are the least educated group while, on the other hand, use by married women, who are better educated, would have been lower if their education attributes were the same as the standard population.

Since married women also tend to have the most, and visiting women the least number of children (Harewood 1983), adjustment for number of living children further reduces the level of use of married women and increases that of visiting women. This observation is of interest in the light of the finding that, among non-Indians, contraceptive use is not linearly related to family size when the detailed distribution by number of children is used (table 5). The variables are, however, related when family-size groups are used as in appendix C (p 26).

In the case of Indians, the percentage of non-married women using a contraceptive was higher than would be the case if their age and education attributes were the same as those of married women. But their lower use is attributable, in part, to the fact that they have fewer children.

Comparing the ethnic groups, there is little difference in

Table 6 Effects of pattern of residence on the current use of contraception among exposed women (Guyana)

Pattern of residence	Percentage of current users											
	Unadjusted			Adjusted up to:								
	Non-Indian	Indian	Diff.	Age (2)			Education (4)			Number of living children (6)		
Non-Indian				Indian	Diff.	Non-Indian	Indian	Diff.	Non-Indian	Indian	Diff.	
Urban	39.8	52.0	+ 12.2	40.6	53.0	+ 12.4	39.3	53.0	+ 13.7	40.4	53.7	+ 13.3
Movers	36.4	43.5	+ 7.1	36.1	44.1	+ 8.0	35.3	44.3	+ 9.0	35.2	44.7	+ 9.5
Rural	30.2	37.4	+ 7.2	29.9	37.2	+ 7.3	31.9	37.2	+ 5.3	30.9	37.1	+ 6.2
Std mean	34.9	38.7	+ 3.8	34.8	38.7	+ 3.9	34.9	38.7	+ 3.8	34.8	38.7	+ 3.9
χ^2 (2 DF)	8.2*	9.9**		10.0**	12.2**		4.5	12.1**		7.4*	12.7**	

Table 7 Effects of current union status on the current use of contraception among exposed women (Guyana)

Current union status	Percentage of current users											
	Unadjusted			Adjusted up to:								
	Non-Indian	Indian	Diff.	Age (2)			Education (4)			Number of living children (6)		
Non-Indian				Indian	Diff.	Non-Indian	Indian	Diff.	Non-Indian	Indian	Diff.	
Married	39.6	40.4	+ 0.8	38.6	40.5	+ 1.9	37.5	40.6	+ 3.1	35.9	40.2	+ 4.3
Common law	25.1	27.6		25.0	26.7		28.5	25.8		29.1	29.2	
Visiting	35.0			36.7			36.2			38.5		
Std mean	35.3	39.1	+ 3.8	35.3	39.1	+ 3.8	35.3	39.1	+ 3.8	35.3	39.1	+ 3.8
χ^2 (2/1 DF)	15.5***	9.0**		14.3***	10.9***		6.0*	12.1***		5.3	6.9**	

the level of use by married women, though the difference increases when account is taken of their characteristics as to age, education and number of living children.

In the case of non-Indians, much of the difference between the union types is attributable to differences in age and education within the unions, partial R falling from 0.114 to 0.037 when adjustment is made for age and from 0.028 to 0.009 when adjustment for education is added. When adjustment for number of living children is also made, partial R virtually disappears. In the case of Indians, age and family size are again important but not education. Of the difference in use between married and unmarried women, 80 per cent is attributable to age. This is not affected when adjustment is made for residence, education and partner's occupation, but when family size is added the independent variables together account for 92 per cent of the difference.

Level of education

Conventional wisdom maintains that the higher the level of education of the women, the more knowledgeable about and responsive to family planning education she is likely to be, and the greater the likelihood of her practising contraception. Use by both ethnic groups follows the expected pattern (table 8) with the striking exception of the very low level of use among women with incomplete secondary education.

Adjustment for current age reduces the level of use among women with primary education and increases it among those in the higher education groups. This is because contraceptive use is higher among older women and there is a disproportionate number of these among the less educated groups. As a result, the very low level of use among women with incomplete secondary education is greatly increased for both ethnic groups, and in the case of Indians the pattern of increasing use with education, without exception, immediately emerges.

Pattern of residence also has an important impact, because the level of education is highest among urban and lowest among rural women. Because there is a much higher level of concentration of Indians (in rural areas) than non-Indians, the impact of residence is greater for the former ethnic group. As compared with the unadjusted proportions, adjustment up to pattern of residence reduces CUSE among women with primary education and increases it among those with secondary education or higher. In the case of non-Indians, there are increases in CUSE among women in the lowest education group and those with incomplete secondary education but a decline for those with completed primary education. The other two groups are unaffected. As compared with the proportions already adjusted for age, however, in both ethnic groups there is a decline in current use among women with secondary education, while for those with primary education use either increases or, in the case of Indians, remains unchanged.

Adjustment for current union status accentuates an exception from the usual trend, in the case of non-Indians, in that contraceptive use is higher among the least educated women than among those in the group immediately above. Once again use is lowest among women with an incomplete secondary education. In the case of Indians, the positive relationship continues except that the level of use is

identical for the two higher groups of those with primary education.

Further adjustment up to partner's occupation does not greatly change the above pattern, except for Indians with a complete secondary education for whom current use is reduced.

When adjustment is made for all variables, the pattern for non-Indians is that the level of use is the same for the two lowest education groups and then increases with education, except that women with incomplete secondary education have a lower level of use than the immediately lower group. Among Indians, the positive association between education and contraceptive use is maintained.

Comparing the two ethnic groups, the unadjusted proportions are higher for Indians, except among women with a complete secondary education where the level of use is higher for non-Indians. The difference is very much less for women with incomplete secondary education than for less educated women. When adjustment is made for all variables in the regression equations, however, the level of use is higher for Indians for all education groups. Furthermore, here the difference for women with incomplete secondary education is by far the largest and that for women with complete secondary education is the least. The low level of use among non-Indians with an incomplete secondary education may largely be a reflection of loss of confidence and absence of motivation on the part of these underachievers, many of whom would have been dropouts from the secondary education system.

Partial R is reduced by 50 per cent in the case of non-Indians and by 75 per cent in the case of Indians when adjustment is made for current age. Further adjustment for residence, union status and partner's occupation reduces partial R by about 70 and 90 per cent respectively of the unadjusted figures for non-Indians and Indians.

Partner's occupation

The occupation of a woman's partner is thought to be one of the indicators of her socio-economic status. On this basis, we would expect that contraceptive use, declining as socio-economic status declines, would show a downward progression from professional and clerical workers to sales and service workers, to manual workers, and finally to agricultural workers and those who are not employed.

The unadjusted proportions for both non-Indians and Indians are of this pattern (table 9), except that in the case of non-Indians the proportions are the same for manual and service workers. Adjustment for the woman's age does not affect the non-Indian figures appreciably. However, because women with partners in professional and clerical occupations are likely to be younger and those with workers in agriculture as partners are likely to be older, the figures for Indians are accordingly affected.

Similarly, women with professional and clerical partners are more likely to be living in urban areas while those with partners working in agriculture are more likely to be resident in rural areas, and hence adjustment for pattern of residence causes a decline in use among the former and an increase in use among the latter in both ethnic groups. The same changes occur when there is further adjustment for level of education.

On the other hand, women with professional and clerical

Table 8 Effects of level of education on the current use of contraception among exposed women (Guyana)

Level of education	Percentage of current users																
	Unadjusted						Adjusted up to:										
	Non-Indian		Indian		Diff.		Age (2)		Residence (3)		Current union status (4)		Number of living children (6)				
						Non-Indian	Indian	Diff.	Non-Indian	Indian	Diff.	Non-Indian	Indian	Diff.	Non-Indian	Indian	Diff.
Prim: up to 5 years	27.3	38.6	+ 11.3	27.5	33.9	+ 6.4	29.3	34.6	+ 5.3	31.7	35.5	+ 3.8	28.5	34.9	+ 6.4		
Prim. 6-7 yr	29.0	40.4	+ 11.4	27.7	37.6	+ 9.9	28.9	37.8	+ 8.9	30.1	38.0	+ 7.9	28.3	36.4	+ 8.1		
Prim. 8 yr	34.4	44.2	+ 9.8	32.2	38.9	+ 6.7	32.7	38.9	+ 6.2	33.0	38.0	+ 5.0	33.0	38.5	+ 5.5		
Sec. - no cert.	28.2	30.9	+ 2.7	30.9	43.8	+ 12.9	30.1	43.1	+ 13.0	29.7	42.5	+ 12.8	29.1	43.8	+ 14.7		
Sec. - cert.	55.2	48.9	- 6.3	55.9	56.5	+ 0.6	55.0	54.8	- 0.2	53.6	53.6	0.0	56.8	59.4	+ 2.6		
Std mean	35.3***	39.1**	+ 3.8	35.3	39.1**	+ 3.8	35.3	39.1**	+ 3.8	35.3	39.1**	+ 3.8	35.3	39.1**	+ 3.8		
χ^2 (4 DF)	52.3***	14.6		50.7***	15.7**		45.5***	12.3*		38.9***	9.7*		51.0***	17.1**			

Table 9 Effects of partner's occupation on the current use of contraception among exposed women (Guyana)

Partner's occupation	Percentage of current users																	
	Unadjusted						Adjusted up to:											
	Non-Indian		Indian		Diff.		Age (2)		Residence (3)		Current union status (4)		Education (5)		Number of living children (6)			
						Non-Indian	Indian	Diff.	Non-Indian	Indian	Diff.	Non-Indian	Indian	Diff.	Non-Indian	Indian	Diff.	
Professional and clerical	43.2	47.7	+ 4.5	42.7	49.0	+ 6.3	41.6	46.6	+ 5.0	40.7	46.7	+ 6.0	37.3	44.2	+ 6.9	38.7	45.9	+ 7.2
Sales and service	38.5	39.5	+ 1.0	38.7	39.3	+ 0.6	38.4	38.4	0.0	37.6	38.1	+ 0.5	38.0	37.9	- 0.1	38.6	38.5	- 0.1
Manual	30.9	39.8	+ 8.9	31.1	40.0	+ 8.9	31.4	40.0	+ 8.6	32.0	40.1	+ 8.1	33.1	40.4	+ 7.3	32.7	40.6	+ 7.9
No work and agriculture	30.6	35.5	+ 4.9	30.2	34.9	+ 4.7	33.1	36.0	+ 2.9	34.2	35.9	+ 1.7	36.2	36.6	+ 0.4	32.3	35.5	+ 3.2
Std mean	35.3	36.6	+ 1.3	35.2	36.2	+ 1.0	36.1	36.9	+ 0.8	36.2	36.8	+ 0.6	36.7	37.2	+ 0.5	35.5	36.5	+ 1.0
χ^2 (3 DF)	14.1**	8.5		13.0**	11.7*		9.4*	6.2		6.5	6.5		2.6	3.5		4.5	6.4	

partners are likely to have fewer children than average and those with partners working in agriculture more than average living children. The effect of this adjustment, therefore, is to increase use among the former and reduce it among the latter for both ethnic groups.

In all instances the effect of adjustment on the other two occupation groups is less than on the two groups discussed. When all the adjustments have been made the level of use, in the case of non-Indians, is about the same for professional and clerical workers and service workers (39 per cent) and for manual workers and agricultural workers (32–33 per cent). For Indians, however, use is highest for women whose partners are in professional occupations, followed by those in manual occupations, and is lowest among women whose partners are agricultural workers.

Of the occupation differences in use, about two-thirds in the case of non-Indians and three-quarters in the case of Indians can be attributed to differences in age structure between the occupation groups, according to the partial R measure. When adjustment is made up to education, partial R is negligible.

The explanatory power of the independent variables

The partial Rs have been used in the preceding tables as summary measures of the magnitude of the differences in the level of use between the categories of each independent variable. The square of this measure, the partial (or added) R^2 , is also a very useful indicator as it shows the proportion of the variance in use that is explained by the given independent variable (table 10).

By far the most important variable in the case of Indians is the number of living children, which, when unadjusted, explains seven per cent of the variance. This is followed by current age, which explains four per cent. Education and the other variables each explain one per cent or less of the

variance. Among non-Indians, education explains more than any of the other variables, and is followed by family size and current age.

When adjustment is made for all other variables, family size explains more than any other variable for both ethnic groups. In the case of Indians it explains five per cent of the variance while the others each explain one per cent or less. Among non-Indians, after adjustment education explains somewhat less of the variance than does family size. The only other variable which explains as much as one per cent is current age. For both ethnic groups current union status and partner's occupation are the least important of the selected variables in this regard.

The R^2 values are low. Even when adjustment is made for all six independent variables, the per cent of variance explained is only 12 per cent for non-Indians and 11 per cent for Indians. Cleland *et al* (1979) point out, however, that values of R^2 of more than 20 per cent are not common in sociological research. Among the reasons for the low values are: (1) 'the regression models are subject to large specification error, in that many factors which are strongly related to contraceptive use are absent from the study'; (2) the selected variables 'produce highly uneven splits of the sample'. For these reasons, they were of the opinion that 'the apparently low proportion of variance in current use explained by the regressions should not cause excessive concern'.

2.4 THE DESIRE TO CEASE CHILDBEARING AND CONTRACEPTIVE USE

The extent to which women who say that they want no more children manage to prevent (further) conception will have an effect on the fertility levels of exposed women. It is assumed that women who said that they wanted no more children and were not practising contraception were at a

Table 10 Per cent of variance (R^2 per cent) of contraceptive use explained by each independent variable adjusted for indicated variables (Guyana)

Variable	Non-Indian						
	Unadjusted	Adjusted up to:					
		Age	Residence	Current union status	Education	Partner's occupation	Living children
Current age	2.0	—	2.2	2.0	1.7	1.7	1.5
Pattern of residence	0.7	0.8	—	0.7	0.4	0.3	0.6
Current union status	1.3	1.2	1.0	—	0.4	0.4	0.4
Level of education	4.3	4.1	3.6	3.1	—	2.9	3.9
Partner's occupation	1.2	1.1	0.8	0.5	0.5	—	0.3
Number of living children	3.1	2.9	3.5	3.5	4.8	4.7	—
All variables: 12.1							
	Indian						
	Unadjusted	Adjusted up to:					
		Age	Residence	Current union status	Education	Partner's occupation	Living children
Current age	4.1	—	4.2	4.3	4.0	3.9	0.9
Pattern of residence	0.7	0.8	—	1.0	0.8	0.5	0.8
Current union status	0.6	0.7	0.9	—	0.6	0.7	0.4
Level of education	1.0	1.0	0.8	0.6	—	0.4	1.0
Partner's occupation	0.6	0.8	0.4	0.4	0.2	—	0.4
Number of living children	6.9	3.6	4.4	3.8	4.6	5.0	—
All variables: 11.4							

Table 11 Per cent distribution of exposed women according to consistency of contraceptive behaviour with fertility preferences, by selected characteristics, standardized^a for number of living children (Guyana)

Selected characteristics	Exposed women		Behaviour consistent with:				Behaviour inconsistent
	Number of women	Overall percentage for whom contraceptive behaviour consistent with fertility prefs.	Desire to cease childbearing			Spacing	Want no more and not using
			Sub-total	Want no more and using	Want more and not using	Want more and using	
All women	2713	70.2	57.3	24.4	32.9	12.9	29.8
<i>Current age (years)</i>							
Under 20	253	*	*	*	*	*	*
20-29	1099	74.6	58.4	22.4	36.0	16.2	25.3
30-39	841	73.5	61.8	27.9	33.9	11.7	26.6
40-49	520	52.0	51.0	28.2	22.9	1.0	48.0
<i>Type of residence</i>							
Urban	978	72.5	55.4	24.1	31.3	17.1	27.5
Rural	1735	68.9	59.0	23.8	35.2	9.9	31.1
<i>Current union status</i>							
Married	1958	70.6	57.9	25.5	32.4	12.7	29.4
Common law	353	67.6	62.4	18.9	43.5	5.2	32.4
Visiting	402	69.7	53.2	18.3	34.7	16.5	30.5
<i>Ethnic origin</i>							
Indian	1509	69.5	59.4	26.9	32.5	10.1	30.5
Non-Indian	1204	71.2	55.2	19.9	35.3	16.0	28.8
<i>Level of education</i>							
Prim. under 6 yr	463	60.8	54.9	24.5	30.4	5.9	39.2
Prim. 6-7 yr	663	66.3	60.8	26.0	34.8	5.5	33.7
Prim. 8 yr	620	70.9	58.9	22.2	36.7	12.0	29.1
Sec. - no cert.	654	73.3	61.4	24.2	37.2	11.9	26.7
Sec. - cert.	313	85.9	57.8	30.8	27.0	28.1	14.1
<i>Current/most recent occupation</i>							
Prof./administrative and clerical	265	85.6	59.6	30.9	28.7	26.0	14.4
No work and agriculture	1698	68.8	58.3	24.6	33.7	10.5	31.2
Manual	182	71.6	58.7	28.0	30.7	12.9	28.4
Sales and service	568	70.5	59.2	21.6	37.6	11.3	29.5

^aDistribution of all exposed women used as standard.

