Was India's tribal demographic behaviour (and its sociocultural underpinnings) 'superior' in the past?

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Abstract

Amidst massive ethnographical and anthropological literature on India's tribes, patterns of their demographic behaviour (e.g. fertility and mortality) have received relatively little attention. However studies on tribal demographic behaviour are not only possible in the past historical context, but they can provide useful insights into the role of sociocultural differences in explaining differential demographic outcomes even in contemporary periods. The present historical analysis suggests that relatively low fertility and mortality (particularly in infancy and childhood) regime had characterised tribal communities vis-à-vis Hindus, and this was in large measure due to tribals' traditional sociocultural and lifestyle patterns and relatedly greater intimacy with natural environment.

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Introduction and Background:

This paper examines historical patterns of demographic behaviour (e.g. fertility and mortality) of India's 'tribal' population in a comparative light.[1] While contemporary demographic literature posits culture as being a prominent source of influence on demographic outcomes, India's tribes offer a good opportunity of examining its generality, robustness and ramifications. First, aggregate tribal population, despite diversity within, evince *overall* a distinct sociocultural structure. Second, as India has uninterrupted record of census and civil registration since the early 1870s, it provides a rare opportunity for comparative studies on demographic behaviour. Although India's historical demography as a distinct branch is relatively new (e.g. Dyson 1989), and *demographic* studies on tribes of historical past are rather non-existent, this is worth pursuing for several reasons. As noted above, they can offer useful insights into some of the contemporary debates and discussions, especially those on the role of sociocultural moorings in demographic behaviour and its transition. This paper examines - in a comparative perspective - patterns of tribal fertility and mortality and their sociocultural underpinnings in the late nineteenth and early twentieth centuries India.

The term 'tribe' is comprehensive (particularly because of diversity within tribes). However, Indian censuses (up to 1941) present tribal population as one category in religious distribution of the country's population. Tribals had been

[1] Tribes of India are known to be descendants of primitive inhabitants, many of whom have in course of history been pushed into the periphery of mainstream society and culture. Although they have historically been small minority (only about 8 percent of the total presently, and it was smaller at nearly 3 per cent before Independence), their absolute number is fairly large because of India's gigantic population size. Like India's enormous diversities (e.g. geophysical, socio-cultural, language), there exist huge diversities among tribal peoples too. According to anthropologists' meticulous classifications on such criteria as racial and physical features, clan, kinship and ancestry, production and social organization etc, there are currently about 600 tribal groups (officially known as Scheduled Tribes, ST for short), most of them being extremely tiny in size. Since numerically large tribes are relatively few, the *overall* sociocultural and demographic features of tribes are – more so in the past - quite distinct.

treated as those practising hundreds of different religions, being all 'primitive' (i.e. other than better-known religious categories namely Hindu, Muslim, Sikh, Jew, Buddhist, Jains, Christian, Parsis). In fact they used to be categorised as Animists until the 1931 census, in which they were enumerated under 'Tribal Religion' heading. Thus, up to 1941, by choosing the criterion of primitive religion, the censuses had avoided several complex issues involved in the notion of tribes. But this approach, based as it were on religious division, has had its own difficulties. The main trouble relates to the distinction between Tribal Religion and Hindu. There was considerable confusion over `a line between advanced primitive religion and backward Hinduism' (Davis 1951:188) because of the syncretistic character of Hinduism, which is so pervasive that it infiltrates nearly every group. Traces of Hindu influence on most of tribal religions feed into a tendency for labelling even a 'primitive' tribesman as a Hindu. Another source of error was deliberate misinterpretation, especially in the wake of separate religious electorates since 1909. There was a growing tendency among Hindu organisations to return everyone of doubtful status as a Hindu, and in 1931 census an active Hindu propaganda is known to have succeeded to a considerable extent, resulting in underenumerations of tribals at least in specific locations (e.g. Bombay and Madras, see Davis 1951:189).

It was only in 1941 census that the tribals were defined for the first time not in terms of their religion or faith, but in terms of their `origin'. This shift in enumeration criterion gives rise to the question of comparability, as preceding census figures were based on religious grouping (Davis 1951, Appendix J). However, despite these difficulties, of which effects, if anything, could only contribute to a bias of underenumeration of tribals until 1941.[2] Consequently, the census enumerations seem fairly consistent and reliable (at least) for cross-sectional comparison up to 1931. [Unfortunately the civil registration system does not provide separate information for tribal populations.] As Davis (1951:Chapter 19), having discussed these issues meticulously, wrote: "[e]xcept the case of Hindus and Tribals in 1941, the census definition of religious groups is thought to be reasonably consistent and

[2] In post-Independence censuses, however, a tendency for infiltration of people of non-tribal origin into official tribal (ST) category began to surface in some regions in response to benefits offered under special government provisions introduced for

accurate" (Ibid:178, footnote 5). As we are concerned with differentials (rather than with actual population sizes of the groups), the issue of definitional comparability between censuses should not bother us greatly. Indeed the non-tribal people were highly unlikely to be enumerated as 'tribal', especially up to 1931.[3] Conversely, counting some tribal peoples as Hindus was likely at least up to 1931 (see Davis 1951:188-191 for detailed discussion on this). To illustrate, a post-enumeration check finds that as many as 24 per cent of Oraon population in Ranchi district of Bihar were returned as Hindus or Christians in 1911 census, while the figure for whole of Bihar and Orissa was around 11 per cent (Ray 1915:Appendix IV). This bias, however, seems to have subsided subsequently, even with its possible reversal (at least) in some regions after Independence (e.g. Guha 1999). Thus the present analysis of tribal demographic behaviour in the past relies on census data and reports (which are available since the early 1880s). Despite wide regional spread of tribes, their spatial concentration is historically largest in Central Provinces/Berar (presently within regions of Chattisgarh and southern Maharashtra) and Bihar/Orissa, followed by Bombay/Gujarat, Bengal, Assam and followed by southern and northern states. Also, Bhil and Gond of central and western India, and Santal and Oraon of eastern and central India have been most numerous (for details of numerical and geographical distributions of various tribes during this period, see census reports). With the foregoing as background, we proceed by evaluating Kingsley Davis' analyses and conclusions on the demographic behaviour (mostly fertility) of aggregate tribal population in the early twentieth century India.

Kingsley Davis' View on India's Tribal Fertility

Two chapters of Davis' book (1951) discuss *inter alias* respectively (differential) patterns of fertility and population-share (and growth) of aggregate tribal people in comparison with other religious/social groups. Davis was probably the first, who, with *relatively* little available/reliable evidences, attempted a somewhat *systematic* comparison of fertility between tribals and other non-tribal

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them.

[3] However in 1941 census many persons who could have been enumerated as Hindu were probably classified as Tribal because of the shift in classification criterion.

religious groups during the early decades of the twentieth century (chapter 10). In the absence of reliable data on fertility, the child-woman ratio (CWR hereafter) (e.g. children aged 0-4 years per 1000 women aged 15-39 years, as used by Davis) was almost the only option open, as census population by age, sex and religion are available since 1881. Davis did not include women aged 40-44 and 45-49 years in the denominator of CWR partly due to non-availability in some cases of age group with 44 years as the upper limit, and partly because many Indian women cease reproduction long before that time, with the proportion of celibate widowhood being very high in ages 40-49 years (ibid:70). However, as he himself found after running several tests, the comparative patterns of CWR between religious groups remain 'much the same' whether a higher age bracket (than 39 years) was taken or not.

The census data at all-India level posit a (comparatively) high average CWR for tribal people during 1911-1931, and indeed the tribal figure was found to be the highest among all groups when ratios are taken to *married* women. On the basis of this, Davis concludes that overall tribal fertility has had a marked 'superiority', especially compared to the Hindus (and most other minor religious groups except Muslims). This can perhaps be seen as the conventional wisdom on the question of relative fertility level for Indian tribes. Davis, while explaining this – albeit more in form of a quick guess than as a systematically established one[4] - refers to two facts: one, "[t]he Tribals are primitives, with presumably the reproductive behaviour of most aboriginal groups", (pp.79-80); and second, superiority of tribal fertility [especially compared to Hindus] is 'due in part to their greater toleration of widow remarriage" (p.82). However, two respective queries can be raised: first, it is not clear as to whether fertility level of most aboriginal groups is generally high; it may indeed turn out to be lower in various cases after a careful scrutiny of relevant information across time and space (more on this shortly). In fact there is a long-standing debate in the global (and historical) context among demographers over the *relative* fertility level of 'tribal and primitive societies' (vis-à-vis that of general

[4] A *detailed and systematic* explanation of *differential* fertility and mortality was beyond the scope and purpose Davis' book, where he set upon himself much broader canvas to be drawn. Davis' analysis of differential fertility was basically to offer an explanation for a steady decline of relative share of Hindu population vis-à-vis a corresponding rise for Muslims and a constancy of tribals' proportion in India's total population during 1881-1941.

population) (e.g. Carr-Saunders 1922; Krzwicki 1934; Lorimer 1954; and Nag 1962). Second, while 'greater toleration of widow remarriage' as a possible factor favourable to relatively high tribal fertility appears beyond reasonable doubt, there may well be other aspects of tribal marriage patterns and practices which could exert the opposite [i.e. negative] influence on their fertility. One very prominent was their relatively high female age at marriage (as compared to most other religious groups, more on this below). Tribal societies also seem to tolerate somewhat *greater* extent of celibacy, albeit with rather small absolute levels, both among males and females - a fact that should influence their fertility negatively as compared to Hindus. While relatively larger tribal CWR (compared to Hindus) could have been a net outcome of positive nuptial influences outweighing the negative ones on tribal fertility, its confirmation calls for quantification of these opposing influences for the groups. In fact, as we would show, this whole explanation of higher tribal fertility solely (or even largely) in terms of a greater tribal toleration of widow remarriage is at best incomplete.

