TRANSITIONAL EFFECTS ON THE TIMING OF FAMILY FORMATION: A COMPARATIVE CASE STUDY OF THE FIJIAN AND INDIAN POPULATIONS OF FIJI

Ethnicity has been found to have an important effect on fertility behaviour throughout the developing world. While most studies of ethnic differentials have focused on the level of fertility, relatively little attention has been paid to differentials in the timing of family formation, defined by age at marriage, age at first birth and the first birth interval. The timing of the onset of childbearing contributes to fertility and population growth both directly and indirectly through its influence on the spacing of subsequent births (Bumpass et al. 1978; Trussell and Menken 1978).

Ethnic differentials in fertility behaviour have often been observed during the course of fertility transition (e.g., Hirschman and Rindfuss 1980; Chamie 1981; Hirschman 1985). Through a variety of mechanisms, theories of transition relate fertility decline to socio-economic change (e.g., Easterlin 1978; Becker 1981; Caldwell 1982; Cleland and Wilson 1987). The different responses to change and their timing and speed result in different patterns of fertility decline in different groups or populations (Freedman 1979; Caldwell 2001). In many populations, most of the postponement of childbearing is mediated through marriage (e.g., Hirschman and Rindfuss 1980; Hirschman 1985). The postponement of marriage has been shown to be an important factor in the fertility transition in many developing countries, especially in the early years of the decline (Cho and Retherford 1973; Mauldin 1981). Socio-economic change leads to the postponement of marriage through the erosion of parental and societal controls over sexual activity and reproduction, which in traditional societies are achieved largely through arranged and often early marriage, and to the rise of 'love marriage' characterised by self-selection of partner and later age at marriage

(Lesthaeghe 1980; McDonald 1981; Caldwell 1982; Cheung et al. 1985). Socio-economic factors, notably the education of females, play an important role in delaying marriage and first birth (Hirschman 1985; Singh et al. 1992; Nath et al. 1999; Zheng 2000; Gupta and Mahy 2003). However, love marriage increases coital frequency and hence may reduce the first birth interval (Rindfuss and Morgan 1983).

Previous studies of fertility behaviour have often sought to explain ethnic and religious differentials in terms of one of four hypotheses. Briefly, the minority group hypothesis focuses on the insecurities of a minority group: it is hypothesised that if the group seeks acculturation and upward social mobility their fertility will be limited, but if acculturation is not sought their fertility will be relatively high so as to secure greater numerical strength (Goldscheider 1971). The norms hypothesis, or in the context of religion the particularised theology hypothesis, holds that cultural norms and religious doctrines lead to differentials in fertility through their influence on fertility-related behaviour such as contraception and abortion, while the characteristics hypothesis would explain ethnic differentials entirely in terms of demographic and socio-economic composition (Goldscheider 1971). These three hypotheses are not exclusive but are formulated as if in isolation. The fourth hypothesis, the interaction hypothesis, combines the characteristics and norms hypotheses so as to allow for different speeds of response to modernisation according to the effects of group cultural or religious norms (Chamie 1981). This hypothesis is better suited to studies of transitional fertility behaviour. As Knodel et al. (1999) have pointed out, however, the interaction hypothesis does not encompass true interaction between group norms, socio-economic change and fertility behaviour since it is assumed that all groups eventually respond in a similar way to modernisation. An additional limitation is that

no account is taken of the demographic effects of fertility transition, in particular its effect on marriage patterns a generation or so after the start of fertility decline.

The focus of this paper is the timing of the early stages of family formation in Fiji, an ethnically plural population. Two ethnically and culturally distinct populations, the indigenous Fijians and the relatively recently settled Fiji Indians (hereafter simply termed Fijians and Indians respectively), comprise over 90 per cent of the total. The family formation patterns of these two populations differ in complex ways. The aim of the paper is to examine the adequacy of the four hypotheses in explaining ethnic differentials in family formation in Fiji. A new hypothesis which takes account of transitional effects is proposed.

Fiji: population size and fertility transition

In Fiji, concerns about population have long had an ethnic dimension because of the rapid natural increase in the first half of the twentieth century of the Indian population, emanating from indentured labour brought to these islands by the British to work in the sugar industry (Hull and Hull 1973; Bavadra and Kierski 1980; Laquian and Naroba 1990). The Fijian population comprised less than half of the total by 1936 and became a minority in 1946 (Chandra and Chandra 1990). This situation prevailed until the 1996 census showed that Fijians comprised 50.8 per cent of the total compared with 43.7 per cent for Indians (Bureau of Statistics 1998a).

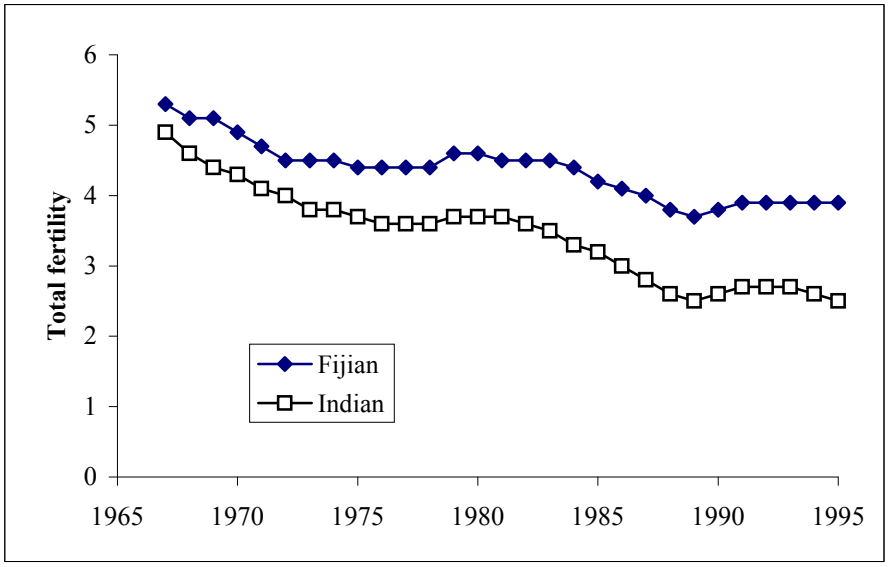
The minority status of the Fijian population did little to encourage their uptake of family planning after its introduction in 1958, especially as the population had suffered significant decline within living memory (Hull and Hull 1973). Crude birth

rates and general fertility rates (based on registration data) began to decline in the early 1960s, the Indian onset of decline taking place about five years earlier than the Fijian and at a faster pace (Naroba 1990). Census-based estimates, shown in Figure 1, indicate that in 1966-68 total fertility was 5.3 for Fijians and 4.9 for Indians. By 1985-87, the more rapid decline among Indians had resulted in a differential of 1.1, total fertility being 4.1 and 3.0 respectively (Bureau of Statistics 1998b).

The *coups d'état* of May and September 1987 led to overt ethnic tensions and a renewed focus on differentials in population size. The *coups* were a direct response to the election in April 1987 of the first Fijian government in which ethnic Indians played a dominant role (The Economist Intelligence Unit 1996). Faced with a lack of political representation and economic uncertainty, many Indians left the country (Bedford and Levick 1988; The Economist Intelligence Unit 1996). Undoubtedly in response to the political situation, both Fijian and Indian fertility underwent an accelerated decline in 1988-89 followed by a temporary increase in the early 1990s. In 1994-96, the TFR was 3.9 for Fijians and 2.5 for Indians, a differential of 1.4 (Bureau of Statistics 1998b).

Higher Fijian fertility is achieved not through relatively early fertility but through higher fertility at ages 25+. The age-specific rates, shown in Figure 2, would suggest a slightly later age at first birth among Fijians than among Indians. Further, the declines in the age-specific rates between 1986 and 1996 suggest a slight increase in age at first birth for both populations.