*Zero cells preclude meaningful standardization.

risk of unwanted pregnancies – that is, their contraceptive practice was inconsistent with their stated desires.

Table 11 shows the per cent distribution of all exposed women according to the consistency of contraceptive use with fertility preferences. Seventy per cent of all exposed women were practising contraception in accordance with their fertility preferences (including those who were trying to delay the next pregnancy). This percentage is negatively associated with current age, somewhat larger for urban women and non-Indians than for rural women and Indians respectively, and positively associated with level of education. The inter-union-type differentials were not large, the proportion for which use was consistent with preference varying between 68 per cent among common law women and 71 among married women. Professional workers had the highest proportion whose practice of contraception was in accordance with their expressed fertility preferences (86 per cent), while agriculture workers and non-workers had the lowest percentage, though this was still quite substantial (69 per cent).

From the data in table 11 the relative importance of fertility control, as distinct from fertility termination, among exposed women who are current contraceptors may be derived. Of these currently contracepting, exposed women, just over one-third (35 per cent) were motivated by

a desire to delay the next pregnancy. As would be expected, the proportion of users under 30 years of age who were 'spacing' their children was very high, while this was very much less important among women in the 30-39 group and negligible for those 40 years and over. Fertility control, as distinct from fertility termination, was greater among urban women and non-Indians than for rural women and Indians, very much more prevalent among visiting women than among married women (no doubt due to the disproportionate number of young women in a visiting union) and least of all, 21 per cent, among common law wives.

The use of contraception for spacing increased with the level of education of current contraceptors, ranging between 15 and 52 per cent. Professional workers were most influenced by a desire to control the timing of their next pregnancies, while agricultural and non-workers were least affected by this reason for practising contraception.

Inter-group differences in the level of risk of unwanted pregnancies are now considered. In this context it should be borne in mind that such comparisons among subgroups could be misleading – for example, if the vast majority (90 per cent) of a subgroup want additional children and only 30 per cent of another subgroup want additional children, the chances are greater of finding inconsistent behaviour among the latter group, since only 10 per cent

of the former group must take positive action to avoid an additional pregnancy while 70 per cent of the latter would need to do so. Notwithstanding this limitation, a brief examination of the percentage of women at risk of an unwanted pregnancy (ie women shown as having 'inconsistent behaviour') is given below.

Nearly 30 per cent of all exposed women were at risk of an unwanted pregnancy at the time of the survey in that they wished to cease childbearing but were not current contraceptors. This proportion increases with age and is especially high (48 per cent) for women 40–49 years of age. If attention is confined to women under 40 years of age, then the proportion of all exposed women at risk of an unwanted pregnancy is reduced from 30 to 25 per cent.

Rural women were more at risk of an unwanted pregnancy than urban women, despite the higher incidence of sterilization among them. The same was true for Indian women *vis-à-vis* their ethnic counterparts. The risk for the sample of exposed women *as a whole* declined with an increase in education and was very much lower among professional women than among the other three occupation groups, between which the variation in proportion at risk was not large. The difference in exposure to unwanted pregnancy between the three union-type groups was not large (29–32 per cent).

2.5 THE INHIBITING EFFECT OF CONTRACEPTION ON FERTILITY

The fertility measures and indexes calculated in the Bongaarts model as described in section 1 and the general appendix are set out in table 12.

If the non-Indian women of childbearing age met the following conditions:

- 1 they were all currently in a sexual union;
- 2 none of them were using any contraception; and
- 3 none of them were subject to infecundability through lactation or post-partum abstinence;

then the level of their fertility would be equal to their fecundity rate $TF=11.682$ children per women. This TF of 11.7 (12.0 for Indians) is noticeably lower than that predicted by the Bongaarts model. Factors which may account for some of this difference are abortion (not measured here), unreported contraceptive use and lower exposure within visiting unions than the other two cohabiting union types. In addition the TF predicted by the model may be somewhat overestimated (Casterline *et al* 1984). The observed total fertility rate (TFR) was 4.922. The combined effect of celibacy, contraception and post-partum infecundability, therefore, is to reduce the TF by 6.760 or nearly 60 per cent. Of this reduction, contraception contributed 40 per cent while the effects of celibacy and infecundability were each somewhat lower (27–31 per cent). The remaining three per cent are contributed to by other factors (see general appendix).

If the population of women were subject to the observed levels of celibacy and post-partum infecundability but practised no contraception, then the fertility rate would have been about 8.289 per woman, or about two-thirds again as high as the observed TFR.

The indexes used to measure the fertility effects of each

Table 12 Relationships between the fertility inhibiting effects of intermediate fertility variables and various measures of fertility (Guyana)

	Non-Indian	Indian
(a) Total fertility rate (TFR)	4.922	3.986
(b) Total marital fertility rate (TM)	6.780	6.125
(c) Natural fertility rate (TN)	9.390	9.348
(d) Total fecundity rate (TF)	11.682	11.998
(e) TN minus TFR	4.468	5.362
(f) Percentage of (e) due to:		
(1) Celibacy	41.58	39.85
(2) Contraceptive use	58.42	60.15
(g) TF minus TFR	6.760	8.012
(h) Percentage of (g) due to:		
(1) Celibacy	27.49	26.68
(2) Contraceptive use	38.61	40.26
(3) Post-partum infecundability	30.91	30.07
(4) Other factors ^a	3.00	3.00

^aOther factors include: frequency of intercourse, incidence of spontaneous abortion or stillbirth and duration of the fertile period.

of the above intermediate variables are also given in table 12. As will be remembered from section 1, the greater the inhibiting effect of a factor the smaller the related index. The index of contraception C_c (0.722) and the index of proportion married C_m (0.726) are virtually the same, while the index of post-partum infecundability C_i is 0.818.

Two other measures of particular interest in considering the inhibiting effect of contraception are: the average level of contraceptive use (among all women currently married) — u ; and the average effectiveness of the methods used — e . About 28 per cent of the currently married women were contracepting and the methods they used yielded an average level of effectiveness of 0.849 (if all women were using absolutely efficient methods, the value of e would be one).

Among Indian women, our three intermediate variables together reduced TF by about 66 per cent. Here again contraceptive use contributed somewhat more towards this inhibitive effect than the other two variables (40 per cent as against 30 and 27 per cent for infecundability and celibacy respectively). The average level of use was 33 per cent and average use effectiveness was 0.908.

Comparing the two ethnic groups, we find that the fecundity rates were very similar as were the two natural fertility rates, since the effect of post-partum infecundability was about the same for both groups. The effect of contraception was, however, greater for the Indian women, C_c being 0.655 for this group as against 0.722 for non-Indians. The effect of celibacy was also slightly greater for Indian women, C_m being 0.651 as against 0.726 for non-Indians. Both the average level of use and the level of effectiveness were, therefore, higher for Indians.

Contrary to what was believed to be the situation in the past, Indian women now have the lower level of fertility for the year preceding the survey.⁵ This may well be the result of their higher level of contraceptive use and higher average use effectiveness, resulting from their greater use of sterilization. If it is true that the recent period fertility rate of Indians is lower than that of non-Indians, this is perhaps one of the most striking of the findings of the survey, since Indians remain predominantly rural.

⁵ The number of children ever born remains higher for Indians (see Singh 1984).

Appendix A—Distribution of Exposed Women

Per cent distribution of exposed women according to selected characteristics

Selected characteristics	No of exposed women	Current age				Number of living children				Ethnic origin	
		Under 20	20–29	30–39	40–49	Under 2	2–3	4–5	6+	Indian	Non-Indian
All women	2713	9	41	31	19	26	27	21	25	56	44
<i>Type of residence</i>											
Urban	978	12	41	28	20	35	30	18	16	26	74
Rural	1735	8	40	33	19	21	25	23	30	73	27
<i>Current union status</i>											
Married	1958	7	40	33	20	20	28	24	28	69	31
Common law	353	8	35	33	23	25	27	20	29	33	67
Visiting	402	24	48	18	10	57	23	11	8	8	92
<i>Level of education</i>											
Prim. under 6 yr	463	4	25	39	32	12	19	24	45	90	10
Prim. 6–7 yr	663	5	32	42	21	13	25	25	36	73	27
Prim. 8 yr	620	1	27	44	28	16	25	28	31	36	64
Sec. – no cert.	654	26	59	10	5	46	34	13	6	45	55
Sec. – cert.	313	9	68	14	9	56	32	11	2	29	71
<i>Partner's occupation</i>											
Prof./administrative and clerical	438	8	47	28	16	37	33	17	13	40	60
Sales and service	468	10	44	28	18	32	27	19	21	41	59
Manual	1178	11	38	33	19	26	26	23	25	51	49
No work and agriculture	629	7	38	32	23	15	25	22	37	87	13
<i>Current age (years)</i>											
Under 20	253					83	17	0	0	48	52
20–29	1099					33	42	21	4	56	44
30–39	841					8	20	29	42	61	39
40–49	520					13	13	19	55	50	50
<i>No of living children</i>											
Under 2	716	29	51	10	10					43	57
2–3	737	6	63	23	9					56	44
4–5	575	0	39	43	18					69	31
6+	685	0	6	52	42					64	36
<i>Ethnic origin</i>											
Indian	1509	8	41	34	17	20	27	24	29		
Non-Indian	1204	11	40	27	22	34	27	18	21		

NOTE: Percentages may not add to 100 because of rounding.

Appendix B—Exposed Women and Contraceptive Use, by Age and Selected Characteristics

Percentage of exposed women who were currently using any contraceptive method (including sterilization), by current age and selected characteristics of the women (N in parentheses)

Selected characteristics	Total	Current age				Standardized for current age
		Under 20	20–29	30–39	40–49	
All women	37.3(2713)	22.9(253)	34.6(1099)	46.0(841)	35.8(520)	37.3
<i>Number of living children</i>						
Under 2	23.3(716)	23.7(211)	28.0(368)	14.5(69)	7.9(68)	19.2
2–3	37.6(737)	19.1(42)	35.9(462)	47.6(168)	35.3(65)	37.8
4–5	41.9(575)	0.0(0)	39.2(227)	47.8(247)	33.7(101)	*
6 +	47.6(685)	0.0(0)	52.4(42)	50.1(357)	43.7(286)	*
<i>Type of residence</i>						
Urban	40.1(978)	33.6(116)	42.2(398)	46.5(269)	30.8(195)	40.6
Rural	35.7(1735)	13.9(137)	30.2(701)	45.8(572)	38.8(325)	35.2
<i>Current union status</i>						
Married	40.0(1958)	20.3(128)	37.3(783)	47.8(650)	38.8(397)	39.3
Common law	25.2(353)	10.3(29)	16.0(125)	35.6(118)	29.6(81)	24.1
Visiting	34.6(402)	30.2(96)	35.6(191)	46.6(73)	19.0(42)	35.4
<i>Level of education</i>						
Prim. under 6 yr	37.4(463)	16.7(18)	25.4(114)	44.2(181)	40.7(150)	33.4
Prim. 6–7 yr	37.3(663)	3.2(31)	30.5(213)	47.3(281)	34.8(138)	34.1
Prim. 8 yr	37.3(620)	16.7(6)	35.9(170)	42.5(273)	31.0(171)	35.3
Sec. — no cert.	29.4(654)	21.2(170)	28.5(389)	50.8(63)	40.6(32)	37.1
Sec. — cert.	53.7(313)	60.7(28)	53.5(213)	60.5(43)	37.9(29)	53.4
<i>Ethnic origin</i>						
Indian	39.1(1509)	18.0(122)	33.5(612)	48.8(516)	42.9(259)	38.6
Non-Indian	35.0(1204)	27.5(131)	35.9(487)	41.5(325)	28.7(261)	35.5
<i>Partner's occupation</i>						
Prof./administrative and clerical	45.0(438)	41.7(36)	46.2(208)	54.8(124)	25.7(70)	44.5
Sales and service	38.7(468)	30.4(46)	34.0(206)	47.3(131)	41.2(85)	39.2
Manual	35.5(1178)	18.9(127)	31.8(446)	47.1(384)	31.2(221)	35.2
No work and agriculture	34.5(629)	11.4(44)	30.1(239)	37.6(202)	44.4(144)	33.4

*Zero cells prevent standardization.

Appendix C—Exposed Women and Contraceptive Use, by Number of Children and Selected Characteristics

Percentage of exposed women who were currently using any contraceptive method (including sterilization), by number of living children and selected characteristics of the women (N in parentheses)

Selected characteristics	Total	Number of living children				Standardized for no of living children
		Under 2	2–3	4–5	6 +	
All women	37.3(2713)	23.3(716)	37.6(737)	41.9(575)	47.6(685)	37.3
<i>Current age (years)</i>						
Under 20	22.9(253)	23.7(211)	19.1(42)	0.0(0)	0.0(0)	*
20–29	34.6(1099)	28.0(368)	35.9(462)	39.2(227)	52.4(42)	38.7
30–39	46.0(841)	14.5(69)	47.6(168)	47.8(247)	50.1(357)	39.3
40–49	35.8(520)	5.9(68)	35.3(65)	33.7(101)	43.7(286)	29.3
<i>Type of residence</i>						
Urban	40.1(978)	30.7(345)	47.0(296)	41.8(177)	45.6(160)	41.2
Rural	35.7(1735)	16.4(371)	31.3(441)	42.0(398)	48.2(525)	33.7
<i>Current union status</i>						
Married	40.0(1958)	19.8(398)	41.9(547)	44.6(462)	48.8(551)	38.2
Common law	25.2(353)	6.9(87)	20.8(96)	26.1(69)	44.6(101)	24.1
Visiting	34.6(402)	35.5(231)	29.8(94)	38.6(44)	36.4(33)	35.2
<i>Level of education</i>						
Prim. under 6 yr	37.4(463)	10.9(55)	26.7(90)	39.1(110)	48.1(208)	30.4
Prim. 6–7 yr	37.3(663)	8.0(87)	29.6(169)	44.6(168)	48.1(239)	31.5
Prim. 8 yr	37.3(620)	16.5(97)	37.0(154)	40.9(176)	44.6(193)	34.2
Sec. – no cert.	29.4(654)	19.5(303)	34.7(225)	39.8(88)	52.6(38)	35.1
Sec. – cert.	53.7(313)	45.4(174)	68.7(99)	48.5(33)	71.4(7)	58.8
<i>Ethnic origin</i>						
Indian	39.1(1509)	17.3(306)	38.4(411)	44.7(356)	50.5(436)	37.2
Non-Indian	35.0(1204)	27.8(410)	36.5(326)	37.4(219)	42.6(249)	35.9
<i>Partner's occupation</i>						
Prof./administrative and clerical	45.0(438)	35.4(161)	53.4(146)	49.3(75)	44.6(56)	45.6
Sales and service	38.7(468)	27.3(150)	36.7(128)	42.2(90)	55.0(100)	40.0
Manual	35.5(1178)	17.9(308)	35.2(307)	41.3(269)	48.3(294)	35.2
No work and agriculture	34.5(629)	14.4(97)	28.2(156)	39.0(141)	44.3(235)	30.9

*Zero cells prevent standardization.

3 Trinidad and Tobago

3.1 LEVEL OF CURRENT USE BY BACKGROUND CHARACTERISTICS

There were 2651 exposed women (shown as 2664 in the Country Report) at the time of the survey. Of these, 60.5 per cent were practising contraception. This level of contraceptive use is very high when compared with other developing countries included in Lightbourne's comparative study of urban/rural use (1980), only in Costa Rica and Panama did the percentages of women currently practising contraception exceed that of Trinidad and Tobago. In the other six Latin American and Caribbean countries, the percentages ranged between 38 and 52 per cent.