That CWR is imperfect as a measure of fertility level is fairly well-known. In fact there is a host of issues involved in judging differential fertility based only on CWRs of two groups. First, differential age-sex pattern of mortality may well vitiate fertility comparison based only on respective CWRs. If, for example, adult and elderly survival chances relative to those of infants and young children in a tribal society are lower (vis-à-vis those for Hindus), a higher tribal CWR would not necessarily mean a higher tribal fertility. It seems worth quoting what the Report on the Bengal Census of 1901 writes while explaining a higher tribal ratio of children per 10,000 population:

> 'The aboriginal tribes are believed to be comparatively short-lived....[T]he greater number of their children... may also be due in part to the fact that there are fewer old people amongst them' (see Census of India 1901, vol.6, part I, p.218).

Again, if maternal mortality is sufficiently higher for tribals, a higher CWR *may* fail as a proof of their higher fertility. For instance the report on the Census of Central Provinces/Berar in 1911 attributed a relatively great deficiency of tribal females in their reproductive period in Chota Nagpur States to a 'more than proportionate

death-rate of women in child-birth' (Census of India 1911, vol.10, part I, p.118).[5] Indeed the issue of comparability of CWRs between two groups gets even more complex if age pattern of childbearing differs markedly. While some of these issues may not appear 'major' while evaluating time *trends* of fertility differentials (Guilmoto and Rajan 2001:717), but they may well matter much in an evaluation of differential fertility at a given point of time.

Notwithstanding these potential pitfalls of CWR, virtually no better measure of fertility could be employed at the time of Davis' study. This said, Davis' CWR-based analysis could be extended and improved subsequently (at least) in a couple of directions. First, a more disaggregate analysis of tribal fertility across regions (at least at the province-level) could provide new insights. The diverse tribes across Indian regions are unlikely to evince a uniform pattern of reproductive behaviour, even though fertility levels of most tribes must have been pretty close to their respective *natural* limits in the early twentieth century. Notably, the existing – though scattered - survey findings (including those conducted as part of census operations) relating to various tribes across Indian regions do not posit tribal fertility to be generally higher than that of non-tribal counterparts (see e.g. Nag 1973).[6] For example, an anthropological study of one hill-tribe (Kanikkar) of Travancore in the early 1950s reports much *lower* tribal fertility than that of general population (Nag 1954). In fact more recent large-scale surveys (including those by census operations, NFHS, SRS) have shown that tribal fertility not only varies across states, but it is higher in some and lower in others as compared to respective levels of fertility of mainstream population (see Maharatna 2000). Second, the CWRs of two groups could be adjusted for differential mortality patterns (as illustrated in

[5] There is further evidence on higher adult mortality relative to children in tribal communities vis-à-vis that of general population. For example, in the early decades of twentieth century, '..investigations in specified areas have shown the phenomenal absence of aged people among the tribal people' (Mamoria 1958:111). The 1931 Census figures also suggest that 'while the proportion of aged people is comparatively small among the tribal people, that of children 0-5 years is decidedly higher than it is among the higher castes; among Hindus it is 15 per cent but among the tribal it is 19 per cent' (Ibid: 111).

[6] These studies (and surveys) are of course of limited scope and coverage and of varying reliability. For a critical review of these studies in the post-Independence period, see Maharatna (2000).

Guilmoto and Rajan 2001). Third, it is also of interest to apply indirect demographic techniques to census data on age distribution of these groups with a view to obtaining estimates of (differential) fertility and mortality.

In the following section we evaluate tribal fertility in comparison with the most numerous (non-tribal) religious group, namely the Hindus in the late nineteenth and early twentieth centuries. The Hindus, constituting more than 70 per cent of India's population in the censuses prior to 1941, represent the mainstream. Thus, despite considerable heterogeneity within themselves, the Hindus seem to be a reasonable choice as a reference group for comparative assessment of tribal demographic behaviour, especially because of distinct sociocultural contrasts between them.[7]

Child-Woman Ratios of Tribal and Hindu Populations: A Re-examination

Let us recapitulate briefly the basis of Davis' conclusion on fertility differential between Hindus and tribal peoples (see Table 1). Apart from much higher tribal CWR, what appears somewhat striking is even *larger* gap in the ratio of children to *married* women between tribals and Hindus than it is for the ratio of children to *all* women. Although this fact by itself does not lend any additional doubt about the inference of a higher tribal fertility, it seems to run counter to Davis' own argument that a higher tribal fertility is in 'a good part' due to 'their greater toleration of widow remarriage'. If the latter were indeed the case, one would have expected smaller difference in the ratio of children to married women as compared to the gap in the ratio of children to all women.[8] In fact, Davis, while comparing CWRs of the religious groups, summed up as follows: "..the ratio of children to *married* women

[7] Of course tribal fertility could be compared with other religious groups as well. However with overwhelming proportion of Hindu population they represent India's mainstream patterns.

[8] Moni Nag in the early 1970s had also noted this inconsistency in Davis' analysis (Nag 1973:116-117). Nag, on the basis of his own analysis of CWRs for Madras for 1961, argues that higher CWR among tribes is largely attributable to a greater rate of widow remarriage and hence a higher *total* fertility rate. The possible implications for CWR (and fertility) of differentials in age-pattern of mortality, female-age at marriage and divorce/separation rate between these groups are ignored by both however.

shows *smaller* differences between religions than does the ratio of children to *all* women of specified ages" (p.80). But he did not pay particular attention to the fact that his above statement *does not* apply to a comparison between tribals and Hindus (see Table 1).[9] However, as we would argue, this precisely could constitute a possible clue to the apparent puzzle of differential fertility and its explanation.

Table 2 presents the CWR for India and some select provinces between 1891-1931.[10] As noted earlier, the difference in the denominator used for calculating CWR between Davis (e.g. women aged 15-39 years) and ours (those aged 15-44 years) does not matter much so far as the comparative *pattern* between tribes and Hindus is concerned. Although higher CWR for tribal population appears almost as a rule, there are some notable exceptions too (e.g. Madras in 1921, CP/Berar in 1901 and 1921). In many other cases the differential, though positive (i.e. tribal CWR exceeding Hindus' ratio), was rather small and was indeed much smaller than all-India figure of 130 per 1000 women, while it was large in Bihar in 1901 and 1911.[11] While these regional differences could have been due partly to variation in quality (and coverage) of enumeration and reporting biases, they could also have resulted from the variation in regional patterns of fertility and mortality. Since CWR is subject to opposing influences from fertility and mortality, a straightforward interpretation of CWRs as reflection of differential fertility between two groups could be misleading if, for example, there is perceptible contrast in age-sex-pattern of mortality.[12] However, Davis reaffirms his inference of higher tribal fertility (based on CWRs) by finding its consistency with relative stability of tribals'

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[9] See Davis (1951), Table 28, chapter 10 for child-woman ratios of all religious groups.

[10] The selection of provinces and time periods was partly circumscribed by availability and accessibility of old census materials in some of the libraries I worked.

[11] Note that for both Madras and Bihar/Orissa the age group of children is wider (0-9) than in other regions.

[12] See Guilmoto and Rajan (2001:716-717) for useful discussion on the difficulties of using CWR as an index of fertility. In view of possible effects of infant and child mortality, they have adjusted CWR by dividing it by survival rate (${}_nL_x/5$) from birth up to the children's age in question (appropriately chosen from model life table). Thus mortality-adjusted CWR for a district, expressed in standardised form with reference a grand average of mortality-adjusted CWRs of all districts, is what they call child-woman index, which is thought to be a better approximation of relative *fertility* level of that district than an unadjusted CWR. (more on this issue later)

share in total population (ranging from 2.26 to 3.26 per cent) vis-à-vis a steady decline of Hindus' share (from 75 to 69.5 per cent) during 1881-1941 (see Davis 1951:178). Observing this long-term (relative) stability of tribal proportion even in face of several forces (e.g. via assimilation, conversion) favourable to a secular diminution of their number, Davis attributes this to a higher fertility of tribes, of course under the assumption of relatively higher (or indeed 'highest' as was thought by Davis) tribal mortality. However the 'highest' overall mortality level of a group could still arguably entail the highest CWR, provided age-pattern of mortality is sufficiently strongly skewed against infants and children relative to adult and older women. Thus although higher CWR for aggregate tribes happens to be (apparently) consistent with relative stability of tribal proportion (vis-à-vis a declining proportion of Hindus), the possibility of differential mortality patterns (e.g. age-sex composition) vitiating a judgement on differential fertility based only on CWRs can hardly be ruled out.