Figure 1 Total fertility by ethnicity, Fiji 1967 to 1995

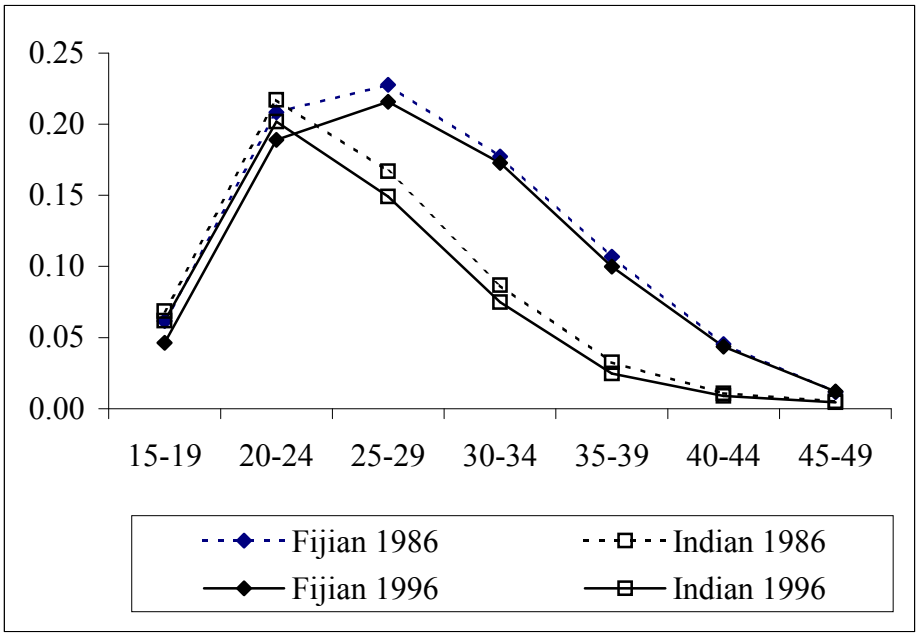


Note: 3-year averages centred on year shown.
Source: Bureau of Statistics. 1998b. *1996 Fiji Census of Population and Housing: Analytical Report, Part 1 Demographic Characteristics* . Parliamentary Paper No 49. Parliament of Fiji, Suva.

Method and materials

A commonly-used conceptual framework for the analysis of the timing of family formation specifies that age at first birth is dependent on age at marriage and the first birth interval (Marini 1981). In such a framework (Framework A) premarital conceptions do not occur, and age at marriage and the first birth interval are independent. This framework is less valid when premarital conceptions occur. However, if premarital conception precipitates marriage (and is not the norm), this variable can be accommodated as an additional causal factor in the determination of age at first birth. Marini (1981) found that premarital conception was independent of age at marriage and that its effect was entirely mediated through its effect on the first birth interval. In the case where most marriages are precipitated by premarital conception, the appropriate framework (Framework B) would specify dependence of

Figure 2 Age-specific fertility rates by ethnicity, Fiji 1986 and 1996



Source: Bureau of Statistics. 1998b. *1996 Fiji Census of Population and Housing: Analytical Report, Part 1 Demographic Characteristics* . Parliamentary Paper No 49. Parliament of Fiji, Suva.

age at marriage on the independent variables, age at first birth and the first birth interval. To the extent that premarital conceptions do not precipitate marriage, age at marriage and age at first birth are independent, as well as being independent of the first birth interval (Framework C). In populations where premarital conceptions are common, different conceptual frameworks may apply to different subgroups. Based on the findings of Booth (2001), Framework A would seem most appropriate for Indians, while for Fijians a combination of Frameworks A, B and C may apply. This difference of conceptual framework should be borne in mind in the interpretation of the analysis.

In the absence of direct data, the singulate mean age at marriage (SMAM) is calculated from census data on proportions never-married using Hajnal's method

(Hajnal 1953): SMAM = (15 +5P – 50N)/(1-N) where P is the sum of the proportions never-married at ages 15-19 to 45-49 and N is the proportion never-married at exact age 50 (estimated as the average of proportions at ages 45-49 and 50-54). Use of proportions nulliparous produces the mean age at first birth (MAFB) and the difference between SMAM and MAFB gives the mean first birth interval (MFBI) (Booth 2001).

This method produces age-standardised measures and is exact except for age distribution effects within age groups, as in abridged life tables. However, it is subject to several sources of bias (Booth 2001, pp.188-190). For the examination of trends and ethnic differentials, bias due to changing age at first event was avoided by the use of intercensal measures, based on intercensal proportions referring to the hypothetical cohort exposed to the first event rates prevailing in the intercensal period (Agarwala 1962). Smoothing was used in order to avoid irregularities in the intercensal proportions at older ages (Booth 2001). MFBI is unbiased only if all married women experience a first birth by age 50 and there are no extra-marital births. In Fiji, 1-6 per cent of married women are nulliparous at age 50. On the basis of increasing infecundity with age, nulliparity is more likely among late-marrying women, resulting in a slight downward bias in MFBI.

A limitation of the methodology for the analysis of differentials is the restriction to estimating group means. Thus, it is not possible to isolate net effects in the multivariate sense. This limitation is partially addressed by calculating the measures for various subgroups within ethnicity. Further limitations arise from the cross-sectional nature of the data. Since causation cannot be assigned and reverse-causation

also occurs, the analysis of socio-economic characteristics seeks only to establish association. Where a characteristic, such as education and in particular economic activity, may change between the event of interest and the census, the validity of the association may be weakened. However, preference theory (Hakim 2000) would argue that individual women behave in accordance with underlying characteristic aspirations in relation to childbearing and economic gain, suggesting a greater consistency of lifetime characteristics than might otherwise be the case. Studies in developed countries have shown that attitudes including higher educational aspirations are associated with later coitus and a lower probability of premarital pregnancy (e.g., Shtarkshall 1987; Plotnick 1992), while in developing countries higher educational attainment is associated with later first coitus as well as later marriage and first birth (Wulf and Singh 1991; Gage and Meekers 1994). It should also be noted that the youngest age groups, which have had the least time to change status after marriage or first birth, have a dominant effect on the estimates obtained (Booth 1994). Nevertheless, the interpretation of educational and economic activity differentials should be limited to current status.

The analysis of socio-economic differentials is based on single-census estimates which are known to be subject to greater bias than the intercensal estimates (Booth 2001). For this reason, only the differentials between subgroups (and not the measures themselves) are reported. Though biases may be present in the measures, these are likely to be of a similar magnitude for different categories of a socio-economic variable (for the same census and ethnicity) such that the differentials will be relatively free from bias. An exception may occur where rates of change vary between subgroups (e.g., tertiary educated women may have experienced a greater increase in

age at marriage than other women, in which case the differential will be underestimated). However, such bias is not expected to be significant: even where age at marriage increased rapidly (as in the case of the Indian population between 1946 and 1976), bias was at most 0.3 years (Booth 2001). Changes over time and ethnic differentials by socio-economic characteristics may be subject to greater bias.

The data employed in this analysis are from the decennial population censuses of 1946 to 1996 and refer to persons aged 15-54. As unit record data were available for 1986 and 1996 only, the characteristics hypothesis can only be examined for these years, but a longer term perspective is applied to the other hypotheses. The analysis of trends and the 1996 socio-economic differentials are based on the total population, while the 1986 differentials are based on the population living in conventional dwellings (that is, excluding those living in institutions). Data availability limitations precluded analysis of socio-economic differentials on the same population basis for the two years, but this has little effect on their comparability.

Marriage was defined on a *de facto* basis in both censuses. Cases where marital status was not stated were removed from the analysis, equivalent to assuming the same proportion never-married as for respondents; any overestimation due to this assumption is negligible since such cases were relatively rare (for any subgroup at most 0.4 per cent in 1986 and 1.0 per cent in 1996). Proportions nulliparous were derived from number of children ever born. There were no cases where children ever born was not stated in the 1986 and 1996 census data files; it is likely that any cases had been coded as zero such that MAFB would be overestimated.