Appendices A, B and C (pp 36–38) provide data for a preliminary examination of how use varies according to the characteristics of the women. Current use was highest, and equal, among women in the 20–29 and 30–39 age groups, followed by the youngest and oldest groups, in that order. The level of contraceptive use in this country, unlike Guyana, was not positively associated with family size. Use was least among women with fewer than two children, highest among those with two–three living children and *declined* thereafter with an increase in family size.

Taking all exposed women together, contraceptive use was higher among urban than among rural women. But the position is reversed for the two youngest age groups as well as for women with four–five living children. Differences in the age distributions of the two residence groups were not, however, large enough to explain more than 18 per cent of the small urban/rural differential. On the other hand, the comparatively large percentage of urban women with fewer than two children combined with the large percentage of rural women with six children plus tended to lessen the difference between them in level of use – if both residence groups had had the parity distribution of the standard population, the urban/rural differential would have been 45 per cent larger.

The observed percentages of current users were the same for married and visiting women (62 per cent) and appreciably less (53 per cent) for common law wives. The equality in level of use between visiting and married women was brought about by a disproportionately large percentage of women under 30 in the visiting group and a correspondingly large proportion of married women in the over-30 groups. If the age distribution of both groups had been the same as for all exposed women, use prevalence would have remained the same for married women, but the percentage of visiting women using contraception would have been nearly three percentage points lower than the observed percentages. With the standard age distribution, the level of use by common law women would not have been different from that observed.

The effect of differing family-size distributions on the married/visiting differential was of roughly the same order

of magnitude as the effect of age, *but in the opposite direction*. Sixty-eight per cent of visiting women had fewer than two children, but contraceptive use among them was very high (61.5 per cent) when compared with married and common law women in the same parity group (42 and 47 per cent respectively). The disparity in family-size distribution between the two groups and the overall distribution tended to increase the level of use in both groups, but the married group was more affected than the visiting women. If the distributions had been the same, contraceptive prevalence among visiting women would have *exceeded* that of married women by two percentage points. The effects of age and parity on the type of union differentials, as in the case of the residence differential, therefore tended to cancel each other out.

There is a positive association between level of education and level of contraceptive use among all exposed women in Trinidad and Tobago. However, the general pattern is interrupted by a somewhat low proportion of users among women with nine years of primary schooling in the three groups under 40 years of age, balanced by a comparatively high level of use among the oldest group with the same level of education. Similarly, contraceptive use was low for this education group among women with fewer than four children. If the age distribution of all education groups had been the same as the standard population, use would have been higher among the lesser educated groups (the two lower primary groups) and lower among the more educated groups (two secondary levels), but would have remained the same among women with nine years' primary schooling. Conversely, standardization for living children resulted in lower use among the less educated and higher use among the more educated women. But even when the effects of age and parity, which once again were balanced against each other, were eliminated, there was no disruption of the overall general pattern of increasing use with increasing education.

The overall difference in use between the two ethnic groups was minimal. However, use was higher for non-Indians than for Indians in all but the lowest age groups, and in the lowest and highest parity groups; while the position was reversed for the other age and parity groups. If both ethnic groups had had the overall age distribution, use among Indian women would have been slightly lower and that among non-Indians would have remained about the same. The ethnic differential would then have been 1.7 percentage points instead of the observed 0.7 percentage points. Differences in the parity distribution of the two groups affected the observed percentage users to a greater extent.

Because of the comparatively high percentage of Indians with four–five children (one of the two high-use groups), use among this ethnic group was some five per cent higher than it would have been if the distribution had been the

same as for all exposed women, in which case the ethnic differential would have been 2.7 percentage points, still not very large.

Contraceptive prevalence was greatest among women whose partners were in professional, administrative and clerical jobs. Second in level of use were those whose partners were in sales and service occupations. Somewhat lower, and equal, were the two partners' occupation groups manual and 'no work and agriculture'. The comparatively large percentage of women in the 20-29 and 30-39 groups (the high-use age groups) with 'sales and service' partners tended to increase the overall level of this group. If all groups had had the standard age distribution, use would have been slightly lower for the sales and service group and slightly higher for all other groups. On the other hand, it was the 'no work and agriculture' group which was most affected by the distribution according to number of living children, for the comparatively large percentage of women with partners in this occupation group with four-five children (one of the two high-use parity groups) tended to increase the overall level. Given the standard distribution of women in this group, the percentage of users would have been six per cent (3.5 percentage points) lower than the observed proportion.

Based on the above simple descriptive analysis, the indication is that contraceptive use is associated to some extent with the social status women - the low-use groups are rural women, those in a common law union, the lower education groups and those whose partners are in low-level jobs. But, except in a few cases, the intra-group differentials are not very large. The analysis is, however, compounded by the fact that use declined with both age (except among women under 20 years of age) and family size (except for those with fewer than two children) while,

as shown in table 3.3.A of the Country Report, the number of living children is positively associated with age. The result is that the effects of these two demographic variables on level of use of the various subgroups tended to counter-balance each other to some extent. Of the two, the number of living children had the greater effect on the overall level, and this will be confirmed in the more detailed analysis of differential contraceptive use which follows in section 3.2.

3.2 CURRENT USE OF SPECIFIC CONTRACEPTIVE METHODS

Among the 1605 current users, more than one-third were using the contraceptive pill. Next in popularity is the condom, these two methods together accounting for 64 per cent of all users. No other single method is in use by more than ten per cent of current contraceptors.

The choice of method shows some variation according to the characteristics of the women (see table 13). The pill is the most popular method in use among women aged 20-39 years, but among younger and older women the condom is more widely used. Indeed, among women aged 40-49, the proportion who have been sterilized for contraceptive purposes exceeds the percentage using the contraceptive pill by five percentage points. Sterilization is of course negligible for women under 30 years of age. The proportion sterilized is very low among visiting women and this is entirely due to the high proportion of young women in this type of union. Age distribution could also account, in some part, for the fact that the use of sterilization declines with an increase in education, since the level of education is itself negatively associated with current age.

It is of some interest to note that the intra-uterine device

Table 13 Per cent distribution of exposed women who were currently using any contraceptive method according to method currently used, by selected characteristics of the women (Trinidad and Tobago)

Selected characteristics	Exposed women		Specific contraceptive methods (% of current users)					
	Total number	Currently using any method ^a	Pill	Condom	IUD	Other female scientific	Female sterilization	Other
All women	2651	1605(61)	34.8	29.0	4.4	9.7	8.4	13.7
<i>Current age (years)</i>								
Under 20	194	102(53)	30.4	38.2	0.0	9.8	0.0	21.6
20-29	1029	679(66)	45.9	31.2	2.2	7.8	1.2	11.7
30-39	890	584(66)	29.5	26.8	5.8	11.1	12.3	14.5
40-49	537	240(45)	17.9	24.2	7.9	11.7	22.9	15.4
<i>Type of residence</i>								
Urban	1596	977(61)	35.9	26.7	3.8	10.3	8.8	14.5
Rural	1055	628(60)	33.3	32.6	4.8	8.9	7.6	12.7
<i>Current union status</i>								
Married	1590	982(62)	32.5	29.8	5.3	8.9	10.0	13.5
Common law	441	236(54)	38.1	21.6	4.2	12.3	9.3	14.4
Visiting	620	387(62)	38.2	31.8	1.6	10.3	3.4	14.7
<i>Ethnic origin</i>								
Indian	1061	638(60)	32.6	33.2	4.5	8.9	6.9	13.9
Non-Indian	1590	976(61)	36.3	26.3	4.2	10.2	9.4	13.6
<i>Level of education</i>								
Prim. under 8 yr	807	439(54)	29.8	28.5	5.4	10.7	13.2	12.3
Prim. 8 yr	230	136(59)	32.4	37.5	3.7	10.3	8.1	8.1
Prim. 9 yr	757	452(60)	35.4	28.1	4.2	9.1	8.4	14.8
Sec. - no cert.	472	309(65)	39.4	28.5	3.9	7.4	4.2	16.5
Sec. - cert.	385	268(70)	38.1	28.0	3.0	11.6	4.9	14.5

^aPercentage of all exposed women shown in parentheses.

(IUD) is not widely used in Trinidad and Tobago, only four per cent of all exposed women opting for this method, the proportion being at a maximum (eight per cent) among women in the 40–49 age group. The IUD's lack of popularity can be traced to the fact that its introduction into Trinidad and Tobago preceded that of the contraceptive pill by only two years. In the initial period, the IUD was being fitted not by doctors but by nurses in the family planning clinics, and many women reportedly experienced discomfort or rejection of the device. Before these initial problems could be rectified, the pill, which women could administer themselves, was introduced and a large proportion switched to it; the IUD has never regained its earlier short-lived acceptance.

The overwhelming popularity of the pill and the condom over all other methods is maintained in all types of residence, current union status, ethnic and education groups. Furthermore, with a few exceptions, the pill retains precedence over the condom. The exceptions are: rural women and Indians, among which two groups both of these methods enjoy equal popularity; and women with eight years of primary education, of whom 37 per cent chose the condom as against 32 per cent who showed a preference for the contraceptive pill. Variations in proportions of the subgroups using female scientific or other methods shown in the table are not generally large, except for a comparatively high percentage of young women under 20 years of age who were using 'other methods'; and two-thirds of these were practising withdrawal.

The pattern of use by type of method in Trinidad and Tobago is not a common one, since repeat methods were being used by comparatively large percentages of women in low-motivation groups (the 40–49 group, women in common law unions, rural women and the less educated groups). In particular, the high proportion of women who used the condom merits some discussion. With the gradual integration of family planning services into the general health clinics run by the Government, the Family Planning Association introduced a field programme in which contraceptive supplies are taken to workplaces for free distribution. This service has been particularly successful among men, and could account, in part, for the widespread use of this method.

3.3 DIFFERENTIALS IN THE CURRENT USE OF CONTRACEPTION

Multiple regression analysis is now used to investigate the relationship between each of the selected background variables and current contraceptive use. As for Guyana, Indians and non-Indians are analysed separately.

Current age

For reasons already discussed (see section 2.1), it is expected that contraceptive use will increase with age to a maximum at about age 25–34 years and then decline. This is true for Indians, the level of use being highest for the 25–29 age group. A similar pattern exists for non-Indians, with the optimum level of use at age 30–34 years, except that use is lower for the 25–29 age group than for those aged 20–24 years. (See table 14.)

Dealing first with the differential use by non-Indians, it will be noted that current use is very much higher for women aged 20–39 years than for younger or older women. In this high-use group, use was highest for those aged 30–34 years, followed by those aged 20–24 years. The difference between these two groups was evidently entirely due to the higher proportion of married over common law women among the older group, the former union type having the higher level of use. Accordingly, when adjustment is made for current union status the age groups 20–24 and 30–34 are identical with the highest level of use.

Somewhat surprisingly, further adjustment for level of education adds little to an understanding of the variations in current use among women in the different age groups. The principal change is a slight increase among the oldest women, as a large proportion of the exposed women in this group have a low level of education, and a decline among those aged 20–24 for the opposite reason.

Adjustment for number of living children, on the other hand, shows that this variable has an important impact, increasing use for women under 30 years old and reducing it for older women.

The pattern of contraceptive use by age is quite uniform in the case of Indians. Here use increases with age to a maximum at age 25–29 and then declines, and this pattern

Table 14 Effects of current age on the current use of contraception among exposed women (Trinidad and Tobago)

Current age (years)	Percentage of current users											
	Unadjusted			Adjusted up to:								
	Non-Indian	Indian	Diff.	Current union status (3)			Education (4)			Number of living children (6)		
Non-Indian				Indian	Diff.	Non-Indian	Indian	Diff.	Non-Indian	Indian	Diff.	
15–19	55.9	45.6	– 9.9	57.2	46.8	– 10.4	57.3	45.2	– 12.1	68.9	65.5	– 3.4
20–24	67.7	58.5	– 9.2	68.6	58.7	– 9.9	67.6	57.0	– 10.6	74.2	66.2	– 8.0
25–29	65.9	72.2	+ 6.3	66.0	72.4	+ 6.4	65.7	71.7	+ 6.0	68.3	70.9	+ 2.6
30–34	69.1	66.9	– 2.2	68.6	66.7	– 1.9	68.7	67.1	– 1.6	65.7	63.9	– 1.8
35–39	62.7	60.9	– 1.8	62.5	60.6	– 1.9	63.0	61.6	– 1.4	58.5	55.7	+ 2.8
40–44	48.5	54.5	+ 6.0	47.7	54.1	+ 6.4	48.4	55.5	+ 7.1	41.5	50.0	+ 8.5
45–49	37.2	33.3	– 3.9	35.8	33.5	– 2.3	36.6	35.5	– 1.1	27.0	30.6	+ 3.6
Std mean	60.8	60.1	– 0.7	60.8	60.1	– 0.7	60.8	60.1	– 0.7	60.7	60.2	– 0.5
χ^2 (6 DF)	66.8***	52.1***		69.4***	51.3***		60.1***	46.9***		97.7***	41.8***	

remains through all adjustment. Unlike non-Indians, it is the adjustment for level of education rather than for current union status that is the more important, though the changes are again small and in the same direction in each case as for non-Indians. Here also, adjustment for number of living children increases the level of use for women aged under 30 years but reduces it for other age groups.

Comparing the two ethnic groups, the unadjusted level of use is higher for Indians for only two age groups, 25–29 and 40–44, the difference being relatively much larger for the older women. Here, however, unlike Guyana, the higher use by older women among Indians cannot be attributed to the higher incidence of female sterilization, as the non-Indians have the higher incidence in Trinidad and Tobago. For the other age groups, the deficiency in the level of use is greatest, both absolutely and relatively, for young women under 30 years of age.

Adjusting for the intervening variables has little effect on the ethnic differentials, but when adjustment is made for the final variable – number of living children – the pattern is greatly changed. The age group 20–24 is the only one which continues to have a large Indian deficit. On the other hand, the 40–44 age group is the single five-year age group with a large Indian surplus in level of current use. The remaining differentials are small (two–four percentage points), use being greater among Indians aged 25–29 and 35 years and over and among non-Indians under 25 and 35–39 years of age.

Partial R provides a summary measure of the magnitude of the age differences in contraceptive use, and the differences in this measure give an indication of the amount attributable to the variable added at each step of the regression. On this basis, about one-third of the age differences in current use is attributable to residence in the case of Indians, and slightly less in the case of non-Indians. For each ethnic group, about one-half of the age differences is attributable to the independent variables excluding family size. The importance of family size for Indians is seen by the fall of partial R from 0.103 to 0.050. Family size, however, does not account for any of the age differences of non-Indians, and partial R in fact increases slightly when this variable is controlled.

Number of living children

In the case of non-Indians, the observed percentages using a contraceptive are not related to parity in a linear fashion. Adjustment for current age does not introduce any greater order into the pattern. However, since, apart from the few women aged 15–19, use is higher among younger women than among those aged 35 years and over, use among women with fewer than three children would be less if their age distribution were the same as the standard population. Conversely, the comparatively older women with more than three children would have a higher level of use.

When further adjustment for current union status is made, contraceptive use is lower for women with fewer than two children than for those with two–three, which in turn is less than for women with four children. At higher parities the pattern of relationships is unaffected. A very high percentage of childless women are in a visiting union, the union type with the highest level of contraceptive use (table 15). Conversely, only a small proportion of women with four or more children are in a visiting relationship. In addition, the percentage of women in a common law relationship is relatively high among these women with more than three children, and contraceptive use is lowest for this union type. Adjustment for union status therefore demonstrates that use would be higher for women with four children plus and lower for childless women if the distribution according to union status were the same as the standard distribution.

In general, the effect of each stage of adjustment is that the level of use is reduced for women with fewer than four children and increased for those with larger families. This means that the level of use of women with small families is inflated by the high proportion in a visiting union, with a better education, and so forth.