Indeed CWR-based judgement of higher tribal fertility (vis-à-vis Hindus) does not seem to find support from some direct fertility data, which were collected on a sample basis during 1921 and 1931 censuses. Table 3 presents information (based on sample survey of currently married couples) on the average number of children ever born per married couple and the proportion of surviving children by individual caste/tribe in a few locations.[13] While interpreting this information, caution is warranted because the data refer to only currently married and alive (at the time of survey) couples, who could willingly give answers to these questions. The possibility of omission of children who died very young (and particularly to currently elderly couples) seems pretty strong, but this is fairly common in birth history data. In case of average number of children per couple - both in case of completed fertility (i.e. married for at least 33 years) and of all marriage-durations together - there might have been selection bias too (e.g. selecting relatively larger families). However it is

[13] The locations for which relevant fertility information for tribes is not available (e.g. Madras) are excluded. The selection of sample households was not made randomly. The information on the number of children born alive and surviving was gathered from those couples who i) could gave their exact age; ii) were still alive. While this sample procedure could invite some selection biases, it is still possible to make a comparative assessment between tribes and Hindus on the basis of this evidence - particularly under the assumption of absence of a significant difference in the response biases between these two groups.

difficult to envisage significant differential in the net influence of such possible biases between tribals and Hindus. This points to a genuine scope for comparative assessment. As can be seen, the average completed fertility of major tribes (e.g. Bhil, Gonds) was not particularly very high, and it indeed was much lower than those of several non-tribal caste and lower caste groups (e.g. higher cultivators and artisans, Kurmi) across several locations. Notwithstanding possible response errors, it is indeed striking that the proportion of surviving children to the total born is generally higher among tribal communities as compared to many upper and lower caste (non-tribal) groups (including even Brahmin). Putting aside the possibility of larger degree of underreporting of dead children among tribal people, the data appear suggestive of lower mortality levels of tribal infants and children. If this is true, this might have been (at least partly) responsible for higher CWR among tribal population as compared to that of the Hindus. For instance Gonds of CP/Berar appear to have had lowest average number of children born to couples with completed fertility (and highest proportion surviving) in 1921. A low-fertility-and-mortality regime seems to have continued to characterise them (vis-à-vis lower caste group) even three decades later in this region (Driver 1963:Table 96:108). While a marked mortality advantage of tribal infants and children (compared to Hindu counterparts) may sound surprising in present times, this hypothesis is not devoid of empirical support in the anthropological literature (e.g. see Wirsing 1985). In fact several plausible reasons for this could be adduced in our present context too.

First, as tribal women may have had a longer birth interval (and possibly lower fertility for reasons discussed below), this may exert favourable influence on health and survival chances of their infants and children. Indeed tribal life styles (e.g. lesser crowding and more intimate relation with nature) and child-rearing practices (including prolonged breastfeeding combined with early food supplementation) are often thought to have healthy aspects. Second, relative absence of neglect and discrimination against female children in tribal communities could also contribute to a relatively better survival outcome for tribal children (more on this shortly).[14] It is

[14] See Murthi et al. 1995 for contemporary evidence on a lesser anti-female bias in childhood mortality in tribal societies. A (comparatively) small differential in CWR between tribal and Hindu populations in Madras Presidency (shown in Table 3) may partly be a reflection of similar fertility levels between tribal and non-tribal populations. In fact Nag, noting distinctiveness of Madras, provides evidence showing a higher age

often observed - albeit mostly among non-tribal populations - that higher the status and autonomy of women in a society, superior are the chances of survival of infants and children (e.g. Bajkhaif and Mahardevan 1993:10-12).

The foregoing tends to cast doubt on a conclusion of a *higher* tribal fertility when drawn *merely* on the basis of their higher child-woman ratio. In an earlier sample enquiry (in 1911 census) in Central Provinces/Berar a somewhat *smaller* average number of children ever born per family was reported for Gonds (4.6) - one prominent tribe in those regions - than those for Rajput (4.8), Chamar (5.3) and even for total population (4.8).[15] Notwithstanding possible inaccuracies in these survey data, the census-based sample information is suggestive that tribal communities on the whole did not have much higher (and indeed sometimes even *lower*) fertility as compared to that of non-tribal caste population in the early decades of the last century. Some of the best-known anthropologists of British India did note relatively lower levels of fertility as well as their practice of indigenous methods of birth control (including abortion) among individual tribal communities in specific regions. For example, Verrier Elwin observed a distinctly lower fertility among the Baiga, one major tribal group of central India and he did indicate the use of several indigenous methods of birth control including abortion (Elwin 1939:218-222). Among the Gonds, another major tribe of central India, the use of an

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at female marriage in the general population of Madras Presidency than in the rest of India, and this could well be a clue to smaller differential in Madras. There is hardly any difference in female age at marriage in Madras, unlike other regions (Nag 1973:115-116). Second, the rates of miscarriages, child and infant mortality could also be somewhat higher in the tribal population of Madras vis-à-vis their counterparts in other regions, contributing to higher CWR in the former. As the 1911 Census Report for Madras Presidency, while discussing about Todas, one major tribe of south India, writes:

> "[t]he race as a whole is so rotten with syphilis that miscarriages are extremely frequent; while children actually born are in many cases horribly diseased, and die off like flies'; see Census of India 1911, Vol.12, Part I, Madras, 1912, p. 169. For another tribe, Khond, in the plains of Madras presidency, the report, while analysing the intercensal population change, puts much emphasis on their prenuptial promiscuity and drunkenness, 'which leads ... to a low natality of children, frequent abortion, female sterility, and the spread of venereal diseases'; ibid, p. 62.

[15] See Census of India 1911, volume 10, part-1, Central Provinces and Berar.

indigenous medicine, prepared of certain leaves and herbs, 'which is said to prevent conception' has been observed (Furer-Haimendorf 1979:287-288). Indeed even in the 1980s a lower fertility of Gonds in one district of Madhya Pradesh (which was part of former Central Provinces/Berar) has been reported (Pandey 1989).[16] We attempt below at some applications of indirect demographic techniques (as were developed under the leadership of United Nations Population Division during the 1960s and 1970s and subsequently modified), as reliable registration data are almost non-existent while census-based age-sex distribution data are available. Consequently, in the following section we undertake an exploratory exercise in estimating fertility and mortality differentials based on indirect demographic methods.

Differential Demographic Rates Between Tribes and Hindus, 1901-1911: Indirect Estimates

Our exercises in some indirect techniques of demographic estimation are based on census age distribution and child-woman ratios for Tribal and Hindu population groups during 1901-1911. It is of interest to see whether indirect demographic techniques that had developed after Davis' 1951 study appear supportive of his conclusion of a higher tribal fertility (based only on CWRs). The 1901-1911 decade has been chosen partly because, unlike in preceding decades, there were relatively few *major* mortality crises (related to famines and epidemics) so that there was a positive growth rate of population at the all-India level for both groups being compared here. However the tribal population had experienced higher growth rate: the Hindus grew at average annual rate of only 0.43 per cent, while the corresponding rate for tribal population was much higher at 1.56 per cent (see Davis 1951:179). Although it may appear tempting to take higher tribal growth as a reflection of their higher fertility, there could, as indicated above, be other possibilities as well. For example, we may first estimate mortality levels of these two groups by matching respective proportions of population below age 15 years (i.e. C(15)) in 1911 and annual growth rates during 1901-11 with those in South Model

[16] The recent large-scale fertility surveys (e.g. National Family Health Survey, 1992-93 and 1998-1999) evince at all-India level (and of course in many states) somewhat lower fertility rates of tribal vis-à-vis lower caste populations.

(Females) Life Tables. The results derived by means of interpolation[17] are as follows:

	e_0	CDR
Tribals	28.55	38.55
Hindus	20.64	44.48

It notable that (indirect) estimates - based on proportions of children and population growth rates - indicate better mortality situation among tribal population as compared to those for Hindus during 1901-1911. As is well-known, however, such indirect estimates are not contingent upon assumptions relating to construction of model life tables, but they are often sensitive to biases in age distribution data.[18] We have used C(15) on the ground that biases due to age misreporting should be at a minimum for aggregate population below 15 years. In any case once we have determined respective mortality levels - albeit on the basis of unsmoothed population distributions by age – we may now adjust CWRs for differential survival ratio for children up to age 5 years to gauge its possible impact on CWR. The CWRs adjusted for differential infant and child mortality (i.e. CWRs multiplied by (1-Model Life Table survivorship ratio up to age 5 years)) become 379 and 380 respectively for Tribals and Hindus during 1911-31. A comparison of these corrected CWRs with respective unadjusted figures (in Table 1) clearly shows narrowing of the gap when differential mortality patterns are taken account of.