The socio-economic variables are listed in Table 1. Religion was grouped differently for the Fijian and Indian populations reflecting the widely different distributions: for the Fijian population the categories employed were Methodist, Catholic, Assembly of God/Seventh Day Adventist and Other; for Indians the categories were Hindu, Moslem and Other. The dichotomous variable remunerated activity was defined for 'all workers' which included employees, self-employed persons, those looking for work, homemakers and in 1986 those not looking for work. All workers thus excludes students, disabled, retired, others and in 1996 those not looking for work, on the grounds that the characteristic of relevance – past or potential remuneration - is unknown. All workers constitute 82-84 per cent of the relevant ethnicity-specific population aged 15-54. Remunerated work included all those receiving any cash income and those looking for work, while non-remunerated work included those working purely in subsistence, homemakers and in 1986 those not looking for work. Occupation was defined for those who were employed in the money economy, that is remunerated work excepting those looking for work, and was grouped into four groups: professional and related; clerks, service and sales; agriculture; and production and other.

The analysis by educational attainment was undertaken on two bases. The first was on the same basis as remunerated activity, that is covering all workers, the principal exclusion being students on the grounds that the relevant characteristic – the ultimate level of educational attainment – is unknown due to censoring. The second was on the same basis as occupation, designed to examine educational differentials in family formation among the remunerated employed. Since educational attainment has increased over time with a primary education completion rate of 79 per cent in 1985-

92 (Department for Women and Culture 1994), the primary category includes mainly older persons, producing estimates of reduced reliability and little relevance to current social trends, but is included in the tables for completeness.

The sizes of the different socio-economic subgroups are shown in Table 1. Categories were chosen where possible to be sufficiently large to minimise standard errors, but in some cases small subgroups were unavoidable due to ethnic or temporal differences in distributions. Results for small subgroups (<2000, or 2000-2500 with one or more subgroups <100) are italicised. (See Booth (1994, Appendix) for extent of bias arising from given errors in proportions). Differentials are reported in relation to the reference category, taken in most cases to be the largest.

Table 1 Population size and distribution by socio-economic subgroup by ethnicity, ages 15-54, Fiji 1986 and 1996

	Number				Percentage			
	1986		**1996**		**1986**		**1996**	
	Fijian	Indian	Fijian	Indian	Fijian	Indian	Fijian	Indian
Total	84876	97744	104308	99958				
Rural	68841	69607			81.1	71.2		
Urban	16035	28137			18.9	28.8		
Religion - Fijians / Indians (a)								
Methodist / Hindu	62333	76477	67643	76604	73.4	78.2	64.8	76.6
Catholic / Moslem	11400	15187	13755	15637	13.4	15.5	13.2	15.6
AG & SDA / Other	7381	6080	12792	7717	8.7	6.2	12.3	7.7
Other	3762		10118		4.4		9.7	
Remunerated activity - all workers								
Remunerated	19881	17277	26753	18970	25.5	19.4	30.4	22.5
Non-remunerated	57988	71689	61146	65370	74.5	80.6	69.6	77.5
Homemakers	50124	66321	40179	59576				
Occupation - remunerated employed								
Professional & related	2934	3142	5603	4641	18.3	23.4	21.1	24.6
Clerks, service, sales	8815	6978	8492	6094	55.1	51.9	31.9	32.3
Agriculture	2448	1152	3381	753	15.3	8.6	12.7	4.0
Production & other	1803	2168	9140	7403	11.3	16.1	34.3	39.2
Education - all workers								
Primary	18307	30443	10549	18784	23.7	34.5	12.0	22.3
Secondary	57302	54779	71126	58544	74.2	62.1	80.9	69.4
Tertiary	1614	2986	6224	7012	2.1	3.4	7.1	8.3
Education - remunerated employed								
Primary	2478	2745	2170	2281	15.5	20.4	8.2	12.1
Secondary	12002	8400	19731	11912	75.3	62.3	74.1	63.1
Tertiary	1458	2335	4715	4698	9.1	17.3	17.7	24.9

Note: (a) For Fijians, categories are: Methodist, Catholic, Assembly of God/Seventh Day Adventist, Other;
for Indians, categories are: Hindu, Moslem, Other.
Source: 1986 and 1996 Censuses.

Ethnic differentials

Figure 3 compares intercensal SMAM and MAFB for Fijians and Indians during the second half of the twentieth century. The 1986-96 estimates for the Fijian population indicate a SMAM of 23.2 years and a MAFB of 22.9 years, giving a MFBI of –0.3 years. This compares with estimates for the Indian population of 21.4 and 22.8 years respectively, giving a MFBI of 1.4 years. Thus on average, there is no appreciable ethnic difference in age at first birth, but substantial differentials occur in age at marriage and the first birth interval: Indians marry 1.8 years earlier and their MFBI is longer by 1.7 years.

Among Fijians, family formation in the mid-twentieth century was relatively late and only slight increases occurred in SMAM and MAFB. In contrast, mid-century family formation was very early among Indians and rapid increases took place between 1946 and 1976. Thus the large ethnic differentials were significantly reduced and for MAFB, ethnic convergence occurred in 1976-86. For both populations, the MFBI remained relatively unchanged.

The rapid increase in Indian age at marriage has been attributed to the more balanced marriage market resulting from demographic factors: as the Fiji-born population became of marriageable age, the migration-related shortage of females eased and consequently female age at marriage began to increase well before 1956 (McArthur 1971). In 1946-56, the sex difference in age at marriage was 4.0 years, though Mayer (1973, p. 66) reports that in 1951 five years was regarded as ideal. By 1966, there was a surplus of never-married females relative to males of the appropriate age (McArthur

1971), leading to yet later marriage and further reductions in the sex difference in age at marriage (2.5 years in 1966-76).

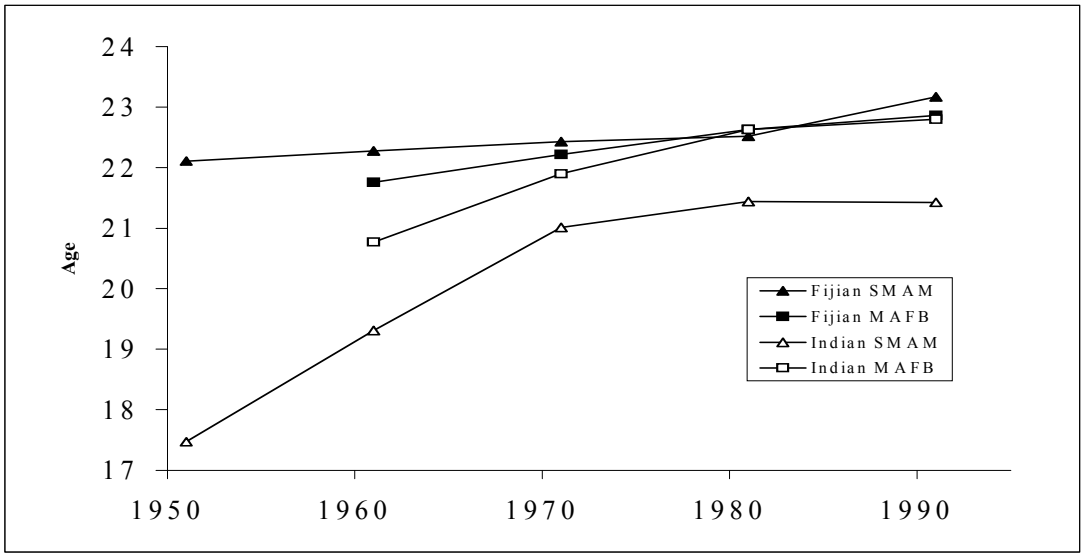
It is unlikely that increases in the legal age at marriage can be held responsible for the increases that occurred. In 1947 the legal minimum age at marriage for Indian females was raised from 13 to 14 years; the legal minimum for males was 18 years. Mayer (1973, pp. 65-6) reports that in 1951, the legal minimum age for females was generally observed, and that a common age was 'around sixteen years'. The requirement of a civil

marriage under British law (Mayer 1973, p. 72) would have discouraged under-age marriage. Mayer (1973, p.65 fn 3) also notes, writing in 1951, that the legal minimum age was to be raised to 16 years in 1961, which suggests that the law was being used to modify behaviour. In fact, this increase did not take place until 1969 when the legal minimum age with parental consent was set at 16 years (21 years without parental consent) for all females in Fiji (Pulea 1986). Given that SMAM has exceeded the minimum age by at least three years since 1946-56, it seems unlikely that legal issues would have had more than a marginal effect.