In the case of Indians, women with two children have the highest level of current use, the unadjusted proportion increasing with family size for those with smaller families and declining as family size increases for those with larger families, with one or two minor exceptions. When adjustment is made for the women's age there is a dramatic

Table 15 Effects of number of living children on the current use of contraception among exposed women (Trinidad and Tobago)

Number of living children	Percentage of current users											
	Unadjusted			Adjusted up to:								
				Age (2)			Current union			Education (5)		
	Non-Indian	Indian	Diff.	Non-Indian	Indian	Diff.	Non-Indian	Indian	Diff.	Non-Indian	Indian	Diff.
0	56.4	39.2	– 17.2	50.3	35.1	– 15.2	47.7	35.0	– 12.7	44.9	29.3	– 15.6
1	52.9	48.3	– 4.6	47.7	42.8	– 4.9	47.0	42.5	– 4.5	46.4	40.0	– 6.4
2	68.2	71.4	+ 3.2	64.3	67.1	+ 2.8	63.7	66.7	+ 3.0	63.1	64.9	+ 1.8
3	63.1	66.5	+ 3.4	63.1	63.4	+ 0.3	63.5	63.6	+ 0.1	63.9	64.6	+ 0.7
4	71.8	68.2	– 3.6	76.3	69.1	– 7.2	78.3	69.0	– 9.3	79.5	70.9	– 8.6
5	52.3	67.7	+ 15.4	58.5	69.5	+ 11.0	60.3	69.5	+ 9.2	63.4	72.2	+ 8.8
6	64.2	69.7	+ 5.5	74.8	78.4	+ 3.6	77.0	79.0	+ 2.0	79.6	82.4	+ 2.8
7	59.3	50.0	– 9.3	69.8	58.2	– 11.6	72.4	58.8	– 13.6	75.3	62.0	– 13.3
8	68.4	48.6	– 19.8	83.8	60.6	– 23.2	85.9	61.2	– 24.7	88.2	65.3	– 22.9
9 +	61.1	48.2	– 12.9	80.0	63.3	– 16.7	83.8	63.8	– 20.0	87.4	66.7	– 20.7
Std mean	60.7	60.0	– 0.7	60.7	60.0	– 0.7	60.7	60.0	– 0.7	60.7	59.9	– 0.8
χ^2 (9 DF)	29.2***	64.1***		61.1***	59.1***		71.8***	57.4***		84.3***	71.9***	

change in that use increases with family size up to six children, except that use is higher for women with two children than for those with three. Use is very much lower for women with seven children than for the modal size group and thereafter again increases with family size.

Adjustment for current union status does not have much effect in the case of Indians since the vast majority of women are legally married. Adjustment for level of education does not affect the pattern. But both adjustment for current age and further adjustment for level of education result in a sizeable reduction in the level of use among women with fewer than three children, indicating that the unadjusted use among these women is inflated by their including a relatively large proportion of young women and women with high education, both of them with a comparatively high level of use.

A comparison of the two ethnic groups shows that the unadjusted level of use was higher for Indian women among those with two–three and five–six living children, but lower for all other parities. The differences are largest for women with five children, where Indians have an excess of 15 percentage points, and for women with no children or with large families of eight or more children, where non-Indians have an excess of 13–20 percentage points.

When adjustment is made up to level of education, the above pattern remains but the comparative position of non-Indians is improved. Thus, in the four instances in which use by Indians is higher, the differential is reduced. On the other hand, in the remaining instances, where non-Indians have the higher level of use, the differential is increased except for those with no children and those with eight children.

The family-size differences in contraceptive use are summarized by partial R as 0.136 for non-Indians and 0.236 for Indians. About 45 per cent of the former and

about 60 per cent of the latter are accounted for by age. The other variables have little effect on partial R, and apart from union status for Indians, partial R is increased rather than reduced when the remaining independent variables are controlled.

Pattern of residence

For both ethnic groups, contraceptive use is highest among women classified as urban/urban, least among the rural/rural and intermediate for movers (table 16). The differences are not large, however, and the variable is not statistically significant.

Partial R is only 0.031 for non-Indians and 0.041 for Indians and this is reduced to almost nil when adjustment for current age is introduced.

Current union status

Because of the small number of Indian women in non-legal unions, these two union types, visiting and common law, are considered together for this ethnic group. Contraceptive use is higher among married women partly because of their higher education but particularly because married women have larger families on average (see table 17).

The proportion of non-Indian women using contraception was lowest, at all levels of adjustment, for common law wives, the type with the lowest socio-economic status. For the unadjusted figures use was highest for women in a visiting union. As age increases, the proportion married increases and the proportion visiting declines rapidly, while the proportion in a common law relationship does not change appreciably. Since contraceptive use is low for this ethnic group at age 40 and higher, the percentage of married women using would have been higher and the percentage in

Table 16 Effects of pattern of residence on the current use of contraception among exposed women (Trinidad and Tobago)

Pattern of residence	Percentage of current users											
	Unadjusted			Adjusted up to:								
	Non-Indian	Indian	Diff.	Age (2)			Education (4)			Number of living children (6)		
Non-Indian				Indian	Diff.	Non-Indian	Indian	Diff.	Non-Indian	Indian	Diff.	
Urban	62.1	63.9	+ 1.8	61.6	63.0	+ 1.9	60.1	62.0	+ 1.9	60.8	62.7	+ 1.9
Movers	61.1	60.8	- 0.3	61.5	61.6	+ 0.1	62.0	61.6	- 0.4	62.6	62.1	- 0.5
Rural	57.9	58.3	+ 0.4	58.7	58.0	- 0.7	59.5	58.4	- 1.1	57.1	57.8	+ 0.7
Std mean	60.8	60.2	- 0.6	60.8	60.2	- 0.6	60.8	60.2	- 0.6	60.8	60.2	- 0.6
χ^2 (2 DF)	1.6	1.8		0.8	2.0		0.8	1.3		3.0	2.4	

Table 17 Effects of current union status on the current use of contraception among exposed women (Trinidad and Tobago)

Current union status	Percentage of current users											
	Unadjusted			Adjusted up to:								
	Non-Indian	Indian	Diff.	Age (2)			Education (4)			Living children (6)		
Non-Indian				Indian	Diff.	Non-Indian	Indian	Diff.	Non-Indian	Indian	Diff.	
Married	61.9	61.9	0.0	64.1	61.8	- 2.3	63.5	61.7	- 1.8	61.5	60.5	- 1.0
Common law	53.6	53.1		52.9	53.7		53.8	54.1		51.4	58.7	
Visiting	63.2			60.5			60.7			64.9		
Std mean	60.7	60.1	- 0.6	60.7	60.1	- 0.6	60.7	60.1	- 0.6	60.7	60.1	- 0.6
χ^2 (2/1 DF)	8.0*	5.9*		11.2**	5.0*		8.0*	4.4*		14.5***	0.2	

the other two union types lower if their age structures had been the same as the standard.

Further adjustment up to level of education does not materially affect the proportions using, among the various union types; use is decreased slightly for married and increased slightly for common law wives because of the higher than average level of education among the former and lower than average education among the latter. When adjustment is made up to number of living children, however, use is once again found to be highest for visiting women, increasing for this type because of the large proportion of women with small families among whom use is low. On the other hand, the proportion contracepting is reduced for married and common law wives when adjustment is made for number of living children, in the light of their larger average family size.

Partial R for both ethnic groups is about 0.072 but much of the difference is attributable to current age.

Level of education

Current contraceptive use increases consistently with education though the differential between women with eight or fewer years and nine years of primary education is small.

Despite a number of deviations from this pattern in the cross-classification (appendices B and C, pp 37–38),

standardization for current age and for family size in both cases maintains the pattern of a positive relationship between level of contraceptive use and level of education.

It is interesting to find that while education is highly significant (at the 0.1 per cent level) as an explanatory variable in relation to contraceptive use in the case of non-Indians, it is very much less significant for Indians. Indeed, the chi-squared value is significant only at the five per cent level when unadjusted and is not significant even at that level when adjustment is made for current age and the subsequent variables in the equation until the number of living children is introduced. Only then is education significant at the 0.1 per cent level for this ethnic group (table 18). Note that women with a primary education are subdivided into two rather than three groups.

In the case of non-Indians, unadjusted use increases with education but the differential is less between the two primary education groups than between the other adjacent groups. Adjustment for current age increases the level of use of the lowest education group but decreases it for the others. This is because a large proportion of the least educated are older women who have a lower level of use.

Further adjustment for current union status increases use for the least educated and reduces it for the best educated. This is because common law wives, with their relatively low level of use, form a high proportion of the

Table 18 Effects of level of education on the current use of contraception among exposed women (Trinidad and Tobago)

Level of education	Percentage of current users											
	Unadjusted			Adjusted up to:								
	Non-Indian	Indian	Diff.	Age (2)			Current union status (4)			Living children (6)		
Non-Indian				Indian	Diff.	Non-Indian	Indian	Diff.	Non-Indian	Indian	Diff.	
Prim. 8 yr	55.1	56.0	+ 0.9	58.8	56.7	- 2.1	59.7	57.1	- 2.6	56.7	54.7	- 2.0
Prim. 9 yr	57.2	64.9	+ 7.7	56.6	64.0	+ 7.4	56.8	63.4	+ 6.6	56.1	64.1	+ 8.0
Sec. - no cert.	64.9	61.0	+ 1.1	62.9	65.2	+ 2.3	62.7	64.1	+ 1.4	63.9	68.6	+ 4.7
Sec. - cert.	70.1	67.7	- 2.4	68.1	66.3	- 1.8	66.8	66.1	- 0.7	70.8	75.3	+ 4.5
Std mean	60.8	60.1	- 0.7	60.8	60.1	- 0.7	60.8	60.1	- 0.7	60.8**	60.2***	- 0.6
χ^2 (3 DF)	21.4*	10.9**		11.4**	6.7*		8.0*	5.0		16.6**	16.2***	

Table 19 Effects of partner's occupation on the current use of contraception among exposed women (Trinidad and Tobago)

Partner's occupation	Percentage of current users											
	Unadjusted			Adjusted up to:								
	Non-Indian	Indian	Diff.	Age (2)			Education (5)			Number of living children (6)		
Non-Indian				Indian	Diff.	Non-Indian	Indian	Diff.	Non-Indian	Indian	Diff.	
Professional, admin. and clerical	65.2	64.5	- 0.7	64.7	63.4	- 1.3	61.8	60.7	- 1.1	62.6	61.7	- 0.9
Sales and service	59.9	62.3	+ 2.4	58.7	61.3	+ 2.6	58.6	60.2	+ 1.6	59.0	60.2	+ 1.2
Manual	59.0	58.9	- 0.1	59.6	58.9	- 0.7	60.8	59.2	- 1.6	60.5	59.5	- 1.0
No work and agriculture	61.0	57.7	- 3.3	62.3	59.6	- 2.7	63.8	62.1	- 1.7	61.7	60.3	- 1.4
Std mean	60.8	60.1	- 0.7	60.8	60.1	- 0.7	60.7	60.1	- 0.6	60.8	60.1	- 0.7
χ^2 (3 DF)	4.2	2.6		3.6	1.4		1.0	0.5		1.0	0.3	

lowest and a low proportion of the highest education groups.

Adjustment for number of living children, however, reduces use for women with a primary education only, indicating that the recorded percentage of users among these women is inflated by their larger family size. Conversely, use is increased for the women with a secondary education when adjustment for family size is made. As a result, when adjustment for all variables is made, the adjusted percentage for the education groups is similar to the unadjusted percentage except that the proportion is slightly higher for the least educated than for those with nine years of primary education.

In the case of Indians, while use increases with education, the only large differential is between those with the least education and the other groups. This pattern remains through the different stages of adjustment. When adjustment is made for number of living children, however, the differential between the two groups with secondary education is also quite large.

Since level of education is significant only when adjustment is made up to the number of living children in the case of Indians, comparison of the two ethnic groups is confined to this stage of the analysis. It shows that use is slightly lower for Indians among those with the least education (two percentage points lower) but greater for all of the higher education groups. The differential is greatest among women with a complete primary education.

Partner's occupation

Women whose partners were professional and clerical workers had the highest level of contraceptive use, followed by sales and service workers, then manual workers and finally agricultural workers (table 19). The difference in use between the last two groups was, however, marginal. This

order of ranking is more or less what we would assume in terms of descending socio-economic status.

However, partner's occupation is not a statistically significant variable in the analysis of contraceptive use. The partial R of about 0.050 falls to only about 0.003 once adjustment is made for current age, indicating that most of the differences in this variable are attributable to age.

The explanatory power of the independent variables

Age explains just over four per cent of the variance in contraceptive use for both ethnic groups (table 20). In the case of non-Indians this is more than any other variable, while for Indians it is somewhat less than the amount explained by family size. The explanatory power of the respondent's age is to a small extent due to the association of this variable with education and, in the case of Indians, with family size. In the case of non-Indians, however, age would have explained nearly six per cent of the total variance if the effects of family size, which is not linearly related to contraceptive use, had been controlled for.

Family size is the most important variable in the case of Indians, explaining over five per cent of total variance in contraceptive use. The explanatory power of this variable is somewhat less when adjustment is made for current age, indicating that part of it is due to family-size differences in the age groups. On the other hand, when adjustment for education is made, added R² increases because of the negative correlation between family size and level of education. Family size explains two per cent of the variance of use among non-Indians, but in the absence of any linear relationship between these two variables a meaningful discussion of the explanatory power of the variable is not possible.

Education explains about one and a half per cent of total variance for both ethnic groups, but when the effects

Table 20 Per cent of variance (R² per cent) of contraceptive use explained by each independent variable adjusted for indicated variables (Trinidad and Tobago)

Variable	Non-Indian						
	Unadjusted	Adjusted up to:					
		Age	Residence	Current union status	Education	Partner's occupation	Living children
Current age	4.2	—	4.1	4.3	3.7	3.8	5.8
Pattern of residence	0.1	0.0	—	0.1	0.0	0.1	0.2
Current union status	0.5	0.7	0.7	—	0.5	0.5	0.9
Level of education	1.4	0.7	0.7	0.5	—	0.4	1.0
Partner's occupation	0.3	0.2	0.2	0.1	0.1	—	0.1
Number of living children	1.9	3.7	3.9	4.3	4.9	4.9	—
All variables: 10.4							
	Indian						
	Unadjusted	Adjusted up to:					
		Age	Residence	Current union status	Education	Partner's occupation	Living children
Current age	4.6	—	4.6	4.5	3.9	3.9	3.2
Pattern of residence	0.2	0.2	—	0.2	0.1	0.1	0.2
Current union status	0.5	0.4	0.5	—	0.6	0.4	0.0
Level of education	1.4	0.8	0.7	0.6	—	0.6	1.5
Partner's occupation	0.2	0.1	0.1	0.1	0.1	—	0.0
Number of living children	5.6	5.0	5.2	4.8	6.0	5.9	—
All variables: 11.8							

of both age and union status are controlled for only one-half per cent of the total variance in use is explained by this variable. This is contrary to the general view in the Caribbean that the women's education is one of the most important determinants of contraceptive practice.

The remaining variables — pattern of residence, current union status and partner's occupation — each explain only a negligible proportion of the variance in contraceptive use.

The selected variables together explain ten per cent of the variance in use among non-Indians and twelve per cent among Indians. The reasons for the very low values of R^2 have been discussed in section 2 on Guyana and remain the same for this country. It is nevertheless clear that the socio-economic variables usually thought to be associated with contraceptive use are much less important as explanatory variables than has generally been assumed in the region.

3.4 THE DESIRE TO CEASE CHILDBEARING AND CONTRACEPTIVE USE

From table 3.1.3 of the Country Report it will be noted that in all socio-economic groups the desire to cease childbearing is positively associated with the already achieved family size, up to seven living children. When the mean total number of children wanted is standardized for number of living children, there is no significant variation between the groups. The means decline slightly with increase in age (from 3.90 to 3.65), while between residence, union-type and ethnic groups the largest difference is 0.18 child. It follows, therefore, that future fertility levels will depend to a large extent on the degree of success attained by women

who say they want no more children in preventing (further) conception. If these women are not practising contraception while wishing to cease childbearing, they are not acting consistently with their stated fertility preferences and are considered, for this study, to be at risk of unwanted pregnancies. They are identified as a separate category in table 21, which shows the per cent distribution of all exposed women according to consistency of contraceptive behaviour with fertility preferences. But we look first at the women whose current contraceptive practice is consistent with their attitude towards further conception.

Of the 2651 women exposed to childbearing at the time of the survey, 84 per cent were practising conception in accordance with their expressed preferences for future fertility, including 30 per cent who wanted more children but were practising contraception. (It is presumed that this latter group were trying to 'space' their children.) The proportions of the subgroups whose behaviour is 'consistent' do not vary appreciably according to the type of residence or current union status of the women, while the Indian/non-Indian differential is quite small. The degree of consistency between contraceptive use and the desire to cease childbearing increased with level of education up to the secondary—no certificate group, but was slightly lower among the most educated group than for those with complete primary or incomplete secondary education.

