UNIT 14 DEMOGRAPHIC CHANGE AND AGRARIAN SOCIETY IN COLONIAL INDIA*

Structure

14.1 INTRODUCTION

The population of India according to the latest census in 2001 has been estimated at more that one billion. Indians today account for 16.5 per cent of the world's population and this is expected to increase for the next five decades before a period of population decline begins. This Unit attempts to study the history of demographic change in modern India to understand the changing trends in population size, the determinants of population change and finally its relation to the country's economy.

Population change can be explained by three basic demographic factors: births, deaths and migration. Expressed as an equation (called the Balancing Equation in demography) this may be written as:

$P_t = P_0 + B - D + I - E$

Where P_0 is the initial size of the population

P_t is the terminal size of the population

B, D, I and E denote the number of births, deaths and in-migrants and out-migrants between the two dates.

An excess of births over deaths will increase population whereas the reverse will result in population decrease, assuming migration to be constant. In the indian context the proportion of migrants to the total population of the country was very small and therefore of little demographic significance for the country as a whole. Thus we need to look at mortality and fertility trends to understand the changing trends in modern india's population size.

14.2 SOURCES

The English East India Company and then the British Crown, generated unprecedented quantities of information in the course of their efforts to conquer and rule India. In this study of long term demographic changes in India we will base our reconstruction primarily on colonial government sources as they constitute the only set of sources that are even approximately comparable over a long period of time.

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Numbers have commanded respect for possessing certain inherent putative attributes-objectivity, comparability and very importantly, a promise of accuracy. Historians have (or should have) a healthy suspicion of sources. The need is to take the supplied official sources as partial statements of reality and then deploy clearly stated and transparent methods to correct them. This chapter therefore describes and corrects the demographic and economic data that are used for telling the story of Indian fertility in past times.

14.2.1 Early Census

The two main sources that provide us with demographic information for the colonial period are the decennial censuses and the annual vital registration reports. Maligned and overused in equal measure, the Census has been the most definitive and widely used source for demographic studies of the sub-continent. The first census of the entire country was conducted by the British in 1871-72. This has been followed by subsequent enumerations every ten years – even Britain cannot boast of this unbroken record, having had to skip the 1941 census. Historians of India and elsewhere have produced a fairly large corpus of literature contextualising colonial sources of information in terms of the changing ideology and mechanics of imperial domination. One of the best and early critical discussions of the Indian census was by Bernard Cohn. Cohn pointed out that the Indian census was not merely a neutral tool for information gathering. The classificatory logic and form of the census in turn created conditions for new strategies of caste and status mobility and electoral contests. Numeric information was an ideal form of expression for the colonial state. It elided differences of language, history, economy and society. At once it allowed the maddening complexity of India to be made comprehensible through numbers. That the colonial state felt was relevant at that particular point in time. In a similar vein Appadurai argues that the census allowed "The huge diversity of castes, sects, tribes, and other practical groupings of the Indian landscape …[to be] rendered into a vast categorical landscape untethered to the specificities of the agrarian landscape." (Appadurai, 1997: 327) He goes on to claim that "This unyoking occurs in two major steps, one associated with the period before 1870, in which issues of land settlement and taxation are dominant colonial projects, and the other with the period from 1870 to 1931, the period of the great All-India census, in which the enumeration of human populations is the dominant project. The period from about 1840 to 1870 is the period of transition from one major orientation to the other." (Appadurai, 1997: 327) The purpose here is not to discuss at length the processes that went into the construction of colonial categories for social analysis and ordering but merely to emphasise that the tools of colonial social and economic information gathering need to be located in the context of changing colonial perceptions, which in turn were related, though not always in clearly straightforward ways, to the varying demands of the colonial enterprise of imperialism.

The need for a census of India was felt by the English rulers much before the first census of India that was finally conducted in 1871 and 1872. A number of provinces had conducted population enumerations in the first half the nineteenth century but these were not planned in tandem with other English administered territories. Probably the first census in India to classify the enumerated population by sex, age, caste and dwelling units was Henry Walter's 1830 census of Dacca city. Though a number of provincial and local enumerations were carried out in different parts of the country in the second half of the century before 1871, the census of the North West Provinces taken on the night of 31 December 1852 with a reference date of 1January 1853 was the first census conducted on modern lines. In 1849 the Government of India directed provincial governments to conduct quinquennial population enumerations on the lines of those carried out in the North West Provinces by revenue officials. The Board of Revenue in a circular to all collectors, asked them to follow the North West Provinces' pattern with due attention to local specificities while conducting the proposed quinquennial censuses. Madras was the only Presidency to have implemented this directive in full.