Demographic factors have also contributed to the recent levelling off in SMAM among Indians. A decrease in age at marriage would be expected from the shortage of females in the marriage market resulting from past fertility declines, but this would be masked in SMAM by overestimation due to female emigration for arranged marriage and residence overseas (Booth 1994, 2001), which would however exacerbate the

shortage. The strength of the marriage market factor is apparent from the widening of the sex difference in age at marriage to 3.4 years in 1986-96.

Figure 3 Trends in SMAM and MAFB by ethnicity, Fiji 1946-56 to 1986-96



Source: Author's calculations based on census data.

Alternative hypotheses

Minority group hypothesis

The minority group hypothesis states that, where acculturation is not sought and the minority group suffers economic or political disadvantage, fertility behaviour will be such that fertility levels are relatively high so as to secure greater numerical strength. If the group seeks acculturation and upward social mobility, it is hypothesised that their behaviour will limit fertility as long as group ideology is not strongly pronatalist (Goldscheider 1971). In Fiji, neither the Fijian nor the Indian population seeks acculturation and intermarriage between the two is rare (Herbst 1976, p.42; Nayacakalou 1978, pp.71-72; Manoa 1979). Both populations, however, seek to maintain or achieve socio-economic or political status. In broad terms, the Fijian population has the security of land tenure, ensuring traditional means of support, and (until 1987 unchallenged) political domination but has lower economic status, while

the Indian population has attained higher economic status but suffers from political and hence economic insecurity (Herbst 1976, pp. 195-7).

Given that the Fijian and Indian populations each comprises roughly half of the total population of Fiji, any hypothesis based on minority status would appear to be of little relevance in explaining differentials in fertility behaviour. As noted above, however, concerns about relative population size have a long and prominent history; they might therefore be expected to influence behaviour. It is highly likely that the minority status of the Fijian population from 1946 contributed to the reluctance of Fijians to adopt family planning (Hull and Hull 1973; Bavadra and Kierski 1980; Reproductive and Family Health Association 1996). Conversely, the majority status and rapid growth of the Indian population offered no impediments to its adoption. That the Indian population responded enthusiastically to the availability of family planning – by 1974, 53 per cent of women exposed to the risk of pregnancy were using a modern method (Bureau of Statistics 1976) – might also be partly attributable to economic insecurity leading to a desire for social mobility (aside from their higher socio-economic standing (Laquian and Naroba 1990)). For Fijians, the relatively low use of family planning – 28 per cent of exposed women used a modern method in 1974 and similar levels have persisted – may be related to a low desire for upward mobility stemming from their subsistence lifestyle and greater security (Roizen et al. 1992). Thus it can be argued that both facets of the minority group hypothesis are of direct relevance in explaining differentials in fertility levels and trends.

Whether this relevance extends to the timing of family formation, however, is doubtful. For Indians, there seems little reason to suppose that the increases in age at

marriage were directly related to concerns about population size and growth (though it must be acknowledged that the increases in the *legal* age at marriage were in keeping with Fijian concerns about Indian population growth). Rather, the improving sex balance in the marriage market was the instrumental force, a result of demographic factors in the post-indenture period (McArthur 1971). The rising age at marriage would have permitted the education of females to be improved, which may have had social status benefits within the Indian community through marriage contracts, but it is highly doubtful that economic insecurity relative to Fijians would have been a concern. Given its central importance in Indian cultures (see Norms Hypothesis), marriage would hardly be influenced by minority group concerns, especially when family planning could be used to achieve desired aims. Similarly, there is no evidence to suggest that minority group concerns have played any part in determining the first birth interval: the introduction of family planning had no effect on the MFBI and it has remained constant.

For Fijians, relevant behaviour aimed at increasing population size would involve earlier age at first birth, whereas slight increases have occurred. The alternative hypothesis does not apply. In any event, since the first birth is often unplanned and precedes marriage, age at first birth is unlikely to be related either to political aims or personal ambition stemming from minority status. In matters of marriage and sexual behaviour, the relevant reference group is internal to each population and not external. Hence there is no evidence that the minority group hypothesis is of direct relevance in explaining differentials in the timing of family formation. This conclusion is in keeping with previous research. McDonald (1981) found little evidence for the

intentional control of fertility in the timing of marriage. Similarly, Caldwell et al. (1983) found no such evidence in South India.

Norms hypothesis

The norms hypothesis is seemingly the most likely explanation for the ethnic differentials in the timing of family formation, because of the distinct cultural and religious traditions of the two populations. Studies elsewhere have shown significant differentials in fertility behaviour by religion (e.g., Chamie 1981; Johnson 1993; Knodel et al. 1999; Avong 2001) and by culture or ethnicity (e.g., Kollehlon 1989; Addai and Trovato 1999). In Fiji, ethnicity and religion are inextricable since the two populations are almost entirely distinct in religious allegiance: Fijians are overwhelmingly Christian, while more than 90 per cent of Indians are Hindu, Moslem or Sikh (see Table 1). It is shown below (see Characteristics hypothesis) that differentials by religion within ethnicity are small in comparison with ethnic differentials. Cultural and religious factors of relevance to marriage and childbearing are described in broad terms below, though it should be noted that neither the Fijian nor the Indian population is entirely homogeneous in its traditions.

Fijians. Fijian culture is gerontocratic and patriarchal; descent is patrilineal and marriage patrilocal. Traditionally, strict rules of gender segregation prevented social interaction between adolescents and for females, though not for males, premarital sexual relations were taboo (Nayacakalou 1978; Ravuvu 1983). Marriage was arranged and cross-cousin marriage was the norm (Nayacakalou 1955). Elopement also occurred: marriage would result from the female spending a night under the male's (family's) roof, regardless of her volition or whether coitus took place.

Elopement was and remains a source of shame and humiliation for the male's kin who must seek conciliation with the female's kin (Ravuvu 1983). Contact with Europeans and the introduction of Christianity led to the erosion of traditional practices, including the demise of the men's house and sexual segregation as a result of the promotion of Christian ideals about family life. A good deal of these changes had already taken place by the early twentieth century. In the late nineteenth and early twentieth centuries, female age at marriage was 22 years (Pulea 1986).

Today, cross-cousin marriage is a seldom-practised ideal. In the modern social and economic environment, wider social interactions resulting from travel by both sexes for education and work have led to decreased parental control in the choice of marriage partner (Ravuvu 1983). Where parents are not agreeable to a marriage partner, the couple may elope: drawing on tradition, the couple seeks the protection of other relatives of the male involved, particularly those who by custom must oblige and are in a position to mediate in seeking conciliation. After marriage, signs of pregnancy are 'eagerly awaited' (Ravuvu 1983, p.52). While biological childlessness is a source of embarrassment and may be greeted with derision (Chandra 2000, p.72), it is accepted and accommodated through adoption: childless couples are given one or more children of close kin.

The traditional taboo on premarital sexual relations is reinforced by Christianity despite its role in the erosion of traditional controls. Premarital sexual relations are a source of great shame and disrespect for the female, who is apportioned the blame, and her wider family. In rural areas, traditional sanctions such as shaving the young woman's head may still be applied (Chandra 2000). Chandra (2000) found that

reported attitudes towards premarital sexual relations are conservative, even among most adolescents. Where premarital conception occurs, a *de facto* union is often formed through elopement, which may or may not lead to formal marriage (Seniloli 1992). Thus, Fijian culture accommodates premarital pregnancy through reconciliation of the families involved (Laquian and Naroba 1990; Seniloli 1992, p.223). Elopement is sufficiently common to have gained recognition as part of the modern marriage process (Ravuvu 1983; Seniloli 1992, p.124), thereby partly legitimating premarital sexual relations. If the young man concerned is reluctant to marry, pressure may be exerted by the young woman's family (Chand 1995). In many cases marriage takes place soon after the birth (Chand 1995). Where marriage does not occur, though a source of shame, the illegitimate child is almost always absorbed into the extended family in the village (Laquian and Naroba 1990; Chand 1995). Traditional legitimation involves the male's family seeking forgiveness, in which case the child belongs to and acquires the rights of the male's clan.