Additionally, on the basis of these differential mortality estimates we may apply the method suggested by J.R. Rele (1967, 1987) for estimating fertility rates. This method essentially hinges on an observed close linear relationship between

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[17] For the details on indirect demographic methods based on age distribution and growth rate and on model stable population parameters, see United Nations 1967, especially Chapter 1; 1983:Chapter 7). South Model Life Tables (for females) is thought to be more suitable under India's mortality conditions in the early twentieth century.

[18] For discussions on implications of defective age data (e.g. age-heaping) for demographic estimation based on model life tables and stable populations, see United Nations 1967, 1983. As Indian census data far from perfect, caution is required (e.g. Rele 1987).

CWR and gross reproduction rate. Following this method,[19] we have come up with estimated total fertility rates (making adjustments for usual pattern of differential age misreporting between children of 0-4 and 5-9 years) of 6.4 and 6.1 respectively for the Tribals and Hindus. While these indirect fertility estimates posit tribal fertility as being only about 5 per cent *higher* than that of Hindus early last century, the average differential in terms of enumerated CWRs was as much as 16 per cent during this period (see Table 1). [Note that the CWR turns out to be as much as 30 per cent higher for tribals, although the difference is reduced to about only 10 per cent in the following decade of 1891-1901 - a decade which had witnessed two successive severe famines with huge excess mortality.] Thus the indirect method - even though based on CWR - does not show up a *much* higher tribal fertility than that of the Hindus. A lower level of mortality in overall tribal population could be - at least partially - a source of the clue as to why the fertility differential appears almost negligible while there is wide difference between respective CWRs of these two groups. This presumed link entails the hypothesis, however, that relatively lower tribal overall mortality is substantially due to lower levels of infant and early childhood mortality (vis-à-vis those for Hindus). If this is true, a higher tribal CWR may not *necessarily* indicate - as was thought by Davis – a higher tribal fertility. It may be noted that our application of Palmore's equation for 'Class 4 countries' (where IMR data are not available) gives an estimate of tribal fertility rate (5.36), which appears lower than that for the Hindus (5.96) in 1911 (see Palmore 1978; and Rao et al. 1987).[20]

The question of differential age-pattern of mortality is indeed an important consideration in using model stable population. For example, the above estimation of mortality levels for two groups has been based on our selection of the South Model Life Tables. However, if North Model were selected for *tribal population* on our presumption (as deduced above) of low infant and childhood mortality levels relative to those for adult and other age groups, one may end up having a *lower* (estimated)

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[19] For details see Rele 1987:516-518.

[20] Our argument seems consistent with what was observed by the Mysore study in Karnataka in the 1950s, namely, that increases in the proportion of children were chiefly related to rapid declines of child mortality, rather than fertility rises. In fact, increases in the proportion of children had occurred even in the presence of declining fertility (see Mutharayappa 2000:17).

tribal fertility (or CBR) than of the Hindus.[21] If we take, for illustrative purpose, the tribal mortality level determined as above by using South Model Tables and then match it for tribal fertility in the North Model, the tribal birth rate becomes about 40, while it is around 50 for the Hindus based on South Model Tables.

However, as is well known, the usefulness of indirect techniques of demographic estimation (and hence the reliability of the results) in a particular context is often circumscribed by degree of relevance (and/or appropriateness) of some key assumptions involved.[22] Thus the foregoing analysis so far does not *necessarily* lead us to a *conclusive* statement that tribal fertility was lower than that for the Hindus (or for that matter whole mainstream population). But there seems to have emerged a fairly strong indication that India's aggregate tribal population during early twentieth century have had a *lower* fertility rate than that for mainstream Hindu population. And it is almost certain that at least some specific tribal groups inhabiting particular locations must have had a comparatively low fertility in the period considered here. The available evidence (both micro-level and large-scale) for contemporary period (albeit until very recently) testifies to a distinctively low tribal fertility as compared to that of their non-tribal counterparts (especially SC) in majority Indian locations and of course at all-India level.

If *relatively* low fertility and mortality regime of India's tribal population in the past is real, what could be its explanation? Since modern methods of contraception and health care were almost non-existent in the late nineteenth and early twentieth century India, the explanation should lie chiefly in differential sociocultural norms, values, and practices, which generally have bearing on reproductive behaviour and performance and probably also on infant and child mortality levels. The biological determinants of fertility variation (e.g. variation in postpartum sterility and abstinence and breastfeeding between social groups) are

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[21] A few careful indirect estimates of India's past mortality suggest an age pattern being characterised by (relatively) heavy adult mortality vis-à-vis children in the late nineteenth and early twentieth centuries, calling for downward revision of fertility and mortality estimates (Bhat 1989). This historical pattern of mortality was likely shaped by the occurrence of several major famines in this period, which had generally more adverse mortality impact (in *proportionate* terms*)* on adults (Dyson 1991; Maharatna 1996).

[22] For a useful discussion on the assumptions involved and their relevance in various contexts, see Coale and Demeny 1983: chapter 1-3; and United Nations 1967, 1983.

often ultimately founded on sociocultural characteristics. One major explanatory candidate behind differential fertility, especially in a natural fertility context of the past is differential nuptiality levels and patterns between the groups, which we analyse below.

Marriage Patterns and Fertility: Tribal and Hindu Populations

One feature that distinguishes tribal females from their Hindu counterparts is relatively late entry into marital union. This is amply borne out in Table 4, which presents the distribution of 1,000 females by marital status and age for these groups in some provinces in the late nineteenth and early twentieth centuries. Putting aside the possibility of differential age-reporting biases between the groups, the differential pattern of nuptiality deserves attention. For example, for whole of India about fifty per cent Hindu females aged 10-14 years were enumerated in currently married state, while corresponding figure for tribal females was nearly eighty per cent. Roughly 30 and 40 per cent of tribal females aged 15-19 years were found unmarried in 1881 and 1911 censuses, while corresponding figures among Hindus were merely 10 and 12. In some locations (e.g. Madras in 1921) about 50 per cent of tribal females aged 15-19 years were reportedly unmarried, while in many locations (e.g. CP/Berar in 1891) nearly 90 per cent of Hindu females had entered into marital union by this age. However, Madras seems to have had a distinction with lesser incidence of early and child marriage. For example, the proportion of unmarried Hindu females aged 10-14 years (and to some extent 15-19 years) in Madras, though it is lower than the corresponding tribal figure, is much larger than that of India as a whole (see Table 4).

Indeed the majority of Indian females get married by 20-24 years of age, but the proportion of unmarried *tribal* females in this age group, though it is probably small in comparison with Western countries, appears nearly thrice the figure for Hindus. More than 13 per cent tribal females were enumerated as unmarried in the Bengal census of 1901, whereas the corresponding figure for the Hindus was only 2 per cent. While the proportion of females remaining single at the age 40-44 years ranges between 3 to slightly more than 4 per cent in tribal communities, it has generally been less 1 per cent among the Hindu counterparts. All

this is suggestive not only of tribal females' relatively late entry into marital union but also of their larger incidence of celibacy as compared to their Hindu counterparts.[23] While toleration of widowhood is clearly much greater among Hindu women, its fertility-suppressing effect could be well offset by fertility-promoting forces due to their negligible extent of celibacy and very early entry into marital union as compared to tribal population.

H.H. Risley, India's Census Commissioner during the early twentieth century, while discussing about Santals, a dominant tribe of eastern India, wrote in the Ethnographic Appendices to the 1901 Census report as follows: 'Girls are married as adults mostly to men of their own choice.. [while] high-caste Hindus ..marry their daughters between the ages eight and twelve' (Census of India 1901, volume I, Ethnographic Appendices, Calcutta 1903: 145). In 1901 census, for instance, the average female age at marriage in Mysore was reported to be 14 years among Hindus and 18.1 years among tribal people (Mandelbaum 1954:6). Since detailed information on age-sex distribution of population by marital status for all religious groups including tribals are available in India's pre-Independence censuses, this makes possible the calculation of singulate mean age at marriage (SMAM) separately for tribals and Hindus (see Appendix Table A1).[24] The female SMAM for tribals appears almost always higher than that of their Hindu counterparts, although the difference in the male SMAM is less striking (except for a few cases e.g. Central Provinces). Note that positive gap in the singulate age at marriage between tribal and Hindu females in many regions was often of four years, and was of three and half years at all-India level. It is also noteworthy that the spousal age-gap at marriage is generally *smaller* in tribal populations than that of the Hindus. In case of even some tribes like Bondos, 'the girls prefer to marry younger boys' (Garg 1960: 195). The (relatively) late marriage practice among tribal females seems somewhat consistent with a greater female celibacy (vis-à-vis that among Hindu

[23] Such historical patterns of differential nuptiality are discernible in contemporary periods too (e.g. Maharatna 2000).