The current contraceptors were more or less evenly divided between those who wanted to cease childbearing altogether and those who were motivated by a desire to delay the next pregnancy. 'Spacing' was relatively more important to urban than to rural women and to non-Indians than to Indians.

Table 21 Per cent distribution of exposed women according to consistency of contraceptive behaviour with desire to cease childbearing, by selected characteristics, standardized^a for number of living children (Trinidad and Tobago)

Selected characteristics	Exposed women		Behaviour consistent with:				Behaviour inconsistent
	Number of women	Overall percentage for whom contraceptive behaviour consistent with fertility prefs.	Desire to cease childbearing			Spacing	
			Subtotal	Want no more and using	Want more and not using	Want more and using	Want no more and not using
All women	2651	84.1	54.2	30.5	23.7	29.9	15.9
<i>Current age (years)</i>							
Under 20	194	*	*	*	*	*	*
20–29	1029	93.9	55.0	28.6	26.4	38.9	6.1
30–39	891	84.9	59.8	36.4	23.4	25.1	15.1
40–49	538	62.6	59.4	30.2	29.2	3.2	37.4
<i>Type of residence</i>							
Urban	1596	83.9	53.1	30.5	22.6	30.9	16.1
Rural	1055	84.3	56.7	30.7	26.0	27.5	15.7
<i>Current union status</i>							
Married	1590	83.5	57.1	32.4	24.7	26.4	16.5
Common law	441	83.7	57.3	26.2	31.1	26.4	16.3
Visiting	620	83.8	48.7	25.8	22.9	35.2	16.2
<i>Ethnic origin</i>							
Indian	1061	82.5	56.2	32.1	24.1	26.3	17.5
Non-Indian	1590	85.3	53.5	29.4	24.1	31.7	14.7
<i>Level of education</i>							
Prim. under 8 yr	807	77.8	58.9	31.0	27.9	18.8	22.2
Prim. 8 yr	230	80.5	51.1	26.7	24.4	29.4	19.5
Prim. 9 yr	757	87.0	59.3	32.2	27.1	27.7	13.0
Sec. — no cert.	472	89.0	53.9	33.4	20.5	35.1	11.0
Sec. — cert.	385	86.5	47.8	32.1	15.7	38.6	13.5

^aDistribution of all exposed women used as standard.

*Zero cells preclude meaningful standardization.

Spacing as a motive for contraceptive use was equally prevalent among married and common law women (26.4 per cent). The proportion of visiting women who wanted more children and were, nevertheless, current users is much higher (35.2 per cent). Among this latter group, the motivation for using contraceptives was probably more of a desire to avoid having an illegitimate child rather than a conscious effort to 'space' their children. The general pattern is for the proportion of women wanting to delay, rather than terminate, childbearing to increase with an increase in the level of education, except that women with eight years of primary education disrupt this pattern, which is consistent with positive associations between age and education and between age and the desire for spacing future fertility experience.

We now turn our attention to the question of unwanted pregnancies, which, as stated earlier, almost wholly account for the variation in fertility level of the different socio-economic groups. Women at risk of an unwanted pregnancy are defined as those exposed women who said that they wanted no more children but were not practising contraception. The overall proportion of women in this position was 16 per cent, which was not high when compared with Guyana (30 per cent) or Jamaica (21 per cent).

The risk of unwanted pregnancy did not vary by place of residence or by current union status. It was less prevalent among the better educated and upper socio-economic groups than among their counterparts, and more widespread in the Indian than in the non-Indian communities.

3.5 THE INHIBITING EFFECT OF CONTRACEPTION ON FERTILITY

In the absence of celibacy, contraception and post-partum infecundability, the level of fertility for non-Indians in Trinidad and Tobago would be equivalent to their fecundity rate, ie 10.7 children per woman. The combined effect of these three fertility inhibiting intermediate variables has been to reduce this level of fertility by 7.7, or more than two-thirds, to a total fertility rate (TFR) of 3.3. This TF of 10.7 (12.1 for Indians) is noticeably lower than that predicted by the Bongaarts model. Factors which may account for some of this difference are abortion (not measured here), unreported contraceptive use and lower exposure within visiting unions than the other two cohabiting union types. In addition the TF predicted by the model may be somewhat overestimated (Casterline *et al* 1984).

By far the greatest contributor to this decline was contraceptive use which accounted for 56 per cent of the total, while the other two intermediate variables contributed 19–22 per cent each (table 22). The indications are, then, that if the proportion of women married and the level of post-partum infecundability were unchanged but there was no contraceptive use among these women, then the number of children would be about 70 per cent more than the observed TFR (ie about 5.6 per woman).

Table 22 Relationships between the fertility inhibiting effects of intermediate fertility variables and various measures of fertility (Trinidad and Tobago)

	Non-Indian	Indian
(a) Total fertility rate (TFR)	3.255	3.079
(b) Total marital fertility rate (TM)	4.738	5.039
(c) Natural fertility rate (TN)	9.025	8.888
(d) Total fecundity rate (TF)	10.949	12.073
(e) TN minus TFR	5.770	5.809
(f) Percentage of (e) due to:		
(1) Celibacy	25.70	33.74
(2) Contraceptive use	74.30	66.26
(g) TF minus TFR	7.694	8.994
(h) Percentage of (g) due to:		
(1) Celibacy	19.27	21.80
(2) Contraceptive use	55.72	42.80
(3) Post-partum infecundability	22.00	32.41
(4) Other factors	3.00	3.00

The fertility effect of contraception, as measured by the appropriate index (C_c), was 0.525. Contributing to this was an average level of contraceptive use (u) of 50 per cent of married women, and an average use effectiveness (e) of 0.821. The effect of the proportion married (C_m) was somewhat less (0.687), while that of post-partum infecundability (C_i) was very much lower (0.842).

Among Indians, the fecundity rate (TF) was 12.1, but this was reduced by nearly three-quarters to 3.1 (TFR) by the fertility inhibiting intermediate variables – celibacy, contraception and post-partum infecundability. Contraceptive use contributed most (43 per cent) to this decline, and post-partum infecundability contributed somewhat less (32 per cent). Celibacy was responsible for 22 per cent of the decline.

The average level of contraceptive use was nearly 47 per cent, and the average effectiveness of the contraceptives used 0.808. Combined with the sterility correction factor (s) (see general appendix), the index of contraception for this population was 0.567. This was slightly less effective than the proportion married with an index of 0.593, but the effect of post-partum infecundability was much lower – 0.753.

Comparing the two ethnic groups, the fecundity rate was about ten per cent higher for Indians than for non-Indians. Despite this, the total natural fertility rate (TN) was the same for the two populations, indicating that post-partum infecundability was much more important among Indians. Thus, this variable accounted for 32 per cent of the difference between the TF and the TFR in the case of Indians, but only 22 per cent for non-Indians. On the other hand, contraceptive use was more important for non-Indians, mainly because of a higher level of use. As a result, the total marital fertility rate (TM) was lower for non-Indians.

But the proportion married was greater among Indians, and hence the related index (C_m) was lower for that group. The combined effect of the three intermediate variables covered in our model was to reduce the total fertility rate of Indians to a figure somewhat lower than that of non-Indians despite the much higher TF of the former group.

Appendix A—Distribution of Exposed Women

Per cent distribution of exposed women according to selected characteristics

Selected characteristics	No of exposed women	Current age				Number of living children				Ethnic origin	
		Under 20	20–29	30–39	40–49	Under 2	2–3	4–5	6+	Indian	Non-Indian
All women	2651	7	39	34	20	34	31	18	17	40	60
<i>Type of residence</i>											
Urban	1596	7	41	32	20	38	31	17	14	31	69
Rural	1055	8	36	36	21	27	31	20	22	53	47
<i>Current union status</i>											
Married	1590	3	33	39	26	22	36	22	21	53	47
Common law	441	8	40	32	20	28	30	20	22	32	68
Visiting	620	19	54	21	7	68	20	6	5	14	86
<i>Level of education</i>											
Prim. under 8 yr	807	4	19	43	34	16	22	26	36	63	37
Prim. 8 yr	230	11	35	33	20	25	37	20	18	43	57
Prim. 9 yr	757	10	44	30	16	35	35	18	12	34	66
Sec. — no cert.	472	9	53	27	11	48	33	14	6	19	81
Sec. — cert.	385	6	54	29	10	56	37	5	1	26	74
<i>Partner's occupation</i>											
Prof., admin. and clerical	567	4	43	34	19	41	35	15	8	32	68
Sales and service	446	7	43	34	15	38	34	17	11	41	59
Manual	1377	9	37	33	21	32	30	19	20	40	60
No work and agriculture	261	7	30	36	26	20	26	24	30	57	43
<i>Current age (years)</i>											
Under 20	194					90	10	..	0	28	72
20–29	1029					49	39	10	2	39	61
30–39	891					17	34	28	21	44	56
40–49	537					11	19	24	47	39	61
<i>No of living children</i>											
Under 2	893	19	57	17	6					30	70
2–3	825	2	49	36	12					43	57
4–5	478	..	21	52	27					46	54
6+	455	0	4	42	55					52	48
<i>Ethnic origin</i>											
Indian	1061	5	38	37	20	25	34	21	21		
Non-Indian	1590	9	39	31	20	39	29	16	15		

NOTES: Percentages may not add to 100 because of rounding.

.. = a percentage of less than 0.5.

Appendix B—Exposed Women and Contraceptive Use, by Age and Selected Characteristics

Percentage of exposed women who were currently using any contraceptive method (including sterilization), by current age and selected characteristics of the women (N in parentheses)

Selected characteristics	Total	Current age				Standardized for current age
		Under 20	20–29	30–39	40–49	
All women	60.5(2651)	52.6(194)	66.1(1029)	65.6(891)	44.4(537)	60.5
<i>Number of living children</i>						
Under 2	52.5(893)	52.3(174)	58.5(509)	45.8(153)	12.3(57)	44.3
2–3	67.4(825)	52.6(19)	73.5(404)	71.0(300)	34.9(102)	63.2
4–5	65.1(478)	100.0(1)	73.0(100)	67.7(249)	54.3(128)	69.3
6 +	59.2(455)	0.0(0)	68.8(16)	69.1(189)	50.8(250)	*
<i>Type of residence</i>						
Urban	61.1(1596)	51.8(114)	65.8(652)	67.2(514)	45.3(316)	61.1
Rural	59.5(1055)	53.8(80)	66.6(377)	63.3(377)	43.2(221)	59.8
<i>Current union status</i>						
Married	61.8(1590)	44.2(44)	67.4(520)	68.8(618)	46.3(408)	61.9
Common law	53.5(441)	51.4(35)	58.3(175)	56.6(143)	39.8(88)	53.5
Visiting	62.4(620)	56.5(115)	68.4(334)	59.5(130)	39.5(41)	58.7
<i>Level of education</i>						
Prim. under 8 yr	54.4(807)	51.7(29)	63.9(156)	60.4(346)	41.7(276)	57.3
Prim. 8 yr	58.7(230)	50.0(26)	66.7(81)	68.8(77)	32.6(46)	59.3
Prim. 9 yr	59.7(757)	48.6(72)	62.0(334)	64.6(229)	50.8(122)	59.6
Sec. — no cert.	65.7(472)	53.5(43)	68.7(249)	70.9(127)	46.4(53)	63.8
Sec. — cert.	69.6(385)	69.6(24)	71.3(209)	73.2(112)	52.5(40)	68.0
<i>Ethnic origin</i>						
Indian	60.1(1061)	45.5(55)	65.1(401)	64.4(393)	46.2(212)	59.3
Non-Indian	60.8(1590)	55.4(139)	66.7(628)	66.3(498)	43.3(325)	61.0
<i>Partner's occupation</i>						
Prof., admin. and clerical	64.9(567)	79.2(24)	65.9(246)	72.1(190)	46.7(107)	65.1
Sales and service	61.0(446)	40.0(30)	69.6(194)	61.2(153)	46.4(69)	59.9
Manual	58.9(1377)	55.4(121)	65.0(510)	62.9(454)	43.2(292)	59.2
No work and agriculture	58.2(261)	26.3(19)	64.6(79)	70.5(94)	42.0(69)	59.2

*Zero cells prevent standardization.

Appendix C—Exposed Women and Contraceptive Use, by Number of Children and Selected Characteristics

Percentage of exposed women who were currently using any contraceptive method (including sterilization), by number of living children and selected characteristics of the women (N in parentheses)

Selected characteristics	Total	Number of living children				Standardized for number of living children
		Under 2	2–3	4–5	6 +	
All women	60.5(2651)	52.5(893)	67.4(825)	65.1(478)	59.2(455)	60.5
<i>Current age (years)</i>						
Under 20	52.6(194)	52.3(174)	52.6(19)	100.0(1)	0.0(0)	*
20–29	66.1(1029)	58.5(509)	73.5(404)	73.0(100)	68.8(16)	67.4
30–39	65.6(891)	45.8(153)	71.0(300)	67.7(249)	69.1(189)	61.4
40–49	44.4(537)	12.3(57)	34.9(102)	54.3(128)	50.8(250)	34.3
<i>Type of residence</i>						
Urban	61.1(1596)	55.7(609)	67.7(498)	61.6(271)	60.4(218)	61.0
Rural	59.5(1055)	44.7(284)	67.0(327)	70.5(207)	58.6(237)	58.7
<i>Current union status</i>						
Married	61.8(1590)	41.9(345)	70.3(569)	68.8(349)	60.3(327)	58.7
Common law	53.5(441)	47.2(125)	52.7(131)	58.2(90)	57.9(95)	52.7
Visiting	62.4(620)	61.8(423)	68.8(125)	51.3(39)	52.8(33)	60.6
<i>Level of education</i>						
Prim. under 8 yr	54.4(807)	30.5(128)	61.2(178)	62.2(209)	55.5(292)	50.1
Prim. 8 yr	58.7(230)	51.7(57)	65.1(85)	58.3(47)	58.5(41)	58.4
Prim. 9 yr	59.7(757)	49.8(265)	61.1(263)	67.4(138)	67.0(91)	60.1
Sec. – no cert.	65.7(472)	56.4(226)	72.3(155)	75.0(64)	77.8(27)	68.4
Sec. – cert.	69.6(385)	63.8(217)	78.5(144)	61.9(20)	75.0(4)	70.0
<i>Ethnic origin</i>						
Indian	60.1(1061)	44.9(265)	68.9(357)	67.9(221)	56.2(218)	57.4
Non-Indian	60.8(1590)	55.3(628)	66.2(468)	63.4(257)	62.4(237)	61.1
<i>Occupation of partner</i>						
Prof., admin. and clerical	64.9(567)	54.9(235)	75.6(201)	68.7(83)	62.5(48)	65.1
Sales and service	61.0(446)	55.6(171)	67.3(150)	54.7(75)	70.0(50)	61.6
Manual	58.9(1377)	51.6(434)	64.1(407)	63.0(257)	59.1(279)	58.8
No work and agriculture	58.2(261)	35.2(53)	61.8(67)	81.3(63)	52.0(78)	54.7

*Zero cells prevent standardization.

4 Jamaica

4.1 LEVEL OF CURRENT USE BY BACKGROUND CHARACTERISTICS

At the time of the survey, 1925 women were exposed to the risk of childbearing. Of these, 874 (45.4 per cent) were practicing contraception.

While simple percentages and standardization do not provide an adequate basis for the analysis of differential contraceptive use, a brief descriptive examination using these measures may provide a useful background to the multiple regression analysis which appears in section 4.3. The following is based on appendices A, B and C (pp 46–48), which show the per cent distribution of exposed women according to the characteristics of the women; and the percentage of current users among the subgroups by age and number of living children respectively.

Among all exposed women, the level of contraceptive use was 20 per cent higher for urban women than for their rural counterparts. The precedence of urban over rural women in level of use was common to all age groups and all family-size groups; and the urban/rural differentials were particularly large (38 per cent) among the youngest group, under 20 years of age, and among women in the under two and two–three parity groups. Although the urban group included a comparatively large percentage of women in the higher-use 20–29 age group and the rural women had a larger percentage of older women, aged 40–49 years, than the standard populations, the age distributions of the two groups accounted for only 17 per cent of the urban/rural differential. On the other hand, if both residence groups had had the same parity distribution as did all exposed women, the percentage of users would have increased among urban women and declined among rural women and the differential would have been 23 per cent higher than that observed.