Despite traditional taboos and conservative attitudes, the weakening of customary beliefs and practices has led to more widespread premarital sexual relations among Fijian youth (Chandra 2000). Seniloli (1996) found that the average age at first coitus of ever-married women aged 15-34 preceded the average age at first union by 1.9 years. Given the inaccessibility of contraceptive services to unmarried women due to cultural values and a reluctance to use condoms on the part of Fijian men (Laquian and Naroba 1990; Chandra 2000), illegitimate births are relatively common. Data for 1994-95 show that 57 per cent of births to Fijian women aged 15-19 were illegitimate (Reproductive and Family Health Association 1996). A 1989-90 study found that 44 per cent of currently single Fijian women had 1 or 2 children (Seniloli 1992, pp.223-

4). Since abortion is legal in Fiji only if the woman's life is at risk (Pulea 1986) reliable data are not available, but indications are that medical abortion is not a common practice among Fijians, partly due to the cost involved (Chand 1995; Sharma (unpublished) reported in Chandra 2000). Traditional means of abortion are however widely practiced with significant numbers of complications (Department for Women and Culture 1994).

Indians. The Indian population comprises several distinct communities, including three main Hindu communities (Gujaratis, 'North Indians' and 'South Indians'), Muslims and a small Sikh community. Intermarriage is not practiced except between North and South Indians. Though the details of practice may differ, these communities share common values and norms with regard to family formation. All are patriarchal, descent is patrilineal, and seniority commands authority. Marriage is arranged and patrilocal. Under the dowry system daughters are regarded as liabilities, the expense of their marriage reflecting family social status (Wilson 1978, p.6; Haynes 1984). In the early 1950s, a common age at marriage was 16 years and 20 was considered late (Mayer 1973, p. 66). While Muslims marry within the kinship network (often between cousins), Hindu and Sikh marriage is exogamous in this respect. Kinship ties and other social networks extend to communities in India and in emigrant-destination countries such as Australia, New Zealand and USA.

Marriage is of central importance in all Indian cultures because of the threat to family honour, in particular male honour, posed by female sexuality and loss of sexual purity (Wilson 1978; Brenneis 1979; Chandra 2000). Traditional Indian practices seek to enforce the prohibition of female premarital sexual relations through early and

arranged marriage (Mayer 1973, p. 66; Gupta 1976, p.4). Premarital sexual relations are strongly condemned, not least because of religious beliefs, and female offenders risk being thrown out by parents who invariably hold them responsible. The stigma is such that it reduces the marriage prospects of other females in the extended family (Chandra 2000). Once married, couples are subject to considerable social pressure to produce the first child within the first years of marriage. This applies particularly to females, since childlessness is regarded as a female failing (Wilson 1978). The importance of childbearing is manifest in the fact that childlessness is a cause of suicide among young Indian women in Fiji (Ree 1971; Haynes 1984; Booth 1999).

These underlying cultural values with regard to sexuality and reproduction have not changed appreciably despite the transition to later marriage and increased education and employment. Indeed, in the post-indenture period, strict moral codes were reinforced in relation to sexuality and women (Lateef 1990). However, certain practices have been adapted in order to accommodate social and economic change. Education has been integrated into the marriage process in that a higher level of educational attainment increases the prospects of a good marriage (Mayer 1973, p. 65). Daughters, however, must comply: the overriding importance attached by parents to the control of female sexuality is seen in the withdrawal of females from school for an arranged marriage, precipitated by signs of sexuality (Seniloli 1996). Females are under-represented in school at age 17-18 despite higher than male attendance rates up to age 16 (Department for Women and Culture 1994). As in other Indian communities (Wilson 1978, pp.114-116), female employment is likely to also contribute to marriage prospects, and the income earned offsets the costs of marriage to the family. Education and employment also increase the prospects of a love marriage. Chandra

(2000) found that educated and employed adolescents fully expected to select their own marriage partner and that parents were 'quite relieved and happy' (p.69) about this, but that arranged marriage at age 20 or younger was still the norm for those not completing school and not working. Arranged marriage is also practiced where partners are sought overseas (Chandra 2000). The prospect of better opportunities and a higher standard of living in a developed country have encouraged some educated females to follow this route. Indeed, such international marriages are a symbol of high status for the parents and have the potential advantage of providing an avenue for their own emigration.

Social and economic change has also had some influence on attitudes towards premarital sexual relations. While the majority of adolescents hold traditional beliefs, educated and career-oriented adolescent females believe extremely discreet relations to be acceptable if the partners intend to marry (Chandra 2000, p.55). Seniloli (1996) found that the average age at first coitus of ever-married women aged 15-34 preceded the average age at first union by 0.1 years. Attitudes towards premarital pregnancy, however, have not changed. Most pre-marital pregnancies are either terminated or precipitate marriage or even lead to suicide (Seniloli 1992, pp.223-4; Chandra 2000, p.62). Medical abortion is more common among the Indian community than among the Fijian: 68 per cent of all women seeking abortion counselling at private clinics during a two-week period in 1996 were Indian (Sharma (unpublished) reported in Chandra 2000) despite stricter moral codes before marriage and higher rates of contraceptive use before and after marriage. Premarital pregnancy means that the young woman's continued education, employment and prospects for a good (including astrologically) marriage are doomed: her marriage will be hastily arranged

by parents anxious to avoid shame, with considerable pressure on the responsible male to comply should he resist (Chand 1995). Illegitimacy is considered a 'very serious offence' (Laquian and Naroba 1990, p.115), and is consequently a rare occurrence. Where it does occur the stigma and dishonour faced by the whole family usually leads to outright rejection of both the young mother and infant (Chand 1995; Chandra 2000, p.61). Data for 1994-95 show that 1.2 per cent of births to Indian women aged 15-19 were illegitimate (Reproductive and Family Health Association 1996).

These differing cultural norms and current practices are clearly in keeping with the ethnic differentials in family formation, particularly with respect to the first birth interval, but also to age at marriage. The greater emphasis on female sexual purity at marriage among Indians is the main factor leading to earlier age at marriage and the positive first birth interval. This factor operates in the Indian population through various mechanisms, including personal and family shame and the prospect of rejection, arranged marriage and abortion, to ensure that female sexuality is controlled: it is suppressed before marriage and managed after marriage. In contrast, Fijian culture is less rigid in applying societal rules concerning sexuality and, where misdemeanours occur, imposes less severe sanctions and encompasses avenues for conciliation, resulting in higher levels of premarital childbearing, later marriage and a negative first birth interval.

While the norms hypothesis is clearly of major relevance in explaining ethnic differentials in the timing of family formation, it is also clear from the above discussion that differences in behaviour exist among socio-economic subgroups

within the Indian population at least. This would suggest that the characteristics hypothesis is to some extent involved.

Characteristics hypothesis

In explaining ethnic differentials in socio-economic terms, the characteristics hypothesis holds that the differential is the product of socio-economic compositional differences between the ethnic groups and overall socio-economic differentials in behaviour (Goldscheider 1971). Table 1 shows socio-economic composition by ethnicity. The main differences stem from the greater involvement of Fijians in subsistence and remunerated agriculture and of Indians in production and other occupations. In addition, remunerated Indians are more likely to have tertiary education and professional and related occupations. Significant compositional changes took place between 1986 and 1996 but were similar in both populations. These changes were due to structural changes in the economy involving a move away from agriculture, the development of tourism and manufacturing, and greater efficiency and reductions in the public sector (Australian Agency for International Development 1995; The Economist Intelligence Unit 1996). The development and expansion of the garment industry (Government of the Republic of Fiji 1993, p. 101; World Bank 1995, p. 41) created a major new mode of employment for women.