[24] SMAM for females (males) is an estimate of the average years of life lived in the unmarried state by women (men) in a population - based on proportion of single women (men) in each age group between 15 and 49 years. This index of nuptiality, developed by John Hajnal, is widely taken as the average age at marriage in the absence of direct information.

counterparts). It is evident from historical census information (see Appendix Table A2) that the proportion of unmarried (i.e. never married) *tribal* women in their forties - though much smaller than in historical Europe - is often found much larger than that of their Hindu counterparts. In fact in some provinces (Bihar/Orissa in 1911 and 1921, Bombay in 1921) the proportion of tribal women who had remained unmarried is as much as 3-4 times the corresponding Hindu figure. These features should have exerted *negative* influences on the fertility of tribal population (vis-à-vis that of the Hindus).[25] On the other hand, the proportion of Hindu widow women appear higher than the corresponding tribal figure - a fact which, as was much emphasised by Davis, should have put an upward pressure on total fertility rate of the tribals.

However it is not easy to separate out these two opposite influences of tribal marriage practices on their fertility.[26] However, in an effort to gauge *net* differential impact on fertility of these two different patterns of nuptiality, we may apply an indirect method, namely Coale's Index of Proportion Married (I_m) given by[27]

$$I_m = \frac{\sum m(i)\, f(i)}{\sum w(i)\, f(i)}$$

where, m(i) = number of married women at age group i
w(i) = total number of women at age group i
f(i) = age-specific marital fertility rate at age group i for the Hutterites.

This index (I_m) basically is a measure of the contribution that marital status would

[25] In fact SMAMs for tribes were perhaps even higher than those presented in Appendix Table A2. This is because of our incorporation of the 10-14 years age group. This modification was introduced to take account of the Hindu practice of very early female marriage, which however was not (or was much less) relevant to tribes. Therefore, if calculation of tribal SMAM were based on the assumption that all tribal persons lived single before age 15 years, it should be higher, and the gap between tribal and Hindu women would be larger than shown in Appendix Table A1.

[26] For more recent evidence on relatively larger incidence of celibacy among tribal women in north-eastern region, see e.g. Dey 1969:10.

[27] See Coale 1969, and also Coale and Treadway 1986.

make towards the attainment of maximum fertility,[28] 'if married women experienced fertility not subject to parity-related restriction, and non-married women bore no children at all' (Coale and Treadway 1986:34). In other words, it gives, *ceteris paribus*, an idea about the proportion of births that would be generally lost in a community due to its specific patterns of celibacy, age at marriage and the state of widowhood and divorce/separation. Table 5 presents average I_m values during first two decades of the twentieth century for whole India, Central Provinces/Berar as well as Bihar/Orissa. As noted earlier, these two provinces are historically characterised by relatively large tribal concentration. As can be seen, fertility-suppressing effects of tribal nuptial features (e.g. late marriage and somewhat greater celibacy) seem, on balance, no less – indeed somewhat stronger – than those of the Hindus (e.g. greater toleration of widowhood). Indeed in the early decades of last century the negative fertility effect of *relatively* late female marriages and a larger incidence of female celibacy among India's tribes seem to have outweighed the positive fertility effect of their greater toleration of widow remarriage. A relatively small gap between Tribals and Hindus in I_m for Central Provinces/Berar could be, as noted earlier, a reflection of relatively early assimilation of the tribes (e.g. Gonds and Bhils) within mainstream Hindu sociocultural pattern.[29] Although there is distinct

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[28] The Hutterites, an Anabaptist sect, live in the north-central area of the United States and in the southern part of central Canada. They have kept accurate statistics of births. The married Hutterites had experienced the maximum rates of childbearing during 1921-1930 as far as all reliable records across the globe are concerned, because they 'scrupulously adhere to a religious proscription of contraception and abortion, and because of early weaning of their infants' (Coale and Treadway 1986:33).

[29] See also e.g. Mamoria 1958:51; Census of India 1911, volume 10, part-1:130. About the Gonds of Central Provinces, the 1911 Census Report, for example, writes that: '.. tribal system is breaking down and ...are coquetting to a varying extent with Hindu gods' (Census of India 1911, vol.1, part-1:130). While discussing *transformation* of tribes, Mamoria five decades later describes Gonds and Bhils of Central India as being those who have left their 'tribal moorings and have settled in the neighbourhood of higher cultural groups they serve' (Mamoria 1958:51). In contrast, shortly after the rebellion of 1855 'the more wealthy Santals' - the major tribe of eastern India – had started as a fashion to 'imitate the usages of high-caste Hindus and marry their daughters between the ages of eight and twelve. This fashion has, however, since been abandoned..' (Census of India 1901, vol.1, Ethnographic Appendices:145). However, as the District Gazetteer of Santal Parganas of Bihar reports in 1910: 'Adult marriages are the rule among the Santals, a young man generally marrying between the age 18 and 22, i.e. as soon as he can afford it after he has grown up.

indication of somewhat lower – or (at least) not much higher - fertility among tribes than that for Hindus in the historical past, the *direct* evidence of fertility for conclusive confirmation is virtually absent (as mentioned before). But from the foregoing it seems that fertility on balance could well have been *lower* (e.g. delayed marriage, celibacy among females, use indigenous methods of fertility control). Indeed the finding of a lower tribal fertility in more recent periods has sometimes been explained in terms of their marriage patterns resembling broadly those of historical Europe (i.e. relatively delayed marriage and high proportion never married) (Dey 1969).[30]

It is highly presumable that these tribal nuptiality features are in large part a reflection of greater female autonomy and freedom in tribal societies. For example, the report of the Census of India for 1901 (written by H.H. Risley) while discussing about Santals, one major tribal group of eastern India, noted that Santali girls generally married men of their own choice and '[s]exual intercourse before marriage is tacitly recognised..'; (Census of India 1901, Vol 1, Ethnographic Appendices, Calcutta 1903: 145). Although this is merely one aspect of female autonomy and for only one tribal group, evidence of a higher female status/autonomy even in other walks of life of tribal women (e.g. decision-making, freedom of movement) abounds in anthropological literature encompassing many other tribes across India. Therefore, apart from net fertility-suppressing effects of some tribal nuptial patterns, their underlying socio-cultural features of greater female autonomy and greater gender equities seem to provide an added context favourable to relatively low tribal fertility – an issue which we discuss in the following section.

5 Patriarchy, Gender Relations and Tribal Fertility: A Comparative Perspective

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Until their insurrection in 1855 the Santals did not marry before 25 years of age, but now it very seldom happens that marriage is left till so late. Child-marriage is very rare, and is an innovation borrowed from the Hindus' (O'Malley, L.S. S., Santal Parganas, Bengal District Gazeetters, 1910; p.133).

[30] There are several estimates of the contribution to fertility reduction of rises in age at female marriage (Agarwala 1965; Malakar 1972; Cassen 1978; and Premi 1982). The estimates vary according to assumptions employed. Some studies do show a higher marital fertility for women married below 18 years than for women married later (e.g. between 21 and 23 years) (see Premi 1982, Table 23; author's own calculation based on SRS and census data for 1971 and 1978).

A considerable body of contemporary demographic literature assigns significant role to the differentials in female status, autonomy and patriarchy in explaining differential demographic outcomes (e.g. fertility, and sometimes infant and child mortality too) both between groups and regions.[31] An *inverse* connection between indicators of female status/autonomy/patriarchy and fertility is established beyond reasonable doubt. There are several standard mechanisms - not necessarily mutually exclusive – by which a more patriarchal society encourages higher fertility.[32] For example, patriarchy, which is basically a system of hierarchical relationships within a family, often places control over fertility decisions in the hands of older male and female members, who are often derive disproportionately large benefits from large family. Second the woman's insecurity, linked with her economic and social dependence on men, breeds a strong desire 'to produce sons, as many and as soon as possible' as an insurance against the risk of events which threaten her wellbeing (such as loss of husband's support). And economic dependence of women on men typically arises because of former's limited control over familial resources and restrictions on their movements and income-earning activities. Furthermore, a typical lack of female autonomy is thought to suppress women's innovative behaviour favourable to fertility limitation. Since a large cost of childbearing/rearing is borne by women (e.g. captivity during pregnancy, risk of maternal complications and death), the major disincentives against frequent childbirth arise from women's side, which remains suppressed under stark patriarchal subjugation. A number of empirical studies over recent past have confirmed this hypothesised *inverse* relationship between female autonomy and fertility – albeit with reference to mainstream population of South Asia.[33] While comparative studies of minority communities (including tribes) from this perspective are remarkably rare, they could be of much interest, particularly because of the opportunity of evaluating robustness of these

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[31] See eg. Caldwell 1978; Cain 1982; Dyson and Moore 1983; Basu 1992; Morgan and Niraula 1995; Malhotra and Kishor 1995; Desai 1994 among others.

[32] For a review of major perspectives on the relationship between patriarchy/related gender inequalities and fertility, see Koenig and Foo 1992; also Desai 1994.