Following the Board of Revenue order Madras carried out four enumerations in 1851-52, 1856-57, 1861-62 and 1866-67. The fifth quinquennial census was merged with the Imperial all India census of 1871-72. The quinquennial enumerations and the subsequent census

figures suggest plausible and comparable rates of growth. The first all India census was planned to be conducted in 1861 but had to be postponed to 1871 owing to the Rebellion of 1857 in the north and straitened financial circumstances for the government. The aggregate population figures from 1871 appear quite consistent and reliable.

The first census of India was not carried out simultaneously in all places. While it was conducted in November 1871 in Madras, Mysore and Coorg and Burma, it could be carried out only in 1872 in the Central Provinces, Bombay, North West Provinces and Bengal.

Since then the census has been conducted every ten years. Political problems have in certain years forced the government to either abbreviate the scope of the census (1941) or omit certain areas (eg.Assam and Kashmir in 1981 and 1991, respectively).

This study uses the colonial censuses from 1871-72 and the vital registration statistics to reconstruct colonial India's demographic history. A brief note on the strengths and limitations of each of these sources will be in order.

14.2.2 Limitations

All the post 1871-72 censuses were synchronous – i.e. carried out simultaneously everywhere – population enumerations. Tables 1&2 below give a tabular view of the subjects enumerated in each of the censuses between 1881 and 1941. Two censuses of the colonial period require special mention. The 1931 census was the last census for which caste or more accurately *jati* data was published. It has gained notoriety for its changed method of recording age and **smoothed age distributions**, which has made the published age figures non-comparable with earlier and later census, age distributions. In this census in contrast to earlier practise, the "age at next birthday" was recorded in place of the earlier "completed years". Nationalist agitation was another factor that militated against this enumeration. Further, the Sarda Act (1929) also led to inaccuracies in the age returns of unmarried girls: since child marriage became illegal, women's age was overstated during marrige to avoid possible penalty. However this problem attracted many a demographer to unsmooth the smoothed distribution though none can claim complete success.

One important development in the context of the 1931 census was the Indian Fertility Enquiry of 1931. This enquiry "was not a part of the general census enquiry and was not covered by legislative enactment. It depended largely on how far district, Municipal and Local Board officers were prepared to assist."[1] This incomplete but most useful survey suggests significant class and caste specific fertility patterns.

The financial exigencies of the Second World War forced the government to drastically abbreviate the published report and tables in 1941. The straitened circumstances also led to a change from household enumeration schedules to individual slips. However, the individual slips were retained and this enabled a subsequent 2 per cent sample, often referred to as the Y-Sample after the Census Commissioner Yeatts, providing detailed age specific information on nuptial status and occupation and industry. Caste data for all individuals was recorded for the last time in 1941.

After independence the recording of caste except in cases of Scheduled Castes and Scheduled Tribes was stopped. A provisional list of Backward Classes was also prepared by this census. Since 1951 post-enumeration checks were made regularly after each enumeration to check for accuracy. Changes were effected in economic classification.

One important administrative change was that with the passing of the Census Act in 1948, the census was recognised as a single permanent organisation under the Ministry of Home Affairs under a Registrar General who was also the *ex-officio* Census Commissioner for India.

Indian census data has been plagued by the problems not so much of under-enumeration but age-sex selective undercounting and the poor quality of age reporting.

[1] *Census of India*, 1931, vol. Xiv, Madras, Part I p.146; cited in Dwarkanath Ghosh, "The Indian fertility enquiry, 1931" (paper presented at the 2nd All-India Population and 1st Family Hygiene Conference, 1938).

In many parts of India unmarried girls of marriageable age were not counted. Again, we find that most Indians reported their age wrongly and the reported age data suffered from serious problems of **digit-preference** and **age-heaping**. The unreliability of Indian age data has been corrected by using a variety of smoothing techniques, but this further reduces the robustness of indirect estimates of mortality and fertility based on Indian census age-distributions.