Socio-economic differentials were examined separately for the two populations. Tables 2 and 3 show that on the whole marriage and first birth are later and the first birth interval longer for subgroups defined by remunerated employment, tertiary education, urban residence and higher occupational status, particularly in 1996. These findings conform to those of previous studies (e.g., Hirschman and Rindfuss 1980;

Trussell and Bloom 1983; Hirschman 1985; Nath et al. 1999; Zheng 2000; Gupta and Mahy 2003). The higher proportions of Indians living in urban areas, with tertiary education and professional and related occupations (though offset somewhat by lower proportions in remunerated employment) would therefore point to later family formation for this population. For marriage, this is not the case: as has been seen, SMAM is earlier for the Indian population. The characteristics hypothesis thus makes no apparent contribution to the explanation of ethnic differentials in SMAM. For the MFBI, the socio-economic differentials are mostly in keeping with the wider (positive) Indian interval, but it is unlikely that the socio-economic differentials, even in combination, are sufficiently large to explain more than a fraction of the overall ethnic differential of 1.7 years. (For a structural difference of *m* per cent, a differential of *n* years in both populations would result in an ethnic differential of *mn/100* years: for the observed structural differences of roughly 10 per cent the implied socio-economic differential is 17 years!) Further, since socio-economic differentials are similar for SMAM and MAFB, the characteristics hypothesis would predict similar ethnic differentials in these two measures, which clearly does not occur.

An exception to the general finding that higher socio-economic status is associated with later family formation is the earlier SMAM and MAFB among professional and tertiary-educated remunerated workers in both populations in 1986. Possible explanations are the enhancement of marriage prospects by higher education, which at the levels of SMAM observed may offset attainment time, and greater exposure to the risk of premarital sexual relations during tertiary education. Among Fijians, the policy of posting of young professional women to rural areas, where females were generally in short supply, enhanced their marriage prospects. Reductions in these differentials

over time may be partly related to increased access to contraceptives and abortion; this possibility is supported by increased educational differentials in MFBI.

Figure 4, which plots SMAM against MAFB for all socio-economic subgroups shown in Tables 2 and 3, demonstrates why the characteristics hypothesis fails to make any significant contribution to explaining ethnic differentials in SMAM and MFBI. While there is considerable overlap of the two populations with respect to MAFB, there is less overlap with respect to SMAM notably at lower values. MFBI is seen in the two-dimensional plane (as horizontal or vertical distance from the diagonal): that there is almost no overlap explains why socio-economic differentials in MFBI have little effect on the ethnic differential. Only the Fijian 1996 subgroups with tertiary education and professional and related occupations overlap with the Indian subgroups. Analysis of variance confirms that the two populations differ significantly with respect to SMAM and MFBI but not MAFB.

The characteristics hypothesis thus makes little contribution to explaining ethnic differentials in the timing of family formation. It is nevertheless the case that socio-economic differentials within populations are increasing over time (see Tables 2 and 3). Along with the above evidence that norms are changing, this suggests that the interaction hypothesis might provide a better explanation of the process involved.

Table 2 Differentials between socio-economic subgroups in SMAM, MAFB and MFBI by ethnicity, Fiji 1986, years

Socio-economic	Fijian			Indian		
subgroup	SMAM	MAFB	MFBI	SMAM	MAFB	MFBI
Residence						
Rural	*	*	*	*	*	*
Urban	0.34	0.32	-0.02	1.03	1.02	-0.01
Religion - Fijians / Indians						
Methodist / Hindu	*	*	*	*	*	*
Catholic / Moslem	0.15	-0.52	-0.68	-0.86	-0.83	0.02
AG & SDA / Other	-0.12	-0.03	0.09	0.91	0.32	-0.59
Other	-0.38	-0.11	0.27			
Remunerated activity - all workers						
Remunerated	*	*	*	*	*	*
Non-remunerated	-4.33	-3.18	1.15	-5.76	-5.27	0.49
Homemakers	-5.29	-3.67	1.63	-6.90	-6.03	0.88
Occupation - remunerated employed						
Professional & related	-2.05	-0.66	1.39	-2.33	-1.51	0.82
Clerks, service, sales	*	*	*	*	*	*
Agriculture	-1.50	-1.41	0.09	*-2.92*	*-0.76*	*2.16*
Production & other	*-0.22*	*-0.45*	*-0.23*	*-0.44*	*-0.19a*	*0.25a*
Education - all workers						
Primary	1.14	-0.62	-1.76	0.05	-0.50	-0.55
Secondary	*	*	*	*	*	*
Tertiary	*0.88*	*0.64*	*-0.24*	1.97	2.22	0.25
Education - remunerated employed						
Primary	0.39	-2.10	-2.50	0.69	0.21	-0.48
Secondary	*	*	*	*	*	*
Tertiary	*-2.04*	*-1.47*	*0.57*	*-0.82*	*0.26*	*1.08*

* Reference category.

Italics indicate based on either <2000 persons or 2000-2500 with one or more age groups of <100.

a MAFB and FBI for Indians in production and other occupations are amended for bias due to erroneous reporting of parity for women aged 45-54, which gave a negative FBI. It is likely that the high reported proportions nulliparous are due to non-responses being coded as zero. The original differentials were -1.93 and -1.50.

Source: Author's calculations based on census data.

Table 3 Differentials between socio-economic subgroups in SMAM, MAFB and MFBI by ethnicity, Fiji 1996, years

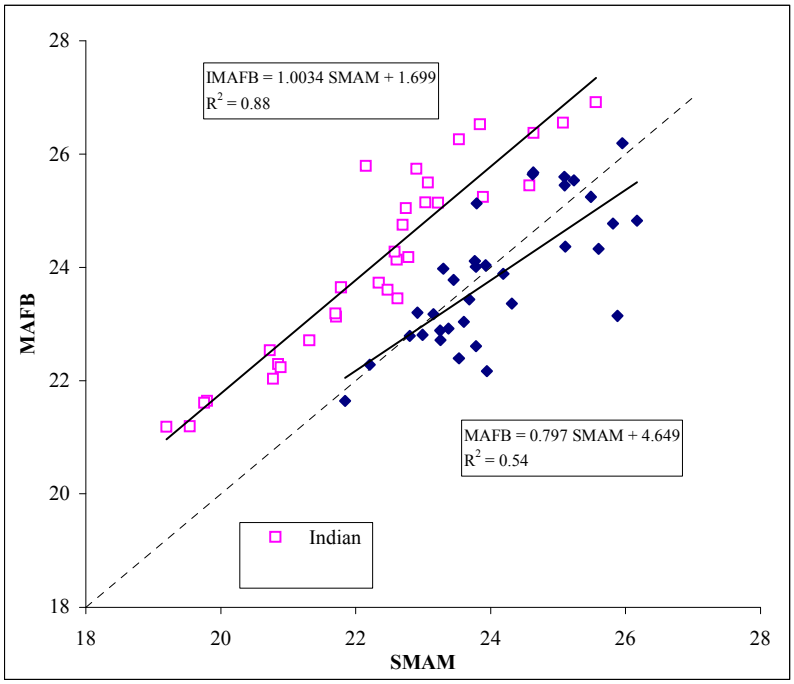
Socio-economic	Fijian			Indian		
subgroup	SMAM	MAFB	MFBI	SMAM	MAFB	MFBI
Religion - Fijians / Indians						
Methodist / Hindu	*	*	*	*	*	*
Catholic / Moslem	0.26	-0.15	-0.41	-0.81	-0.95	-0.14
AG & SDA / Other	-0.63	-0.06	0.57	0.91	0.95	0.04
Other	-0.14	-0.03	0.12			
Remunerated activity - all workers						
Remunerated	*	*	*	*	*	*
Non-remunerated	-2.88	-3.32	-0.43	-4.02	-3.96	0.07
Homemakers	-3.85	-4.09	-0.23	-4.76	-4.44	0.32
Occupation - remunerated employed						
Professional & related	-0.47	0.23	0.69	0.50	1.11	0.61
Clerks, service, sales	*	*	*	*	*	*
Agriculture	*-1.95*	*-2.27*	*-0.33*	*-1.25*	*-1.50*	*-0.25*
Production & other	0.86	0.74	-0.11	-0.56	-1.54	-0.98
Education - all workers						
Primary	0.87	-0.59	-1.46	-0.21	-0.41	-0.20
Secondary	*	*	*	*	*	*
Tertiary	0.88	1.92	1.05	3.14	4.13	0.98
Education - remunerated employed						
Primary	*-0.13*	*-1.17*	*-1.04*	*-0.20*	*0.09*	*0.30*
Secondary	*	*	*	*	*	*
Tertiary	-0.61	0.11	0.72	1.06	2.34	1.28

* Reference category.
Italics indicate based on either <2000 persons or 2000-2500 with one or more age groups of <100.
Source: Author's calculations based on census data.