[33] e.g. Dharmalingam and Morgan 1996, Morgan and Niraula 1995, Malhotra et al. 1995, and Basu 1992 among others.

hypotheses.[34]

Given the general perspectives on gender inequality and fertility, a marked differential in female autonomy (and more broadly in gender relations) between tribal and Hindu communities in the past should presumably contribute towards producing a fertility differential as well. In the absence of modern methods of fertility control in the historical period considered here, the effect would largely be manifest in the variation in natural fertility via differential sociocultural features and practices such as marriage age, female labour participation, and gender relations, spousal separation, and abstinence etc. Although pattern of gender relations and status of women in tribal societies have been drawing attention of researchers (mostly anthropologists) for long, systematic investigations into their implications for tribal demographic behaviour are extremely rare. The ethnographic and anthropological literature clearly shows relatively high female status, autonomy and freedom among most Indian tribes (see Maharatna 2000 and references).

Following contemporary literature, sex ratio (females per 1,000 males) and female work participation rate can be taken as broad (albeit rather indirect) indicators of female status and autonomy. The earlier censuses (especially those before 1951) do not provide detailed information on work participation by sex and social/religious group. However tribal women's relatively larger productive participation is fairly well-known. Indeed post-independence censuses amply testify to this, and there is hardly any reason why this might have been otherwise early last century or even before.[35] In fact past ethnographic literature often provides indications of substantial work participation by tribal females. Therefore on this count the tribal women should have fared better than their Hindu counterparts in terms of autonomy and social position, which should have had a bearing in shaping lower tribal fertility. Indeed, as noted earlier, some recent statistical analyses of district-level data provide fairly strong indication that female labour force participation influences fertility negatively (Murthi et al 1995). Thus, a higher labour force participation of tribal females could well have been instrumental behind their

[34] Harbison et al 1989 is one such rare study.

[35] As for a quick illustration, according to the 1961 census, about 52 per cent of India's tribal women reportedly participated in economically 'gainful' activity, whereas the corresponding proportion was slightly less than 12 per cent for general population (Raza and Ahmad 1990:370).

lower fertility in the historical past periods - presumably inter alias via enhancing female autonomy and its fertility-suppressing agency role.

That the gender relations in tribal communities are historically more balanced than for general mainstream population can also be testified by much higher female-male ratio in tribal population. Table 6 presents sex ratios for Tribals and Hindus for India and select provinces between 1881 and 1931. As can be seen, tribals have had more balanced sex ratios than that for Hindus, with perhaps an exception of Madras. This seems to be the case even in contemporary periods in much of south India. It is also noteworthy that *Hindu* sex-ratios in Bihar/Orissa and Central Provinces/Berar, both of which are the homeland of a large chunk of India's tribal population, seems to have been *more* balanced than of Hindus at all-India level during this period. Somewhat greater influence of tribal culture and male-selective out-migration could be some plausible factors for a relatively balanced Hindu sex ratio in these regions.

While male-bias of migration for work can presumably contribute to a higher tribal female-male ratios in specific regions, this cannot be tenable at the all India level. As the report on the 1931 census of India writes, '[t]he general conclusion as to the sex ratios of India proper is therefore that in the aboriginal tribes the numbers of two sexes are approximately equal, whereas in the rest of the community males exceed females' (Govt of India 1931:200). A more balanced sex ratio in tribal population, reflecting higher women's status and autonomy, seems consistent with *lower* tribal fertility in the late nineteenth and early twentieth century India. This however does not preclude the possibility of considerable inter-regional and inter-tribal variations and diversities.

6 Discussion and Concluding Remarks

The chief purpose of present inquiry into demographic behaviour of tribal people in historical past has been to put into test the currently prominent perspective of the link between culture and demography. Despite substantial scope in terms of data availability, attempts to verify and enrich the currently dominant perspective on interconnections between cultural features and demographic behaviour by drawing on past reality and experiences of tribal people have rarely been made. The

foregoing warrants caution while interpreting CWR as a measure of *fertility*, and hence about Davis' conclusion that Indian tribes had a higher fertility (and higher mortality too) than that of Hindus in the early twentieth century.[36] Indeed our illustrations based on indirect techniques of demographic estimation appear suggestive of almost opposite scenario, namely that tribal fertility and mortality levels could well have been lower than those of Hindu population.

A relative mortality advantage of tribes could substantially be due to somewhat lower infant and childhood mortality levels. Indeed a *relative* mortality advantage of tribal children is often discernible in more recent periods - albeit in an increasingly subdued form with time (Maharatna 2000,2004). Several plausible reasons for tribal mortality *advantage* in infancy and younger childhood were cited in the ethnographic literature of the early last century. They understandably often lie in differential life styles, environmental and sociocultural milieu. For example, prolonged breast feeding and early start of food supplement for infants among tribes has often been mentioned as the possible sources of such differential.[37] Other good features of infant and childcare practices among tribes include holding infants and children vertically during most of waking time and a greater physical contact with mothers (e.g. Konner 1976). In contrast, many mainstream customs during childbirth and afterwards are reported to be inimical to survival chances of the infant. In this context an illuminating passage from the report of the Bengal Census 1881 on mortality advantage of tribal children vis-à-vis Hindus is worth quoting (Govt of India 1883: 120):

'For the years of infant life from the beginning of the first to the

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[36] Davis (1986) more than three decades later proclaimed in his equally illuminating study in an evolutionary perspective a *lower* fertility among primitive tribes and hunter-gatherers, largely as conscious demographic response - tailored largely via sociocultural features - to their physical circumstances of livelihood.

[37] More recent studies often show prolonged breastfeeding and lower risk of conception among tribal women (vis-à-vis non-tribal counterparts) (e.g. Pakrasi and Manna 1989). Indeed, tribal mothers are found to give 'solid food to their infants after 6 months post-partum and most of them continue with breast feeding' (ibid: 46). See also Chandrasekhar 1972:228-238 for discussions on the role of supplementary solid food in lowering risk of infant/childhood mortality, and on its relatively late start in non-tribal societies. A recent finding of (relatively) low levels of infant and childhood mortality (and perhaps of overall mortality too) among one tribal group in Kenya appears attributable largely to milk-based diet and long breastfeeding durations (Ssennyonga 1993).

> end of the fourth complete year the percentage of living children to the whole population is higher among the aboriginal tribes [18.20] than among the followers of any other religion [14.03 for Hindus; 15.77 for Muslims]. …and the fact affords a fresh illustration of the well-known law that the productive powers of man are in inverse proportion to the standard of luxury which has reached; and that given a sufficient quantity of food without excessive hardships of climate, the off-spring of the primitive tribes is more numerous and more healthy than that of their more civilised neighbours. More particularly is this case in India, for it is impossible to conceive customs more prejudicial to the chances of survival than those which prevail both among Hindus and Mohamedans at the birth of a child [e.g. suffocating atmosphere created by closed windows, smoke and overcrowd].'

Furthermore almost total absence of child marriage practice among tribes of past was probably instrumental (partly) for a mortality advantage in infancy, as the risk of death is often higher among infants of very young mothers. The lower tribal fertility itself - to the extent it results from longer birthspacing and breastfeeding - could contribute to a lower infant and childhood mortality. Relatedly, a somewhat better nutritional level of tribal children could also arise - in line with recent empirical studies of poorer households - from a greater female autonomy/command over resources in tribal households (e.g. Agarwal 1994:29-30).

There are indications that tribes, who live in less crowded settlements and in great intimacy with natural environments (e.g. forests and hills), fare *better* in mortality terms (e.g. Wirsing 1985). This has been particularly true prior to the age of mass use of antibodies and vaccines. And this could well have been true for India's tribal people too in the past, when their settlements were mostly in mountainous, hilly and such circumstances with lesser chances of exposure to contamination and disease transmission. Likewise, indigenous (and pre-modern) methods and medicines might have been *relatively* effective in tribal societies. Being closer to nature, they seem to have been efficient users of herbs and leaves for many purposes including health care. Besides, tribal people - partly because of these healthy aspects of their habitation, and partly due to their isolation from mainstream

population - were probably relatively less inflicted by epidemics. Although evidence in support of this hypothesis in Indian context is hard to find, there is some evidence elsewhere (e.g. the mortality effect of the great Influenza Pandemic of 1918 being relatively *less* pronounced among pygmies and bushmen of the Kalahari desert (Dornan 1975:141). Indeed, spread and transmission of disease and associated mortality elevation among tribes has often been seen as a major negative impact of their increasing contact with mainstream population and culture (e.g. Mamoria 1958:48).

There could be other hypotheses for explaining relatively better mortality for India's tribal population in the *past*. For example, the malaria, which had remained almost the largest killer particularly during the period considered here, might have been less in tribal habitations in relatively high altitude and with greater dryness. Indeed the incidence of diarrhoeal and respiratory diseases might have been relatively less among tribal people because of their greater dependence on spring waters and lesser density and crowding. As Handwrker (1983:15) states, 'foraging societies experience relatively low levels of infant and child mortality due to synergistic effects of nutritional patterns yielding adequate growing and maintenance requirements and a relatively low incidence of infectious disease'.