In Jamaica, as in Guyana and Trinidad and Tobago, visiting women were younger and had fewer children than married or common law wives. Between these two latter groups, married women had the higher proportions of older women and women with large families. Differences in distributions according to these two demographic variables would therefore have affected the observed percentages of users. According to these observed percentages, the level of contraceptive use was highest among married women (47.6 per cent), but only three per cent higher than that of visiting women (46.3 per cent). Only 42.2 per cent of common law women were currently contracepting. If the standard age distribution had been common to all groups the level of use would have increased for both married and visiting women and declined slightly for common law women. The married/visiting differential would have increased by 154 per cent, while the married/common law differential would have almost doubled.

If all three union-type groups had had the overall distri-

bution according to family size, however, the percentage of users among married and common law women would have declined while that of visiting women would have increased. Indeed, visiting women would have taken precedence over married women in their level of contraceptive use. The age and parity distributions of common law women affected the percentage of users in this group only minimally, since their distributions were approximately the same as the standard population. However, the effect of these variables on the observed level of use by married and visiting women tended to cancel each other out to some extent.

Contraceptive prevalence increased with level of education for all exposed women, and this positive association is maintained in all parity groups. Use was high among the least educated group under 30 years of age, but this is a relatively small group. If the age distributions of all education groups had been the same as the overall distribution, the percentage using would have been only slightly larger for the secondary group but ten per cent greater among the least educated. In fact, there would have been no difference in use between the two lower primary groups. If the distributions by number of living children had been the same as the standard population, the percentage using would have increased by eight per cent among women with secondary education but would have declined by eight–nine per cent for the two lower primary groups and by three per cent for the completed primary group. The positive association noted from the unadjusted percentages would, however, have remained intact.

4.2 CURRENT USE OF SPECIFIC CONTRACEPTIVE METHODS

The contraceptive pill was by far the method most widely used by the women of Jamaica, 31 per cent of users having opted for it. Next in importance was female sterilization, followed by the condom and contraceptive injections. No other single method was in use by more than 5 per cent of current users at the time of the survey (see table 23).

As in Guyana, the incidence of female sterilization was quite high among women in the 30–39 and 40–49 age groups. In Guyana, the choice of sterilization for contraceptive purposes was otherwise associated with low social status in that the groups with the highest prevalence of sterilization were rural (and Indian) women, common law wives and those with lower levels of education. In Jamaica, rural women also had a greater predilection for sterilization and its use was also much higher among the less educated women. However, the proportion of common law women, generally regarded as of lower social status, who were sterilized was 33 per cent lower than that of married

Table 23 Per cent distribution of exposed women who were currently using any contraceptive method according to method currently used, by selected characteristics of the women (Jamaica)

Selected characteristics	Exposed women		Specific contraceptive method (% of current users)					
	Total number	Currently using any method ^a	Pill	Female sterilization	Condom	Injection	IUD	Other
All women	1925	874(45)	31	21	17	16	5	10
<i>Current age (years)</i>								
Under 20	592	75(33)	40	—	35	15	3	7
20–29	573	361(48)	42	4	22	22	3	7
30–39	341	299(54)	22	32	11	16	8	11
40–49	419	139(52)	15	55	8	3	8	11
<i>Type of residence</i>								
Urban	954	484(51)	37	13	16	19	5	11
Rural	971	390(40)	24	31	19	13	6	8
<i>Current union status</i>								
Married	731	348(48)	28	31	13	9	7	11
Common law	660	280(42)	32	21	13	24	4	7
Visiting	534	246(46)	34	7	28	17	4	11
<i>Level of education</i>								
Prim. under 6 yr	252	93(37)	17	40	8	18	8	10
Prim. 6–7 yr	412	166(40)	22	30	17	15	9	7
Prim. 8 yr	796	367(46)	31	23	15	18	4	10
Secondary	465	249(54)	42	5	24	13	4	12

^aPercentage of all exposed women shown in parentheses.

women. This comparatively low proportion of sterilized women among common law users was in part due to the younger average age of common law women, as compared to married women. The indication therefore is that social status in this country, as in Jamaica, is associated with the use of sterilization as a contraceptive method.

Methods requiring repeat motivation were more widely used by younger women, under 30 years of age, urban women, those in a visiting union and better educated groups. Of these, the contraceptive pill was by far the most popular, though the condom was also the choice of a large proportion of the young, visiting and most educated women. Contraceptive injections also had fairly wide acceptance, especially among women in the 20–29 age group and those in a common law union.

Finally, the intra-uterine device (IUD) did not enjoy much popularity in Jamaica at the time of the survey, perhaps for the same reasons as in Trinidad and Tobago.

4.3 DIFFERENTIALS IN THE CURRENT USE OF CONTRACEPTION

Multiple regression analysis is used to investigate the extent to which contraceptive use is associated with selected socio-economic and demographic characteristics of the women.

Current age

The level of contraceptive use increases with age up to a maximum for age 30–39 and then declines. As compared with younger women, use is very low among women 40 years and older, even lower than for girls 15–19 years of

age. Contraceptive use increased appreciably in the 1970s following the introduction of the national family planning programme in the late 1960s (Ebanks 1975), which could explain the higher use among women under 40 years of age.

Although use among young women under 25 years of age is lower than for women aged 25–39, it would have been even lower had not these younger women been more urban and better educated than older women. On the other hand, their low level of use reflects the fact that they have, on average, small families; when the effect of family size is controlled for, use among these young women is higher than all other age groups except the 30–34 group (table 24). The opposite is true for women aged 35 years and over, among whom the proportion living in rural areas and the level of education are less than the standard, while family size is relatively large.

Partial R, a summary measure of the differences in use between age groups, is 0.138 but declines to 0.060 when residence is controlled for, indicating that more than one-half of the difference in use by age groups is attributable to age differences in the three residence categories. When education and family size are also taken into account, 80 per cent of the differences are attributable to age differences in these variables.

Number of living children

Contraceptive use increases with family size up to five living children and then declines. There are two important exceptions: use among women with three children is lower and use among women with eight children higher than the two adjacent parities in each case. Adjustment for the other variables does not reduce the size of these deviations. A

Table 24 Effects of current age on the current use of contraception among exposed women (Jamaica)

Current age (years)	Percentage of current users			
	Unadjusted	Adjusted up to:		
		Residence (2)	Education (4)	Living children (6)
15-19	39.0	38.1	36.8	50.9
20-24	46.8	46.2	44.7	51.3
25-29	48.5	47.5	47.2	47.8
30-34	56.6	56.5	57.2	53.2
35-39	47.8	48.6	49.4	42.6
40-44	37.3	38.7	40.0	35.1
45-49	32.7	34.0	35.4	28.4
Std mean	45.6	45.6	45.6	45.8
χ^2 (6 DF)	34.9***	31.2***	30.9***	33.9***

Table 25 Effects of number of living children on the current use of contraception among exposed women (Jamaica)

Number of living children	Percentage of current users					
	Unadjusted	Adjusted up to:				
		Age (2)	Residence (3)	Current union status (4)	Education (5)	Partner's occupation (6)
0	33.2	30.5	28.7	27.7	24.1	23.5
1	33.7	30.4	29.6	29.0	26.8	26.3
2	51.0	48.5	47.4	47.3	46.7	46.1
3	44.6	42.9	42.1	42.2	42.9	42.7
4	52.9	51.6	51.9	52.5	54.4	53.8
5	56.0	57.5	58.1	58.5	60.1	60.4
6	53.7	57.1	58.3	59.4	61.0	61.8
7	51.2	58.3	60.0	60.5	62.3	63.2
8	58.8	64.8	68.1	68.8	70.8	72.3
9 +	43.7	54.2	57.9	57.8	60.6	62.6
Std mean	45.7	45.7	45.7	45.7	45.7	45.7
χ^2 (9 DF)	56.2***	68.6***	81.5***	88.1***	109.8***	117.1***

closer inspection of the level of use among women with fewer than six children suggests that the irregularity really occurs at parity two, where use is unexpectedly high (table 25).

As in Guyana, the proportion of women with eight children who were sterilized is very high (Country Report table 4.5.3) and this entirely accounts for the high level of overall use at this parity. This very high level of sterilization at parity eight⁶ and the high level of use of other contraceptive methods at parity two cannot be readily explained.

In general, adjustment for the other variables reduces the level of use among women with fewer children and increases it for those with larger families. This is because the women with smaller families include a disproportionate number who are young, better educated and higher status urban dwellers, all characteristics which are associated with a higher level of use.

The differences in use by family size are summarized by partial R. This measure reduces from 0.174 to 0.097 when adjustment is made for current age, indicating that about

45 per cent of the family-size differences are attributable to differences in age between parities.

Pattern of residence

In accordance with expectation, use is highest among urban/urban women, lowest among the rural/rural, and intermediate among those who have moved (most of them from rural to urban areas)(table 26). When adjustment is made for level of education, use is reduced for urban women and movers and increased for rural women, reflecting the fact that the less educated, with a low level of contraceptive use, predominate in rural areas. Adjustment for partner's occupation has the same effect, as once again the rural areas have a higher proportion of the lower status categories. On the other hand, rural women are more likely to have large families and consequently use would have been lower if the parity distribution had been the same for all areas.

Partial R is reduced by over 70 per cent when adjustment is made for current age, and by 95 per cent when there is further adjustment for partner's occupation and level of education, signifying that most of the differences in use by place of residence are attributable to these three variables.

⁶ One possible explanation with respect to the same phenomenon in Guyana is suggested in the chapter on that country.

Table 26 Effects of pattern of residence on the current use of contraception among exposed women (Jamaica)

Pattern of residence	Percentage of current users				
	Unadjusted	Adjusted up to:			
		Age (2)	Education (6)	Partner's occupation (5)	Living children (6)
Urban	54.2	54.3	51.7	50.5	50.4
Movers	49.3	48.6	48.3	47.3	48.5
Rural	40.1	40.7	41.7	42.9	42.0
Std mean	45.7	45.7	45.7	45.7	45.7
χ^2 (2 DF)	22.7***	19.0***	10.4**	4.8	7.8*

Table 27 Effects of current union status on the current use of contraception among exposed women (Jamaica)

Current union status	Percentage of current users			
	Unadjusted	Adjusted up to:		
		Age (2)	Education (4)	Living children (6)
Married	47.5	48.0	46.6	45.7
Common law	42.1	41.2	43.0	43.1
Visiting	47.8	48.2	47.9	49.2
Std mean	45.7	45.7	45.7	45.8
χ^2 (2 DF)	5.0	7.9*	2.8	3.9

Current union status

The level of contraceptive use is virtually the same for married and visiting women but is much lower for the women in common law relationships. The difference in use between married and common law wives in part reflects the fact that better educated women, with their relatively higher use of contraception, are more likely to be married. Married women are somewhat better educated and have more children than visiting women; but for these differences, use would have been much higher among the latter group (table 27).

However, nearly three-quarters of the differences in use between the union types, as summarized by partial R, can be attributed to differences in age structures and most of the remainder to differences in level of education.

Level of education

The level of contraceptive use increases with education and is very much higher among women with a completed

secondary education than for those who are less well educated. The differential between the two lowest education groups is reduced as each variable is controlled, and when final adjustment is made for parity use is slightly higher for the lowest group (table 28).

Adjustments for pattern of residence, current union status and partner's occupation all reduce the level of use of women with a secondary education since these better educated women include a relatively large proportion of the high-use categories of these variables.

The differences in use by partner's occupation are primarily attributable to age, but also to residence, union status and education. When adjustment is made for all these variables partial R is reduced from 0.140 to 0.009.

Partner's occupation

In accordance with expectation, the level of current use is highest for women whose partners were professional and related workers, much lower for sales and service workers and for manual workers, and very much lower again for

Table 28 Effects of level of education on the current use of contraception among exposed women (Jamaica)

Level of education	Percentage of current users					
	Unadjusted	Adjusted up to:				
		Age (2)	Residence (3)	Current union status (4)	Partner's occupation (5)	Living children (6)
Prim. up to 5 yr	37.8	38.3	39.4	39.8	40.7	41.8
Prim. 6-7 yr	40.5	40.7	41.6	42.1	42.8	40.2
Prim. 8 yr	46.0	45.4	45.7	45.8	45.9	44.4
Sec. - incomplete	47.3	48.8	46.7	46.1	46.0	47.6
Sec. - complete	61.4	61.3	59.3	57.9	55.4	62.4
Std mean	45.7	45.7	45.7	45.7	45.7	45.7
χ^2 (4 DF)	33.7***	30.8***	21.4***	16.3**	9.4*	24.1***

Table 29 Effects of partner's occupation on the current use of contraception among exposed women (Jamaica)

Partner's occupation	Percentage of current users					
	Unadjusted	Adjusted up to:				
		Age (2)	Residence (3)	Current union status (4)	Education (5)	Living children (6)
Prof./admin. and clerical	58.2	57.3	55.8	54.7	51.8	53.2
Manual	45.4	45.2	45.0	45.3	45.9	46.2
Sales and service	47.4	47.9	46.8	46.5	46.3	47.3
No work and agriculture	34.8	35.8	38.2	38.6	39.7	36.8
Std mean	45.7	45.7	45.7	45.7	45.7	45.7
χ^2 (3 DF)	36.1***	29.8***	17.6***	13.9**	7.1	14.1**

those whose partners were agricultural workers.

The low level of contraceptive use among wives of agricultural workers reflects in part their rural residence and their relatively low level of education, while the influence of urban residence and higher education has contributed to the higher level of use among wives of professional and related workers and sales and service workers (table 29). On the other hand, large families are more prevalent among agricultural than among other workers, and the level of use among the wives of these workers is higher for this reason than it otherwise would be.

The influence of these other independent variables on the differences in use by partner's occupation is demonstrated by the reduction in the summary measure partial R from 0.140 to a negligible 0.009 when age, residence, union status and education are controlled for.

The explanatory power of the independent variables

The number of living children explains three per cent of the total variance in contraceptive use, while partner's occupation, age and level of education explain about two per cent each. Current union status has little explanatory power and residence somewhat more. When adjustment is made for the other variables, excluding parity, the explanatory power of residence, education and partner's occupation is less, indicating the association between these independent variables. The explanatory power of current age is not much different, however, when the other variables, including parity, are controlled for (table 30).

4.4 THE DESIRE TO CEASE CHILDBEARING AND CONTRACEPTIVE USE

In section 1 we pointed out that in Jamaica, as in the other two countries covered by this study, the desire to cease childbearing varies negatively with the existing family size, regardless of the background characteristics of the women (see tables 3.1.3A–E of the Jamaica Fertility Survey Country Report). It is true that other factors, for example variations in the total number of children desired, might also impact on fertility levels, but attention here is confined to whether the women's contraceptive behaviour is consistent with their desire to cease childbearing.