Interaction hypothesis

The interaction hypothesis maintains that, particularly during fertility transition, ethnic differentials in fertility behaviour are a function of both group socio-economic characteristics and cultural norms: the speed or degree of response to modernisation differs according to the effects of group cultural norms. It is assumed that the groups respond in a similar manner to modernisation and that their fertility behaviour eventually converges in the post-transitional period (Chamie 1981). In the context of the timing of family formation in Fiji, the transition of interest is from a situation of large culturally-determined differentials in SMAM and MFBI to common levels determined by socio-economic characteristics. To what extent is such a transition taking place?

Figure 4
Relationship between SMAM and MAFB for socio-economic subgroups by ethnicity, Fiji 1986 and 1996



Note: MFBI is the horizontal (or vertical) distance from the diagonal (dashed line).
Source: Author's calculations based on census data.

It is clear from Figure 3 that at the population level ethnic convergence is not taking place in SMAM and MFBI, though anomalously it has already occurred in MAFB. However, it is also clear from the above analysis that socio-economic differentials exist (that is, later family formation is associated with higher socio-economic status), that such differentials are greater among Indians than Fijians, and that they are increasing over time particularly among Indians. Combined with increasing proportions of both populations with tertiary education and professional and related occupations, these differentials would be expected to result in a transition to later family formation. Under the interaction hypothesis this would also involve convergence.

It has already been seen in Figure 3 that a transition to later family formation is taking place among Fijians, but not among Indians in recent years. Table 4 shows that for

both populations there has been a move towards later family formation (in SMAM, MAFB and MFBI) for higher status subgroups, but that for lower socio-economic subgroups family formation has become earlier, among Indians in particular, or only slightly later. (The moves to earlier family formation for remunerated activity are due to the structural changes in the economy.) Socio-economic divergence within populations is thus taking place. While divergence is in keeping with the interaction hypothesis (because the response to modernisation would occur first in higher socio-economic subgroups), earlier family formation is not.

The opposing trends within the Indian population result in a complex pattern of ethnic differentials by socio-economic subgroup, seen in Table 5. Ethnic differentials at higher socio-economic levels are smaller in SMAM but do not diminish over time, whereas in MAFB they are larger in 1986 but do diminish. At lower socio-economic levels, ethnic differentials in both SMAM and MAFB mostly widen over time. Only in MFBI is ethnic convergence occurring for all socio-economic subgroups, though the differentials are not always smaller at higher socio-economic levels. For MAFB, the convergence seen at the population level in Figure 3 would appear to be a coincidence rather than a true convergence based on socio-economic criteria.

Thus, though ethnic differentials are changing over time and vary by socio-economic subgroup, the pattern of change does not entirely accord with the interaction hypothesis. The interaction hypothesis appears to be only partially operational for MFBI and at higher socio-economic levels for SMAM and MAFB. At lower socio-economic levels, however, other factors appear to be involved.

Table 4 Changes over time in SMAM, MAFB and MFBI by socio-economic group by ethnicity, Fiji 1986-1997

Socio-economic	Fijian			Indian		
subgroup	SMAM	MAFB	MFBI	SMAM	MAFB	MFBI
Total	0.50	1.17	0.66	0.01	0.10	0.08
Religion - Fijians / Indians						
Methodist / Hindu	0.55	1.12	0.57	-0.01	0.06	0.07
Catholic / Moslem	0.66	1.49	0.83	0.04	-0.06	-0.09
AG & SDA / Other	0.04	1.09	1.05	-0.01	0.68	0.70
Other	0.79	1.20	0.41			
Remunerated activity - all workers						
Remunerated	-1.07	0.77	1.85	-2.34	-1.77	0.57
Non-remunerated	0.37	0.63	0.27	-0.60	-0.46	0.14
Homemakers	0.37	0.35	-0.01	-0.20	-0.18	0.01
Occupation - remunerated employed						
Professional & related	0.70	1.49	0.79	0.92	1.35	0.43
Clerks, service, sales	-0.72	0.64	1.36	-2.05	-1.32	0.72
Agriculture	*-2.05*	*-0.03*	*2.02*	*-0.77*	*-1.12*	*-0.34*
Production & other	*0.29*	*1.92*	*1.64*	*-2.15*	*-1.03*	*1.12*
Education - all workers						
Primary	-0.16	0.44	0.60	-1.23	-0.84	0.40
Secondary	0.11	0.41	0.30	-0.97	-0.93	0.05
Tertiary	*0.11*	*1.69*	*1.58*	0.20	0.99	0.78
Education - remunerated employed						
Primary	*-0.77*	*1.22*	*2.00*	*-1.99*	*-1.17*	*0.82*
Secondary	-0.25	0.29	0.54	-1.11	-1.06	0.04
Tertiary	*1.17*	*1.86*	*0.69*	*0.77*	*1.02*	*0.25*

Italics indicate based on either <2000 persons or 2000-2500 with one or more age groups of <100.
Source: Author's calculations based on census data.

A complex interaction

It has been argued that a large part of the ethnic differentials in the timing of family formation in Fiji can be explained by the norms hypothesis but that both changing cultural norms and socio-economic differentials are to some extent involved. It is clear, however, that the four hypotheses commonly used to explain group differentials in fertility behaviour are inadequate for explaining the differentials under examination. In particular, the interaction hypothesis fails to fully account for the divergent behaviour of socio-economic subgroups.

Table 5 Ethnic differentials(a) in SMAM, MAFB and MFBI by socio-economic subgroup, Fiji 1986 and 1997

Socio-economic subgroup	1986 SMAM	1986 MAFB	1986 MFBI	1996 SMAM	1996 MAFB	1996 MFBI
Total	-1.73	0.18	1.91	-2.22	-0.89	1.33
Urban	-1.26	0.69	1.94			
Rural	-1.94	-0.01	1.93			
Remunerated activity - all workers						
Remunerated	-0.61	2.09	2.70	-1.87	-0.46	1.41
Non-remunerated	-2.04	0.00	2.04	-3.01	-1.10	1.92
Homemakers	-2.22	-0.27	1.94	-2.78	-0.81	1.97
Occupation - remunerated employed						
Professional & related	-1.03	0.93	1.96	-1.10	0.59	1.68
Clerks, service, sales	-0.74	1.78	2.53	-2.06	-0.30	1.76
Agriculture	*-2.16*	*2.43*	*4.60*	*-1.37*	*0.47*	*1.84*
Production & other	*-0.96*	*2.04*	*3.01*	-3.48	-2.59	0.89
Education - all workers						
Primary	-3.17	-0.13	3.03	-4.24	-1.42	2.82
Secondary	-2.07	-0.25	1.82	-3.16	-1.59	1.57
Tertiary	*-0.99*	*1.32*	*2.30*	-0.89	0.61	1.50
Education - remunerated employed						
Primary	-1.31	2.30	3.61	*-2.53*	*-0.09*	*2.43*
Secondary	-1.60	-0.01	1.59	-2.45	-1.36	1.09
Tertiary	*-0.38*	*1.71*	*2.09*	-0.78	0.88	1.65

Note: (a) Indian - Fijian.
Italics indicate based on either <2000 persons or 2000-2500 with one or more age groups of <100.
Source: Author's calculations based on census data.