Thus, *relatively low* infant and child mortality (vis-à-vis adults) in tribal population could be a clue not only to a higher tribal CWR, but also to relative (long term) stability of their proportionate share in total population in the past. Our estimated lower tribal mortality level (based on C(15)) not only reinforces doubt on the thesis of higher tribal fertility, but it is suggestive of a *lower* fertility (and mortality) among tribals vis-à-vis those for Hindus early last century. It is worth quoting what Fürer-Haimendorf - a leading authority on Indian tribes for more than half a century - remarked in 1985:

> ....only one or two generations ago many tribal communities enjoyed the advantages of a well balanced ecology fully in tune with the natural resources of their environment and boast an overall quality of life superior in many ways to that of large sections of the Indian rural population. Adequate food-supplies, non-exploitative social structure, freedom from indebtedness and other forms of dependence on non-tribal outsiders, equality of the sexes and a

> remarkable tolerance in all interpersonal relations were outstanding characteristics of such tribal societies. Moreover there seems to be no reason to assume that their way of life could not have continued for the foreseeable future without requiring any aid from outside sources, particularly as in most tribal areas there was no excessive population growth threatening the ecological balance.. (Fürer-Haimendorf 1985:170)

Apart from well-known fertility-reducing effects (biological and motivational) of lower infant mortality/childhood mortality (Preston 1978), there are other good reasons (relating to e.g. marriage, gender relations and social organisation) to expect *tribal fertility* to have been *lower* than that for Hindus in the historical past.[38] To use Coale's classification (Coale 1965), the tribal people seem to have had both 'Malthusian' (e.g. delayed marriage) and 'neo-Malthusian' elements (e.g. higher status and work participation rate for women) of low fertility. Indeed relatively delayed marriage among tribal females seems to resemble to European historical pattern as a tribal man had to postpone his marriage gjuntil he had accumulated enough money to pay bride price and to set up his own household (e.g. Mazumdar 1947:81). For instance it was not really rare among the Hos of Chota-Nagpur for a tribal girl to wait till her mid-thirties before her prospective groom by working could accumulate enough money to pay for bride-price (Roy Burman 1987; and Majumdar 1950).[39] Thus like large part of historical Europe where fertility had been relatively low partly due to delayed marriage (and greater incidence of spinsterhood) (Coale 1986:8), Indian tribes, too, historically had practised late

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[38] In Africa, fertility differentials between ethnic groups are often found to be associated with differential marriage patterns (e.g. monogamy being conducive to relatively large number of currently unmarried women, contributing to lower fertility) (Randall 1996). For evidence on differential fertility levels due to differences in marriage patterns, breastfeeding practices, and social organisation between diverse ethnic groups, see Hill 1985. As Hill concludes, '..the very different life style of the different ethnic groups comprising the national population of any Sahelian country are likely to have characteristic patterns of mortality and fertility even though the physical environment may be roughly comparable between the groups' (Ibid:62-63).

[39] In Africa too, there is evidence of delayed female marriage among nomadic tribes, contributing to their relatively *low* fertility as compared to women of settled tribes, who generally marry earlier (Henin 1969).

marriage norms with the result of their relatively low fertility.[40] Also, the tribal people were familiar and perhaps fairly efficient in using indigenous medicines (e.g. herbal) and methods of prevention of conceptions (including abortion) (see e.g. Elwin 1943; Mamoria 1958:112-115).[41] Relatively prolonged breastfeeding and larger birth interval (e.g. Puri 1992) and perhaps somewhat greater incidence of sterility and infertility - both primary and secondary - among tribal communities might have been other contributors to relatively low tribal fertility.[42] As has been shown elsewhere (Maharatna 2000), the regime of relatively low fertility and mortality for India's tribes in the past has continued to be echoed - albeit with varying intensity across regions - in more contemporary periods.[43] While the current scenario would understandably be more complex, the historical patterns of demographic differentials between social groups should serve as a useful guide to analysing contemporary evidence and patterns. For example, what Szreter (1996:533) calls in the British context a 'socially divisive' nature of fertility in historical past could provide useful

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40 Like historical Europe where 'men marry late because they cannot 'afford' to marry young' (Hajnal 1965:133), marriage in India's tribal society is 'usually late' as young men cannot afford to pay bride-price 'till late in life' (Mazumdar 1947:81). As Mazumdar writes: 'Girls seldom marry before 18 and 20, and men seldom below 25 or even 30' (Ibid:81). There is also scattered evidence of a higher proportion of never married tribal females as compared to their non-tribal counterparts (e.g. De 1969).

41 For more contemporary evidence see e.g. Mutharayappa 1998:123.

42 See e.g. Howell 1976, 1979 and White 1959 for evidence on these factors in Africa and elsewhere. The finding of relatively low fertility of !Kung women is often attributed to their relatively less fat responsible for making them take longer to ovulate, and partly to incidence of venereal diseases (Howell 1979:chapters 7-10). Indeed nutritional deficiency, excessive physical work, and relatively harsh livelihood patterns might have played a role among Indian tribes too. But separating out these effects on fertility from sociocultural influences (including mobility patterns) is extremely difficult. For example, the question of how different is the energy expenditure pattern between tribal and non-tribal women has hardly been addressed systematically as yet. For discussions of the role of nutrition and physical work in fertility, see e.g. Frisch 1997 and Garenne and Frisch 1994; also Krishnaji 1992, especially Chap 7.

43 This seems consistent with (global) anthropological literature suggesting that nomadic, hunting and forest-based life styles and social organisations are generally akin to comparatively low fertility (and mortality) level as compared to that of settled and sedentary groups (e.g. Howell 1976, 1979; Dyson 1977; Lee and DeVore 1976; and Henin 1968, 1969; Davis 1986; Handwerker 1983). This view however has not remained totally unchallenged (e.g. Caldwell and Caldwell 2003).

insights for a better understanding and even steering of India's current fertility transition. As 'distinct fertility regimes changing alongside each other' characterised the British history of fertility transition, Indian fertility differential between tribal and non-tribal societies and its evolution might also be fruitfully analysed in such broad general perspective. Furthermore, such historical differential in demographic regimes seems consistent with even broader homeostatic perspective in which diverse human societies are seen to adopt varied regulatory mechanisms that keep long-term overall pattern of low growth (e.g. Wilson and Airey 1999).

The foregoing also suggests that strength and ramifications of contemporary perspectives on the role of female status and autonomy (i.e. women's agency) in demographic behaviour and transition can be examined with historical information and analyses. Conversely, more historical research on tribal demographic behaviour and its sociocultural underpinnings can enrich the understanding of contemporary demographic phenomena and of theories and explanations being currently offered.

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Table 1 Child-Woman Ratios for Tribals and Hindus, all-India, averages during 1911-1931

	Tribals (1)	Hindus (2)	Difference (3)=(1)-(2)
Children 0-4 years per 1,000 women 15-39 years	808	678	130
Children 0-4 years per 1,000 married women 15-39 years	1023	817	206

Source: Davis (1951) Table 28, Chapter10. Based on census enumerated population by age and religion.

Table 2 Child-Woman Ratio (number of children 0-4 per 1000 women 15-44 years), the Hindu and Tribal Populations in select Indian Locations, 1881-1931

		1881	1891	1901	1911	1921	1931
India	**Tribal**	1774*	732	597	730	626	
	Hindu	1357*	510	536	576	538	
	(Difference)	417	222	61	154	88	
Bengal	**Tribal**	NA	731	719	NA	464^	
	Hindu	NA	568	555	NA	489^	
	Difference		163	164		-25	
CP/Berar	**Tribal**	NA	NA	610@	732	455^	753
	Hindu	NA	NA	620@	677	456^	686
	Difference			-10	55	-1	67
Madras	**Tribal**	NA	1410#	1680#	1770#	1610#	1620#
	Hindu	NA	1320#	1620#	1750#	1760#	1610#
	Difference		90	60	20	-150	10
Bihar	**Tribal**	NA	918	-	2200#	2120#	803
	Hindu	NA	581	1590#	1650#	1630#	630
	Difference		337		550	490	173

* children (0-9 years) per 1,000 women aged 14-39 years;
# children (0-9 years) per 1,000 married women aged 14-39 years
@ children (0-5 years) per 1,000 women aged 15-40 years
^ children (0-4 years) per 1,000 women aged 15-45 years
Source: Relevant Census reports

Table 3: Average Number of Children Born and Proportion Surviving by caste and tribe, select locations, 1921-31