The second basic demographic data base for this study is the annual series on births and deaths published by the government. This report was known as the *Report of the Sanitary Commissioner*. Subsequently its nomenclature changed to *The Report of the Director of Public Health*. In the post independence years, these statistics at the district level were published in the annual series known as the *Vital Statistics of India* which became available from 1958.

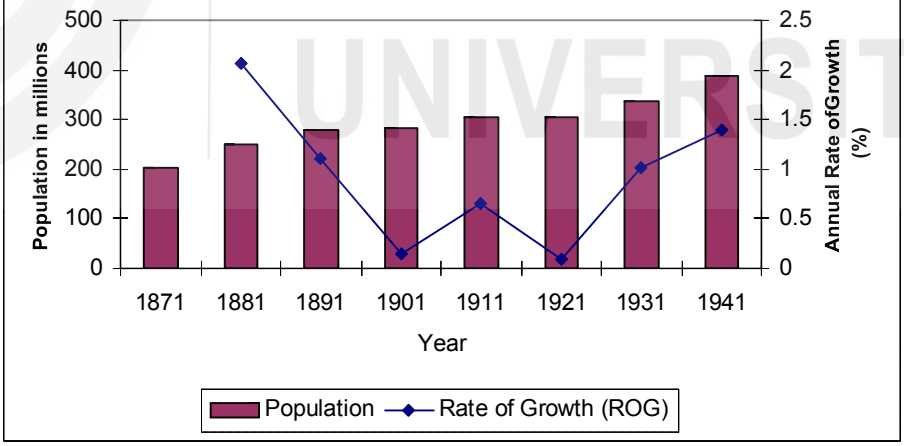
After suitable corrections are made in the level of the reported vital statistics they provide an invaluable source not in making precise demographic projections but in charting the changing trends of annual fertility and mortality movements.

14.3 QUESTION OF POPULATION GROWTH

Let us look at the decennial trend of population growth. **Figure 1** charts the trends in population size and the growth rate of the population from 1871 to 1941. In absolute terms, population grew steadily over the period, increasing from 203 million in 1871 to 389 million in 1941. But the rate of growth shows a different picture. The highest rate of growth is registered for the decade between 1871 and 1881 despite severe famine mortality in Mysore (1877), Madras (1878) and Bombay (1876-77). The growth rate for this period has been spuriously inflated by the better coverage in 1881 relative to 1871-72. Central India, Rajasthan and Punjab which accounted for 3 million people in 1881 were not counted. Further, even in areas that were covered by census enumeration an estimated 12 million people escaped counting.

From 1881 we find that the absolute size of the population increased slowly till 1921, but the annual rate of growth (ROG) showed a clearly declining trend till 1921. After 1921, the growth rate exhibited a rapid upward trend.

Figure 1: Population Change in Colonial India



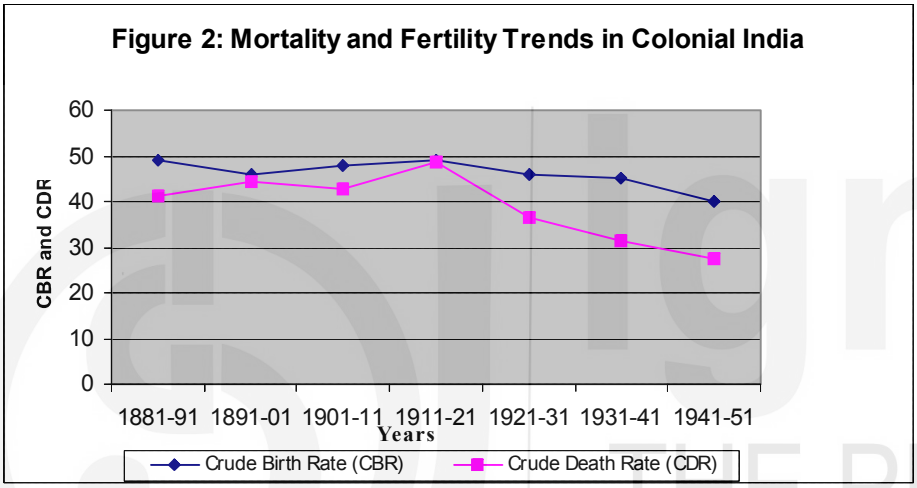
This brings us to the question of why population growth in India showed a marked increase after 1921. To answer this question we look at two sets of determinants: demographic and non-demographic. Going back to the Balancing Equation given in Section 14.1 we know that population change is the result of changes in births, deaths and migration. The proportion of migrants to the country's total population was as small as 3 per cent? And showed little change across time. This very small proportion of migrants permits us to discount migration as a substantive factor in population change and treat colonial India as a closed population. On taking migration out of the Balancing Equation we are left with births and deaths as the most important variables explaining the course of India's population history. A sustained excess of births over deaths will lead to population increase whereas continued excess deaths or frequent incidence of large excess mortality will result in population decline or stagnation. These demographic variables (fertility and mortality), it must be kept in mind,