Table 31 shows the per cent distribution of all exposed women according to whether their contraceptive practice is consistent with their wishes concerning future childbearing. From this table, in which the proportions are standardized for number of living children, it is seen that 79 per cent of the women show consistency between contraceptive use and the desire to cease childbearing, including 19 per cent who were trying to delay their next pregnancy. Overall consistency of contraceptive use with responses concerning future childbearing is greatest for the 20–29 group and declines as age increases, and is also greater for rural than for urban women. Common law women had the highest proportion acting consistently with their expressed desires for future births, followed by married and visiting women in that order. However, common law women had the lowest level of contraceptive use, a position they retained even when the effects of age distri-

Table 30 Per cent of variance (R^2 per cent) of contraceptive use explained by each independent variable adjusted for indicated variables (Jamaica)

Variable	Per cent of variance						
	Unadjusted	Adjusted up to:					
		Age	Residence	Current union status	Education	Partner's occupation	Living children
Current age	1.9	—	1.7	1.8	1.7	1.5	1.7
Pattern of residence	1.2	1.0	—	1.0	0.6	0.3	0.4
Current union status	0.2	0.4	0.4	—	0.2	0.1	0.2
Level of education	1.8	1.7	1.1	0.9	—	0.5	1.2
Partner's occupation	2.0	1.6	0.9	0.7	0.4	—	0.7
Number of living children	3.0	3.6	4.2	4.6	5.6	5.9	—
All variables: 10.5							

Table 31 Per cent distribution of exposed women according to consistency of contraceptive behaviour with desire to cease childbearing, by selected characteristics, standardized^a for number of living children (Jamaica)

Selected characteristics	Exposed women		Behaviour consistent with:				Behaviour inconsistent
	Number of women	Overall percentage for whom contraceptive behaviour consistent with fertility prefs.	Desire to cease childbearing			Spacing	Want no more and not using
			Sub-total	Want no more and using	Want more and not using	Want more and using	
All women	1925	78.7	59.6	26.4	33.2	19.1	21.4
<i>Current age (years)</i>							
Under 20	200	*	*	*	*	*	*
20–29	763	85.0	56.9	19.7	37.2	28.1	14.9
30–39	572	79.6	68.9	35.0	33.9	10.7	20.4
40–49	390	60.3	57.6	26.3	31.3	2.7	39.7
<i>Type of residence</i>							
Urban	954	80.1	58.1	29.9	28.2	22.0	19.9
Rural	971	77.9	62.5	23.4	39.1	15.4	22.1
<i>Current union status</i>							
Married	731	75.4	58.7	28.5	30.2	16.7	24.6
Common law	660	81.6	64.3	24.2	40.1	17.3	18.4
Visiting	534	79.4	57.7	26.3	31.4	21.7	20.7
<i>Level of education</i>							
Prim. under 6 yr	252	75.8	62.4	20.0	42.4	13.4	24.1
Prim. 6–7 yr	412	75.4	64.5	26.2	38.3	10.9	24.7
Prim. 8 yr	796	82.1	62.2	26.8	35.4	19.9	17.9
Sec.	465	73.6	53.4	31.5	21.9	20.2	26.4
<i>Current/most recent occupation</i>							
Prof./administrative and clerical	361	79.6	55.0	34.5	20.5	24.6	20.4
Sales and service	871	79.4	61.8	26.7	35.1	17.6	20.5
Manual	273	77.4	62.0	28.7	33.3	15.4	22.6
No work and agriculture	406	76.6	63.0	18.8	44.2	13.6	23.3

^aDistribution of all exposed women used as standard.

*Zero cells preclude meaningful standardization.

bution had been eliminated by standardization (appendix B (p 47)). But the desire to cease childbearing altogether was lower (43 per cent) than that of either married or visiting women (53 and 47 per cent respectively), accounting for the generally high level of 'consistency' among this group.

The overall level of consistency increases with a rise in the level of education for women who had no secondary education, but among women with secondary education consistency is lowest. This is somewhat surprising in view of the high level of contraceptive prevalence among this most educated group, and is a reflection of the very low percentage of the group which wanted more children. Indeed, as many as 58 per cent of the secondary group wanted to cease childbearing altogether (compared with 44–51 per cent of the other groups) despite the fact that nearly three-quarters of them were under 30 years of age and more than one-half had fewer than two children (see appendix A). Among those who wanted more children, use is positively associated with level of education.

Spacing as a motivation for current contraceptive use naturally declines with an increase in age. It is somewhat more important to urban than to rural women; and highest among visiting women – no doubt because of the preponderance of young women engaged in this type of union. The relative importance of spacing to current contraceptors is associated with level of education in the sense that there is a sharp difference in the prevalence of spacing between women in the two lower primary groups and in the upper primary and secondary groups. Despite the fact that overall consistency of contraceptive behaviour varies little between the four occupation groups, there are marked differences between them in respect of each of the three types of consistent behaviour. At the two extremes are: (1) the professional group, which most wants to cease childbearing yet among which the prevalence of spacing was comparatively high; and (2) the no work and agriculture group, for which the percentage want no more and using is very low, slightly more than one-half that of professional group, while the percentage want more

and not using is more than twice that of the professional group. In general, therefore, contraceptive behaviour appears to be most consistent with reproductive desires among women whose economic activity might be most affected by a pregnancy.

But it is the risk of unwanted pregnancy which will have a telling effect on contemporary and near-future levels of fertility. As stated, we consider as women at risk of unwanted pregnancies those who say they want no more children but are not currently practising contraception — as many as 21 per cent of all exposed women fall in this group.

The risk of unwanted pregnancies increases with the age of the women. Among women aged 40–49 years of age, however, the proportion at such risk is very much higher than for younger women. The risk is greater for rural than for urban women and highest among married women. It is uniformly high for all education groups except those with eight years of primary schooling, and, surprisingly, highest of all among the most educated women. It is also greater for the no work and agriculture group followed closely by manual workers.

The groups for which the proportions at such risk exceed the over-all proportion by more than ten per cent are: women aged 40–49, married women, all education groups except those with eight years of primary education, and women in the no work and agriculture occupation groups. If for any reasons selectivity has to be practised in choosing target groups for family planning campaigns, these are the groups that should have the highest priority. However, the risk is fairly widespread over all socio-economic groups.

4.5 THE INHIBITING EFFECT OF CONTRACEPTION ON FERTILITY

The three intermediate variables specifically taken account of in the analysis as inhibitors of fertility are: (1) celibacy; (2) contraception; and (3) post-partum infecundability. If none of these variables were operative, and allowing for the relatively small impact of other factors (see general appendix), then the fertility of the women of Jamaica would be 13.1 children per woman. This total fecundity rate is, however, reduced by about two-thirds by the combined effect of the above intermediate variables, so that

Table 32 Relationships between the fertility inhibiting effects of intermediate fertility variables and various measures of fertility (Jamaica)

(a)	Total fertility rate (TFR)	4.217
(b)	Total marital fertility rate (TM)	5.948
(c)	Natural fertility rate (TN)	9.471
(d)	Total fecundity rate (TF)	13.082
(e)	TN minus TFR	5.254
(f)	Percentage of (e) due to:	
	(1) Celibacy	32.95
	(2) Contraceptive use	67.05
(g)	TF minus TFR	8.865
(h)	Percentage of (g) due to:	
	(1) Celibacy	19.53
	(2) Contraceptive use	39.74
	(3) Post-partum infecundability	37.73
	(4) Other factors ^a	3.00

^aOther factors include: frequency of intercourse, incidence of spontaneous abortion or stillbirth and duration of the fertile period.

the total fertility rate stands at 4.2 children per woman (table 32).

Of the three intermediate variables, celibacy contributed least to the difference between the TF and the TFR, about 20 per cent being attributed to this factor. Contraception and post-partum infecundability contributed much more to the decline (40 and 38 per cent respectively).

The index of contraception (C_c), which is the index with which we are particularly concerned in this study, is calculated as 0.628 in a scale from zero (where all married women are using 100 per cent safe contraception) to one (where no married women are contracepting). This was the combined effect of the average level of contraceptive use (37 per cent), average use effectiveness (0.875) and a sterility correcting factor (see general appendix). The index of celibacy (0.709) and that of post-partum infecundability (0.739) were more or less equal.

A simple indication of the effect of contraception can also be found by noting that if the levels of post-partum infecundability and celibacy remained as observed but none of the women of the country practised contraception, then the level of fertility would be about 8.0 children per woman, which is 90 per cent higher than the observed total fertility rate.

Appendix A—Distribution of Exposed Women

Per cent distribution of exposed women according to selected characteristics

Selected characteristics	No of exposed women	Current age				Number of living children			
		Under	20–29	30–39	40–49	Under 2	2–3	4–5	6+
All women	1925	10	40	30	20	31	30	18	22
<i>Type of residence</i>									
Urban	954	11	45	29	15	35	34	18	13
Rural	971	10	35	30	25	27	25	18	30
<i>Current union status</i>									
Married	731	1	26	40	34	19	31	18	32
Common law	660	9	47	29	15	27	31	21	21
Visiting	534	26	50	16	8	52	27	13	8
<i>Level of education</i>									
Prim. under 6 yr	252	3	24	37	37	23	21	19	37
Prim. 6–7 yr	412	8	34	32	27	21	27	22	30
Prim. 8 yr	796	9	40	33	19	25	32	21	23
Sec.	465	20	53	18	8	54	33	9	4
<i>Partner's occupation</i>									
Prof./administrative and clerical	296	11	50	29	10	43	35	14	8
Sales and service	262	12	43	25	20	36	34	14	15
Manual	932	11	42	29	18	31	30	20	19
No work and agriculture	435	8	25	34	33	20	23	17	41
<i>No of living children</i>									
Under 2	592	28	48	15	9				
2–3	573	6	56	25	13				
4–5	341	1	37	44	19				
6+	419	0	7	46	47				
<i>Current age (years)</i>									
Under 20	200					81	17	1	0
20–29	763					37	42	16	4
30–39	572					16	25	26	33
40–49	390					14	19	17	51

NOTE: Percentages may not add to 100 because of rounding.

Appendix B—Exposed Women and Contraceptive Use, by Age and Selected Characteristics

Percentage of exposed women who were currently using any contraceptive method (including sterilization), by current age and selected characteristics of the women (N in parentheses)

Selected characteristics	Total	Current age				Standardized for current age ^a
		Under 20	20–29	30–39	40–49	
All women	45.4(1925)	37.5(200)	47.3(763)	52.4(572)	35.6(390)	45.4
<i>Number of living children</i>						
Under 2	33.3(592)	35.0(163)	39.6(285)	21.1(90)	14.8(54)	28.6
2–3	48.3(573)	48.6(35)	53.1(322)	49.3(142)	25.7(74)	45.9
4–5	54.3(341)	50.0(2)	48.8(125)	64.4(149)	41.6(65)	52.1
6 +	51.6(419)	(0)	51.6(31)	60.2(191)	43.1(197)	*
<i>Type of residence</i>						
Urban	50.8(954)	43.3(104)	52.1(428)	59.1(276)	37.0(146)	52.2
Rural	40.2(971)	31.3(96)	41.2(335)	46.3(296)	34.8(244)	41.4
<i>Current union status</i>						
Married	47.6(731)	60.0(5)	55.1(187)	51.4(292)	37.2(247)	50.9
Common law	42.4(660)	36.8(57)	41.0(310)	52.8(193)	30.0(100)	41.8
Visiting	46.3(534)	37.0(138)	49.2(266)	55.2(87)	39.5(43)	47.7
<i>Level of education</i>						
Prim. under 6 yr	36.9(252)	57.1(7)	40.0(60)	42.4(92)	28.0(93)	40.1
Prim. 6–7 yr	40.3(412)	37.5(32)	36.0(139)	49.6(131)	35.5(110)	40.1
Prim. 8 yr	46.1(796)	39.1(69)	44.3(316)	54.8(263)	37.8(148)	45.6
Sec.	53.5(465)	34.8(92)	59.3(248)	60.5(86)	46.2(39)	54.4
<i>Partner's occupation</i>						
Prof./admin. and clerical	58.5(296)	40.6(32)	62.6(147)	64.4(87)	40.0(30)	56.3
Sales and service	46.6(262)	34.4(32)	46.9(113)	52.3(65)	46.2(52)	47.1
Manual	45.4(932)	42.6(101)	45.7(394)	52.6(272)	34.5(165)	45.2
No work and agriculture	36.1(435)	22.9(35)	33.0(109)	45.3(148)	32.2(143)	34.4

^aDistribution for all exposed women taken as standard.

*Zero cells prevent standardization.

Appendix C—Exposed Women and Contraceptive Use, by Number of Children and Selected Characteristics

Percentage of exposed women who were currently using any contraceptive method (including sterilization), by number of living children and selected characteristics of the women (N in parentheses)

Selected characteristics	Total	Number of living children				Standardized ^a for number of living children
		Under 2	2–3	4–5	6 +	
All women	45.4(1925)	33.3(592)	48.3(573)	54.3(341)	51.6(419)	45.4
<i>Current age (years)</i>						
Under 20	37.5(200)	35.0(163)	48.6(35)	50.0(2)	— (0)	*
20–29	47.3(763)	39.6(285)	53.1(322)	48.8(125)	51.6(31)	47.9
30–39	52.4(572)	21.1(90)	49.3(142)	64.4(149)	60.2(191)	45.7
40–49	35.6(390)	14.8(54)	25.7(74)	41.6(65)	43.1(197)	29.0
<i>Type of residence</i>						
Urban	50.8(954)	38.3(332)	56.7(326)	56.8(169)	60.6(127)	51.9
Rural	40.2(971)	26.9(260)	37.2(247)	51.7(172)	47.6(292)	38.9
<i>Current union status</i>						
Married	47.6(731)	30.4(138)	50.2(225)	56.3(135)	50.2(233)	45.2
Common law	42.4(660)	23.4(175)	45.4(205)	47.5(139)	56.7(141)	41.5
Visiting	46.3(534)	40.9(279)	49.7(143)	64.2(67)	42.2(45)	47.9
<i>Level of education</i>						
Prim. under 6 yr	36.9(252)	12.1(58)	38.9(54)	42.6(47)	48.4(93)	33.4
Prim. 6–7 yr	40.3(412)	22.4(85)	34.5(113)	51.1(90)	50.0(124)	37.1
Prim. 8 yr	46.1(796)	30.1(196)	45.8(251)	57.9(164)	53.0 (185)	44.7
Sec.	53.5(465)	44.3(253)	65.8(155)	60.0(40)	64.7(17)	57.9
<i>Partner's occupation</i>						
Prof./admin. and clerical	58.5(296)	52.4(126)	64.4(104)	56.1(41)	68.0(25)	60.0
Sales and service	46.6(262)	27.4(95)	57.3(89)	56.8(37)	60.0(40)	48.6
Manual	45.4(932)	30.1(286)	46.8(280)	57.7(189)	54.8(177)	45.3
No work and agriculture	36.1(435)	22.4(85)	28.0(100)	43.8(73)	44.1(177)	32.6

^aDistribution for all exposed women taken as standard.

*Zero cells prevent standardization.

5 A Comparative Summary

5.1 CURRENT USE OF CONTRACEPTION

The proportion of exposed women who were current users of contraceptives was highest in Trinidad and Tobago (60 per cent for both Indians and non-Indians), next highest in Jamaica (45 per cent) and lowest for Guyanese Indians and non-Indians (39 and 35 per cent respectively).

It is likely that level of contraceptive use is associated with level of economic development in the three countries. Thus the ranking of the three countries according to the per capita gross domestic product (GDP) is the same as that of the level of contraceptive use. For example, in 1977 Trinidad and Tobago (61 per cent of exposed women were currently using) had a per capita of US \$3117 as compared with US \$1554 for Jamaica (45 per cent currently using) and US \$540 for Guyana (37 per cent using).⁷

The level of use is also related to the existence of a family planning programme in that use is higher in Trinidad and Tobago and in Jamaica, which have national programmes, than in Guyana, where the Government has no official programme and does not support family limitation (as opposed to child spacing). On the other hand, both the voluntary and official programmes were in existence in Jamaica before their counterparts in Trinidad and Tobago. Furthermore, there is considerably more aggressive advertising of contraceptives and a more efficient family planning service in the former country, yet current use is very much higher in Trinidad and Tobago.

5.2 CURRENT USE OF SPECIFIC CONTRACEPTIVE METHODS

There is considerable variation between the countries in the use of specific methods, except that the pill is the most widely used method among exposed women in all three countries. The second most 'popular' method in both Guyana and Jamaica is female sterilization — indeed, in Guyana, the proportion of women who have been sterilized for contraceptive purposes is not much lower than the proportion using the pill. In Trinidad and Tobago, however, it is the condom which is placed second after the pill in the ranking of methods; and the proportion of sterilized women only exceeds the proportion using the intra-uterine device (IUD). Contraceptive injections are used by a substantial number of women only in Jamaica, while the IUD as a method of contraception is popular only in Guyana.

Sterilization, as the only irreversible method, and important only among older women, merits some special attention, for the proportions vary considerably. In Guyana and Jamaica 62 and 55 per cent respectively of current

users aged 40–49 years have been sterilized, while the comparable proportion in Trinidad and Tobago is only 22 per cent. Since the method is irreversible, the differences in the above proportions are, to some extent, a result of differences in the length of time that the service has been available. In the three countries sterilization is performed in the Governments' clinics as well as by private practitioners, though no statistics are available on the latter. The service was available in Guyana and Jamaica, however, before Trinidad and Tobago, and, moreover, the programme and the advertising of it in the last mentioned country has always been quite restrained. A point of interest is that despite the large differences between the countries in the proportion using among women with a secondary education, the proportion who were sterilized was the same (five per cent) for each of the countries.

Sterilization is a method especially preferred by rural women and Indians in Guyana, and wholly accounts for Indians having the higher level of use. But among urban women too, Indians show a greater preference for sterilization than do non-Indians. There are no doubt several reasons for this ethnic difference, among which could be the greater stability of Indian unions.