	Average No of Children born per Family with Completed Fertility		Proportion Surviving per 1,000 Children Born to Families with Completed Fertility		Average No of Children born to Couples Married for 33 Years and Above	
	1921	1931	1921	1931	1921	1931
Central Provinces/Berar						
Hindus	6.11		612		6.59	
Brahmins		6.8(3.9)		591.8 (688.5)		6.6
Higher cultivators		6.4(3.8)		539.5 (711.5)		7.3
Higher artisans		6.6(4.3)		623.8 (637.1)		7.6
Serving castes		6.7(4.3)		582.6 (658.1)		7.2
Lower class artisans And tribes		7.1(3.9)		606.8 (711.1)		6.9
Primitive tribes		6.2(3.8)		625.5 (746.4)		6.6
Gonds (tribe)	5.64		790		6.11	
Central India Agency						
Brahman				(602)		6.0
Bania				(576)		6.0
Rajput				(753)		6.0
Chamar				(568)		6.0
Bhil				(741)		5.7
Tribal				(736)		6.6
Baroda						
Hindu				(598)	5.4	
Brahman			(529)	(537)	5.2	
Rajput			(573)		5.1	
Vania			(530)		5.6	
Jain			(545)			
Bhil (tribe) and others			(587)	(655)	6.0	
Koli			(597)		5.0	
India						
Hindus				(697)		5.8
Brahman				(647)		5.8
Kayastha				(663)		4.9
Kurmi				(571)		9.0
Rajput				(691)		5.4
Chamar				(590)		5.9
Tribal				(639)		6.1
Bhil				(741)		6.1

Notes:
(1) Family with completed fertility is one where the woman has completed at least 33 years of marriage.
(2) The figures in parentheses are the respective average numbers for all families (with and without completed fertility).
Sources: *Census of India 1931*, Volume 12 part-1: Central Provinces and Berar, pp. 172-73,168-69; Central India Agency, Report; and *Census of India 1921*, Volume 12, part-1: Central Provinces and Berar, pp. 98-101; volume 17, part-1, Baroda; volume 1, part-1, India; Census of India 1931, vol. I, India, part-II, Appendix table I.

Table 5 Coale's Index of Proportion Married (I_m), India and Selected Provinces, 1901-21

	India 1901-21	CP/Berar 1901-21	Bihar/Orissa 1911-21
Hindus	0.80	0.85	0.82
Tribals	0.77	0.81	0.74

I_m is calculated by using the following age-specific marital fertility rates (per woman) beginning with age group 14-19 years: 0.411, 0.46, 0.431, 0.396, 0.321, 0.167 and 0.024.

Table 6 Sex Ratio (females per 1, 000 males) among Tribal and Hindu Populations, Selected Indian Locations, 1881-1931

Location		1881	1891	1901	1911	1921	1931
India	Tribal	1009	991	1016	1008	996	1009
	Hindu	1002	962	969	963	954	953
Bengal	Tribal	997	999	990	967	973	964
	Hindu	999	969	951	931	916	908
Bihar/Orissa	Tribal		1004		1040	1032	1027
	Hindu		1045		1040	1027	1005
CP/Berar	Tribal	1010	1015	1049	1042	1037	1028
	Hindu	982	996	1017	1008	1002	1000
Madras	Tribal			969	989	996	1006
	Hindu			1029	1033	1029	1026

Source: Census reports.

APPENDIX Table A1

Distribution of Census-Enumerated Population by Age and Sex For Hindus and Tribals, India 1891 -1911

HINDUS

	1891		1901		1911	
Age	**M**	**F**	**M**	**F**	**M**	**F**
0-5	14,462,558	15,095,052	12,685,642	13,102,732	14,317,322	14,805,956
5-10	14,808,850	13,955,475	14,309,201	13,720,154	14,804,500	14,202,167
10-15	16,680,438	13,265,378	13,335,714	11,028,381	12,753,469	10,491,997
15-20	12,229,892	11,376,709	9,159,144	8300783	9,429,880	8,587,783
20-25	11,743,796	12,577,424	8,360,264	9074216	9,262,382	9,967,043
25-30	12,828,365	12,680,985	9,326,528	9151835	10,061,045	9,760,412
30-35	9,126,561	8,865,148	9,654,163	8860106	9,334,164	9,118,170
35-40	6,487,309	5,702,220	6,461,239	5830561	6,967,340	6,089,890
40-45	7,054,177	6,688,045	7,027,622	6906912	7,259,106	7,002,991
45-50	3,869,997	3,308,424	3,992,882	3585045	4,318,517	3,742,245
50-55	4,552,439	4,569,566	4,737,031	4805140	4,946,388	4,948,948
55-60	1,817,200	1,679,533	1,912,023	1783329	2,008,462	1,815,800
60+	4,913,806	6,039,721	4,784,837	5776433	5311108	6114310
Total	120,575,388	115,803,680	105,746,290	101925,627	110773683	106647712

TRIBALS

	1891		1901		1911	
Age	**M**	**F**	**M**	**F**	**M**	**F**
0-5	699,384	757,343	582,482	625857	834391	884321
5-10	778,352	737,075	665,365	654642	805461	780318
10-15	565,734	472,950	652,473	497139	559448	492420
15-20	336,986	342,603	370,773	387883	382924	411107
20-25	307,274	370,410	328,948	397819	366467	467881
25-30	357,925	387,434	363,653	381708	446099	484000
30-35	387,241	385,500	364,227	363712	439200	431232
35-40	256,918	233,714	252,791	237426	315191	275560
40-45	304,529	268,053	275,347	256105	320665	284198
45-50	127,015	108,761	128,042	122506	162289	140473
50-55	174,527	159,908	158,050	157180	190761	182664
55-60	51,032	52,327	56,228	61241	66656	65625
60+	183,594	212,374	143,130	176429	195689	229504
Total	453,0511	4488,452	4,341,509	4319647	5085241	5129303

Appendix Table A2

Singulate Mean Age at Marriage (years), Hindu and Tribal Population, Various Regions of the Indian subcontinent, 1901-1941

	FEMALES				MALES			
	1901	**1911**	**1921**	**1931**	**1901**	**1911**	**1921**	**1931**
Assam								
Hindu	14.8	14.7	15.4	14.3	23.9	24.0	24.2	22.9
Tribal	17.8	17.9	18.2	18.0	22.5	22.8	23.0	22.2
Baroda States								
Hindu	12.8	12.5	12.8	-	17.2	18.3	18.4	-
Tribal	15.1	16.7	18.1	-	18.9	20.4	21.8	-
Bengal								
Hindu	11.9	11.7	12.2	10.7	18.9	21.1	22.0	20.5
Tribal	16.7	15.5	15.9	14.8	21.1	21.2	21.7	19.7
Bihar and Orissa								
Hindu	-	12.5	13.1	11.2	-	17.3	17.9	16.9
Tribal	-	16.8	17.3	16.2	-	20.6	20.8	19.5
Bombay								
Hindu	-	12.4	12.6	13.2	-	19.3	19.8	18.9
Tribal	-	15.1	16.8	16.5	-	19.6	20.6	20.1
Central India Agency								
Hindu	14.7	12.7	-	13.1	18.5	18.7	-	16.9
Tribal	15.9	15.2	-	14.7	19.3	20.0	-	18.6
Central Provinces/Berar								
Hindu	11.5	12.1	12.5	10.7	17.0	17.5	17.3	16.2
Tribal	15.6	15.3	16.2	14.5	22.0	17.3	21.0	18.6
Madras								
Hindu	15.4	15.2	15.4	14.9	23.9	22.9	23.4	22.2
Tribal	17.9	-	17.8	15.3	23.4	-	23.2	17.9
Rajputana								
Hindu	13.9	-	13.3	12.4	19.9	20.6	20.6	18.7
Tribal	16.5	-	15.2	15.5	20.5	20.2	20.2	19.3
India								
Hindu	**13.4**	**13.2**	**13.6**	**13.5**	**-**	**19.9**	**20.3**	**19.1**
Tribal	**16.7**	**16.6**	**17.1**	**15.8**	**-**	**21.6**	**21.8**	**19.7**

*For all religions

Note: The appropriate modifications in the original Hajanal's formula for calculation of SMAM have been made both in the face of the early (or even child) marriage practice in Indian subcontinent and variation in age grouping for census reports. For example, we have taken 10-14 years as the starting age group for proportion unmarried for calculating SMAM, instead of taking 15-19 years as was originally suggested by Hajnal in the European context. In calculating the number of years lived in the single state we have taken care about different age-grouping in some census reports e.g. 20-29, 40-59 years.

Source: Present author's own calculations; Agarwala (1972) quoted in Bhattacharjee and Shastri (1976), Table 24, p. 35.

Appendix Table A3
Number of women enumerated as 'unmarried' per 1000 aged 40- 45.

State	1901		1911		1921	
	Hindus	**Tribals**	**Hindus**	**Tribals**	**Hindus**	**Tribals**
India	**-**	**-**	**10.6**	**20.6**	**11.5**	**26.1**
Assam	-	-	5.1	10.3	-	-
Baroda	3.4	5.7	-	-	1.7	16.4
Bihar / Orissa	-	-	8.8	29.8	8.7	39.3
Bengal	7.6	28.1	-	-	-	-
Berar	6.7	13.0	-	-	-	-
Bombay Presidency	-	-	14.1	12.4	15.4	23.0
Central Provinces	4.5*	6.2*	-	-	13.7	16.0
Madras	12.3	18.9	-	-	11.0	19.4
Mysore	17.6	10.4	-	-	-	-
Rajputana	5.3	11.4	-	-	5.9	11.8
Travancore	21.2	26.7	-	-	-	-

*Refers to women aged 40-60 years.

Source: Relevant Census Reports