The main complicating factor in the operation of the interaction hypothesis in explaining ethnic differentials in SMAM (and secondarily MAFB) is the imbalance in the marriage market. The fertility declines of the 1960s and 1970s (see Figure 1) resulted in shortages of females in the late 1980s and 1990s, the effects of which are seen in the 1996 data. In the Indian population, this shortage, which began in about 1987, was quite marked because of the more rapid fertility decline. For Fijians, the shortage began in about 1993 and was less pronounced. The pressure towards earlier female age at marriage resulting from these shortages would have counterbalanced the tendency towards later marriage stemming from modernisation. These opposing forces were differently balanced for different socio-economic subgroups: at higher

socio-economic levels, the response to modernisation would be greater than at lower socio-economic levels. The result was the socio-economic divergence already seen. For Indians in higher socio-economic subgroups the trend towards later marriage has continued, but for those in lower socio-economic subgroups the trend is reversed due to the dominant effect of the marriage market imbalance (see Table 4). For Fijians, divergence has not always involved such a reversal of trend indicating that modernisation has largely outweighed the less pronounced demographic effect. Apart from a stronger marriage market effect, the greater socio-economic divergence among Indians is attributable to two supporting factors: minority group status and changing cultural norms.

Though the direct relevance of the minority group hypothesis has been discounted, this hypothesis does have underlying significance. For the Fijian population, security of land tenure, the possibility of a comfortable subsistence lifestyle, custom-based status structures and traditional obligations to the extended family constitute a way of life that has not encouraged personal striving for economic advancement. In contrast for the Indian population, the importance of economic advancement is highlighted by the ever-present impetus of political insecurity, and without the possibility of land ownership, commerce and education have increasingly been the main avenues for advancement. These fundamental lifestyle differences clearly favour greater socio-economic differentials and more rapid demographic change among Indians than Fijians. Clegg (1988) similarly attributed the slower pace of change in Fijian fertility to lower levels of involvement in economic development and stronger cultural ties with the village.

Lifestyle differences have also contributed to the ethnic distinction in the way in which cultural norms have changed in response to modernisation, which in turn have influenced socio-economic differentials. Among Fijians recent normative change has mainly involved the continued gradual erosion of traditional beliefs and practices including controls over premarital sexuality. This has occurred across social strata due to widespread movement away from the village for post-primary education and to the maintenance of strong ties between kin in different socio-economic subgroups because of cultural obligations. Thus socio-economic differentials are minimised. Among Indians, however, normative change has widened differentials. The association between education and norms relating to the timing of marriage, its type and premarital sexual relations not only accentuates socio-economic differentials but has focussed the pressure to marry early on females with lower educational attainment (regardless of the direction of causation). Thus socio-economic divergence has involved a move to earlier marriage at lower socio-economic levels, while at higher levels marriage becomes later. Additional pressure to marry early results from the emigration of educated females for marriage, stemming from normative change related to minority group status.

Thus ethnic differentials in the timing of family formation in Fiji are the product of a complex interplay of processes. The interaction is not only between the norms and characteristics hypotheses, but also involves the effect of marriage market imbalances and the way in which norms respond to modernisation. In addition, the minority group hypothesis is indirectly involved: minority status was instrumental in determining the relative timing and strength of the fertility transitions and hence of the marriage

market effect, and continues to shape socio-economic differentials and normative change.

A new hypothesis

These complexities point to the need for a more comprehensive hypothesis encompassing the processes of transition. In particular, since marriage market imbalance is the inevitable result of fertility decline, its possible outcomes should be addressed in hypotheses seeking to explain group differentials in fertility behaviour. The 'transitional effects hypothesis' is such a hypothesis. This new hypothesis states that in a situation of ongoing fertility transition, ethnic differentials in fertility behaviour are due to the net effect of marriage market imbalances and modernisation.

Wherever fertility decline occurs, an imbalance in the marriage market ensues, and if male generally exceeds female age at marriage, the shortage of females leads to either decreased female or increased male age at marriage (and possibly greater proportions of males remaining unmarried) or both. Inasmuch as female age at marriage is affected, this demographic factor will contribute to the ethnic differentials in fertility behaviour observed a generation or so (determined by male age at marriage) after the start of fertility decline in the earlier-transition population. While fertility transition will inevitably lead to marriage market imbalance, the exact consequence for the timing of family formation depends on the relative strengths of this demographic effect and the response to modernisation (particularly in terms of education) in the context of changing norms. These opposing effects are differently balanced in different sections of the population. Since the response to modernisation is greater at higher socio-economic levels, female age at marriage is more likely to increase for

these subgroups. Conversely at lower socio-economic levels, age at marriage is more likely to decline. Thus socio-economic divergence occurs. Increases in female age at marriage at all socio-economic levels will only occur if even greater increases occur in male age at marriage, but a degree of divergence would remain.

The transitional effects hypothesis relates to whether the response to modernisation is sufficiently strong to overcome the marriage market effect. Clearly it is possible for it to do so through increases in male age at marriage. Where modernisation involves increased female aspirations for higher education and employment, the response to modernisation will outweigh the marriage market effect and age at marriage will rise. Where aspirations are weak, the marriage market effect will outweigh the response to modernisation and age at marriage will decrease. In populations where aspirations differ little between socio-economic subgroups, trends in age at marriage will diverge to only a limited degree. In populations where aspirations differ substantially, usually supported by parental involvement, divergence will involve opposing trends. There is no assumption of a common response.

While the marriage market effect is seen most clearly in measures of the timing of family formation, it is nevertheless relevant for analyses of fertility behaviour in general, including premarital childbearing and fertility levels. As already noted, part of the decline in fertility in many developing countries is achieved through the postponement of the first birth which is often mediated through marriage. Thus, under the transitional effects hypothesis, at higher socio-economic levels, fertility is likely to decline, while at lower socio-economic levels, fertility may rise (in the absence of changed patterns of contraceptive use).

Discussion

As already noted, the measures on which this analysis is based are limited to cross-sectional group means and subject to potential bias. Nevertheless, through careful usage, meaningful analysis has been possible. Confidence in the analysis is gained from the consistency and coherence of the results. The limitation to association rather than causation is appropriate: as the interaction between education and marriage among Indians clearly demonstrates, causation and reverse-causation are often inextricable, but this does not detract from the importance of the association. The emphasis has been on identifying associations and thereby the processes underlying the ethnic differentials in the timing of family formation.

While it has been possible to identify the complexity of processes that contribute to ethnic differentials in the timing of family formation, two factors have served to obscure evidence of these processes. First, the structural adjustment that took place between 1986 and 1996 resulted in substantial changes in the occupational composition of all but the professional and related category, limiting comparability over time. Second, as already indicated, the difference of conceptual framework complicates comparison of the two populations. The estimated relationships shown in Figure 4 shed light on the appropriateness of alternative frameworks. For the Indian population, SMAM and MAFB are closely correlated ($r^2 = 0.88$), while SMAM and MFBI are entirely uncorrelated ($r^2 < 0.01$). Thus Framework A would seem highly appropriate. The slope of the regression of MAFB on SMAM (Figure 4) implies that MFBI is constant; and the association between MAFB and MFBI is weak ($r^2 = 0.13$). For Fijians, the association between SMAM and MAFB is less certain ($r^2 = 0.54$), and

those between SMAM and MFBI ($r^2 = 0.07$) and MAFB and MFBI ($r^2 = 0.21$) are weak. This suggests that a combination of all three frameworks is appropriate.

This ethnic difference in conceptual framework clearly stems from the differing cultural norms. As demonstrated, the norms hypothesis explains a large part of the ethnic differentials in the timing of family formation. With increasing modernisation, however, the explanation of ethnic differentials has become more complex. While the interaction hypothesis was formulated to take account of differing responses to modernisation, it has been shown in the case of Fiji to be inadequate in capturing the complexity involved. The assumption in the interaction hypothesis of an eventual common response to modernisation ignores the possibility of true interactions. The different patterns of normative change in Indians and Fijians and the association between education and marriage among Indians are cases in point. Knodel et al. (1999) similarly found the interaction hypothesis to be inadequate in interpreting the complexities of the relationship between religion and reproduction in Southern Thailand. Further, though formulated in the context of fertility transition, the interaction hypothesis takes no account of the consequences of that transition: inevitable marriage market effects are ignored. One consequence is that socio-economic divergence in fertility behaviour arising from the marriage market effect may be misinterpreted as indicative of a greater response to modernisation. The transitional effects hypothesis takes both true interactions and the marriage market effect into account.

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