There is also a fair amount of variation in the relative importance of the other individual methods among subgroups in the three countries. For example, in Guyana the condom is used more by urban than by rural women, but in both Jamaica and Trinidad and Tobago it is more popular among rural women. Furthermore, in the latter country this method is used more by Indians, while in Guyana it is non-Indians who are the greater users. The condom is also used more by women in a visiting union than by those in the other two union types in all three countries. This is probably due in part to the fact that in visiting unions sexual intercourse takes place with less regularity than in the cohabiting union types, and hence there is less need for the more permanent methods (eg IUD, sterilization) or for methods requiring systematic application or preparation.

In Jamaica, the only one of the three countries in which injections are widely used, it is the common law women who make the greater use of them.

Despite the above dissimilarities in use of particular methods, there are areas of similarity which remain. The most notable of these are a positive association between level of education and use of the contraceptive pill and a negative association between incidence of sterilization and educational achievement.

5.3 DIFFERENTIALS IN THE CURRENT USE OF CONTRACEPTION

We next compare the patterns of relationship between selected characteristics of the women (or their partners)

⁷ See UN *Year Book of National Accounts Statistics 1980* vol II (International Statistics), table 1A.

and contraceptive use in the three countries. For this purpose, multiple regression data as set out in tables 2–8 in the country chapters are used. The comparisons, therefore, are between the five subpopulations: Indians and non-Indians of Guyana and Trinidad and Tobago, and the total population of Jamaica.

Among the three countries in this study, it may be said that current contraceptive use among exposed women was reasonably widespread only in Trinidad and Tobago. With the model chosen, the demographic variables current age and number of living children influence contraceptive use more convincingly than do the explanatory, socio-economic factors, and for several populations the number of living children appears to have a more powerful influence than does current age.

Current age

In general, the level of current contraceptive use (unadjusted) increases with age at first, reaches a maximum in the late twenties or the thirties and then declines, the level of use being lower among the oldest than among the youngest women. However, the Indian population of Guyana differs notably from this pattern. For this subpopulation, after reaching a maximum at age 30–34 use falls slightly but then remains unchanged. As a consequence, the level of use among the oldest women is much higher than among all women under 30 years of age. This is the result of the very high level of sterilization in this subpopulation.

In as much as the younger women are better educated than others and because education is likely to have a positive influence upon contraceptive use, it would be expected that contraceptive use would be lower among younger women and higher among older women if the age groups did not differ in their educational levels. This is the case for Jamaica, and for Guyanese Indians, and to a lesser extent for Guyanese non-Indians. It is not true, however, for the two subpopulations of Trinidad and Tobago, where adjustment for education has little effect. This is because the impact of education on CUSE is very much less for Trinidad and Tobago than for the other two countries.

Number of living children

Because we use a detailed distribution of number of living children there is, understandably, some random fluctuation in the level of contraceptive use by family size, but in general use is highest for women with two children, lower for those with larger families and least for those with fewer than two children. When we adjust up to the level of education, the pattern becomes more regular in all subpopulations, contraceptive use rising with family size up to six living children for the two Guyanese subpopulations and up to eight living children for the remainder, with only a few exceptions.

Comparing the subpopulations when adjusted up to level of education, we find that, as for the crude rates, contraceptive use is very much higher for the two Trinidad and Tobago subpopulations than for those of Guyana and Jamaica for all family sizes, and for the Jamaica population than for the two Guyanese subpopulations at all sizes of family. In the latter case, however, the differences for women with fewer than two children are small.

Pattern of residence

The level of contraceptive use did not differ much between women always living in urban areas, those always living in rural areas and movers in the two subpopulations of Trinidad and Tobago, probably because this is the smallest of the three countries in terms of area and the one with the best internal communications. Differences between these three residence groups were greatest in Jamaica.

As we would expect, particularly in Guyana and Jamaica, contraceptive use was highest among urban women and lowest among rural women at all levels of adjustment. Moreover, adjustment for the other variables did not have much effect.

Current union status

Harewood (1983) has shown, from the data in these fertility surveys, that by comparison with the other two union types, women currently in a common law union are of lower socio-economic status. It is not surprising, therefore, that for the two non-Indian populations and for Jamaica contraceptive use was very much lower for women in a common law union than for the other two union types, between which there was no great difference.

In the two Indian subpopulations, contraceptive use was higher among married women than among others.

Level of education

In all five subpopulations the level of contraceptive use increases with education, except for the two subpopulations of Guyana, where use was higher among women with a complete primary education than among those with an incomplete secondary education. In the case of the Indian population, this is because of the high proportion of young women in the latter group. The pattern is maintained for non-Indians, however, when adjustment is made for age and all the other variables used in the regression analysis. It is possible that this in some measure reflects a reduced confidence in their ability to cope and a reduced motivation on the part of women who failed to achieve their secondary education goal.

When adjustment is made for all the variables in the equation we find some interesting differences in the impact of education in the different subpopulations. In Jamaica, as in the two subpopulations of Guyana, the level of use is very much higher for women with a complete secondary education than for women with less education, while the differences between the subgroups with less education are relatively small. In the two subpopulations of Trinidad and Tobago, on the other hand, the differential between the two secondary education groups was less than between the incomplete secondary and the least educated, especially among the Indians.

5.4 THE INHIBITING EFFECT OF CONTRACEPTION ON FERTILITY

The fecundity rate (TF) which would exist if there were no inhibiting influence from celibacy, contraception, postpartum infecundability or other factors ranges from 10.9

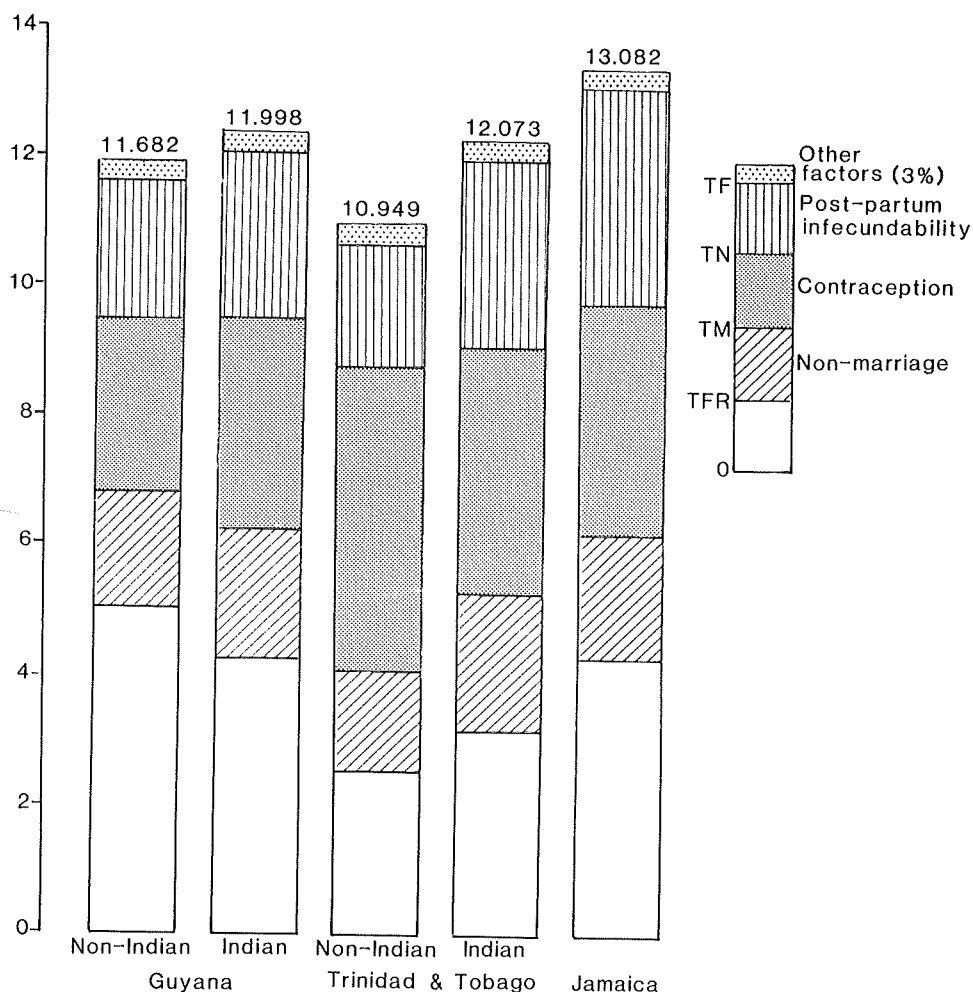


Figure 1 Relationships between the fertility inhibiting effects of intermediate fertility variables and various measures of fertility

for non-Indians of Trinidad and Tobago to 13.1 for Jamaica. The TFs would be expected to be very much the same for these countries; indeed, Bongaarts (1980) found the TFs 'rather stable' for the 30 developed and developing countries studied. The range in TFs of about two children probably indicates differential importance of abortion and unreported contraceptive use, between the populations.

The total fertility rates (TFRs), however, differ appreciably. Not surprisingly, the population with the lowest level of contraceptive use – Guyanese non-Indians – had the highest TFR, while the populations with the highest CUSE – Indians and non-Indians of Trinidad and Tobago – had the lowest TFRs. While contraceptive use was somewhat higher in Jamaica than among Guyanese Indians, the TFR of the former population is slightly higher than that of the latter.

The three intermediate variables combined had the greatest effect on the Indian population of Trinidad and Tobago and the least effect on the non-Indians of Guyana, lowering their total fecundity rates by 74 and 58 per cent respectively. The TFs of the other three populations were reduced by 66–70 per cent.

In every population contraceptive use had the greatest inhibiting effect of these three intermediate variables. However, the relative effect was much greater for Trinidad

and Tobago non-Indians (56 per cent) than for the other populations (39–43 per cent). On the other hand, the effect of post-partum infecundability was very much higher for the Jamaica population (38 per cent) and very much lower for Trinidad and Tobago non-Indians (22 per cent) than for the other three populations (30–32 per cent). The third intermediate variable – the proportion married – had a much greater inhibiting impact on the two Guyanese populations (27 per cent) than on the others (19–22 per cent). The relative effects of the intermediate variables in each of the three countries are shown in figure 1.

These figures, along with the derived indexes, show that the effect of contraception was highest for the two Trinidad and Tobago populations ($C_c = 0.525$ and 0.567), lowest for Guyanese non-Indians ($C_c = 0.722$) and intermediate for Jamaica and Guyanese Indians ($C_c = 0.628$ and 0.655). This largely reflects the different levels of use among women currently married, as this was highest for the two Trinidad and Tobago populations and lowest for the Guyanese non-Indians.

The high level of use in Trinidad and Tobago was partly offset by the relatively low average use effectiveness (e), which in turn reflects the relatively low proportions of women sterilized in this country. Use effectiveness was

highest in Jamaica and among Guyanese Indians. As was pointed out in the discussion of the methods most used, however, a fair proportion of this differential in use effectiveness between the countries may be illusory in that the perfect method (sterilization) is in fact used mainly by older women, many of whom would no doubt have a com-

paratively low risk of childbirth even if they were not contracepting. Indeed, if we could adjust for superfluous contraception in this sense, the level of use by the two Trinidad and Tobago populations might be even larger relative to the others, because of the low level of sterilization here.

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General Appendix—The Method of Analysing the Fertility Inhibiting Effects of Contraceptive Use

The approach developed by Bongaarts, described in Bongaarts (1978) and further illustrated in Bongaarts (1980), has been used for the analysis.

In his model, Bongaarts selects as the principal intermediate variables which inhibit fertility:

- (1) delayed marriage (and marital disruption);
- (2) the use of contraception;
- (3) the use of abortion; and
- (4) post-partum infecundability induced by breastfeeding (or abstinence).

In the present analysis we do not take explicit account of abortion because of the unavailability of reliable data from the surveys or from alternative sources. The assumption is that no births were averted by abortion, which is not true, but unavoidable in the absence of the data. While we retain the term 'marriage', it is used in every case to include both legal and non-legal sexual unions, the latter including cohabiting unions (common law) and non-cohabiting unions (visiting). The terms 'marriage' and 'union status' or 'union type' are used interchangeably.⁸

Bongaarts' model uses indices of proportions married, contraception, abortion (where data are available) and post-partum infecundability to calculate, from the total fertility rate at a specified period, the marital and natural fertility rates and the total fecundity rate. The differences between these rates then form the basis for calculating the effect of each of the intermediate variables in reducing the total fertility rate.

The following example based on data pertaining to Indians in Guyana illustrates the methodology.

Calculation of the indices used in determining the relationship between the intermediate fertility variables and fertility

1 Index of proportion married:

$$C_m = \frac{\text{TFR}}{\text{TM}} = \frac{\sum f(a)}{\sum f(a)/m(a)}$$

where $m(a)$ is the proportion of women currently married, by age, and $f(a)$ is a schedule of age-specific fertility rates.

For Indians in Guyana 1974, the estimated values for $f(a)$ and $m(a)$ are:

Age group	$f(a)$	$m(a)$	$f(a)/m(a)$
15–19	75.7	0.217	304.3
20–24	272.7	0.672	405.8
25–29	221.1	0.850	260.1
30–34	117.1	0.922	127.0
35–39	72.7	0.879	82.7
40–44	32.3	0.848	38.1
45–49	5.5	0.796	6.9
	TFR = 3.986		TM = 6.125

and therefore

$$C_m = \frac{3.986}{6.125} = 0.651.$$

The value of the age-specific marital fertility rate for the 15–19 age group is estimated as 75 per cent of the age-specific marital fertility rate for the 20–24 group, because the direct estimate of $f(15-19)/m(15-19)$ is considered unreliable, given the low value (0.217) of $m(15-19)$.

2 Index of contraception:

$$C_c = 1 - s \times e \times u$$

where u is the average of age-specific use rates, e is the average use effectiveness of contraception and s is a sterility correction factor. The sterility correction factor is introduced to compensate for the fact that women may become sterile before they reach menopause for reasons other than contraceptive sterilization. In addition, both motivation and reliance on sterilization are greater among older women, resulting in a slight increase with age in the effectiveness of contraception. The correction factor used is:

$$s = \frac{\sum F_n(a)/f(a)}{\sum F_n(a)}$$

where $F_n(a)$ is the age-specific natural fertility rate among all women and $f(a)$ is the age-specific proportion of all women that is fecund.

However, as Bongaarts points out, the incidence of sterility probably varies little among populations, and the sterility correction factor used is 1.15, calculated from the reported age-specific prevalence from a number of WFS surveys (see section 1.2, footnote 1) and used by Bongaarts in his illustrative analysis based on the data for Sri Lanka 1975.

⁸ We do not take account here of the differences in fertility between the different union types. This is dealt with exhaustively in Harewood (1984).

For Guyanese Indians, $u = 0.330$, $e = 0.908$, so that $C_c = 1 - 1.15 (0.330 \times 0.908) = 0.655$.

3 Index of post-partum infecundability:

$$C_i = \frac{20}{18.5 + i}$$

where i is the mean duration of post-partum infecundability, relating women currently breastfeeding to births in the last 24 months. For Guyanese Indians, $C_i = 0.795$.

Finally, it should be mentioned that Bongaarts lists several other intermediate fertility variables which could affect fertility levels. These are: frequency of intercourse, spontaneous intra-uterine mortality (ie the incidence of spontaneous abortion or stillbirth) and duration of the fertile period. These along with lactational infecundability are termed 'natural marital fertility factors', that is they are independent of the number of children ever born. These

three natural marital fertility factors are shown to be not very important determinants of variations in fertility levels, being together responsible for about three per cent of these. In other words, the four indices used in the Bongaarts model account for 97 per cent of the difference between the total fertility rate and the fecundity rate.

As has been stated, the present analysis excludes the index of abortion for reasons already given. It also takes no account of post-partum abstinence, which when combined with breastfeeding over a long period, could conceivably be the greater of the two factors rendering a women infecund. The data collected in the three Fertility Surveys do not allow the quantification of the impact of post-partum abstinence but it appears unlikely that abstinence is practised over a sustained period in the absence of breastfeeding. For this reason, it is believed that post-partum abstinence is not an important factor in determining fertility levels in the Caribbean and its omission from the computation of these levels will not have affected the calculations to any significant extent.