influence one another and are closely related to a variety of non-demographic influences. Let us first describe the trends in mortality and fertility and then try to explain their varying levels and direction.

14.3.1 Mortality and Fertility Trends

Ideally annual mortality and fertility data should be taken from the vital registration series. The high degree of incompleteness in Indian historical vital registration data does not permit this, forcing us to depend on indirect census based estimates of mortality and fertility. However, the incomplete registration data, indirect census based estimates as well as intercensal growth rates all confirm high mortality till 1921 followed by a marked secular decline. The above mortality and fertility curves show that the fertility-mortality differential sharply increased in the post-1921 decades. A continued excess of births over deaths thus clearly explain the rapid growth in India's population after 1921. **Figure 2** shows that fertility continued to be high throughout the period of the colonial censuses whereas mortality declined sharply after 1921. Infant deaths formed a large part of total deaths. The infant mortality trend moved in consonance with the CDR (**Crude Death Rate**) trend.

Figure 2: Mortality and Fertility Trends in Colonial India



Mortality

What explains this marked mortality transition in India? The more popular explanations highlight the reduced incidence of famines, epidemics and lethality of endemic diseases due to improved communications, irrigation, public sanitation and health care in the post-1921 years. These explanations can be found in the works of Kingsley Davis (1951), S.N. Agarwala (1973) and Leela and Pravin Visaria (1983).

Davis suggested that famines were controlled through development of roads, railways and irrigation by the British, and modern medical advances checked epidemic diseases. To explain the reduction of famine mortality and intensity in terms of irrigation is questionable. In the first forty three years of the twentieth century the country did remain free of any major famine. However, the percentage of irrigated area to total cultivated area increased only marginally from 20 per cent in 1901 to 23 per cent in 1930. Improvement in communications is also an inadequate explanation for controlling famines. Better communications can reduce the risk and intensity of famine by ensuring more stable food supplies. This in turn will get reflected in the variation of food prices in the country. However, famines recurred repeatedly in the years up to 1900. For the period 1865 to 1900 the coefficient of variation in the prices of wheat and rice fall from more than 40 per cent to nearly 20 per cent. If this massive decrease in price variation could not prevent famines it is difficult to argue that a subsequent fall in this index by about five per cent could stop famines. (Guha, 2001)

Leela and Pravin Visaria ascribe the slow rate of population increase up to 1921 to high mortality that was "primarily related to waves of epidemics." It is true that epidemic and endemic diseases were major killers in colonial India, but what remains unexplained is why these diseases suddenly lose their lethal power in the 1920s.

It is true that famine and epidemic mortality greatly reduced in the post-1921 period. If this cannot be ascribed to economic improvement or improved health care, then how is this conondrum of India's mortality transition to be explained?

Ira Klein explains the falling trend in mortality in terms of a change in the host-parasite relations that invested the Indian population with greater immunity to diseases. This interesting thesis, in turn, has been refuted by Sumit Guha on the basis of an examination of age-specific death rates. If the immunological explanation is correct then we should see differential improvement in mortality by age-group, but this is not so. (Guha, 2001)

Guha, then goes on to explain the mortality decline in terms of reduced fluctuations of foodgrain output after the second decade of the twentieth century which is explained by more stable rainfall in the 1925 to 1950 period relative to the years between 1900 to 1925. Guha associates this reduction in the marked volatility of food production with the human host's increased ability to resist potentially lethal diseases. It may be pointed out here that volatility in monsoon precipitation once again showed an increasing trend in the post independence years. This increase not being accompanied by worsening mortality may be explained by increased state intervention. The colonial mortality transition can be ascribed to the blessings of the rain gods only if we hold constant the minimalist intervention of the colonial state in matters of agriculture and food security. Shiela Zurbrigg, also emphasises the close interrelationship between nutrition and diseases exposure to. (Delhi, 2001)

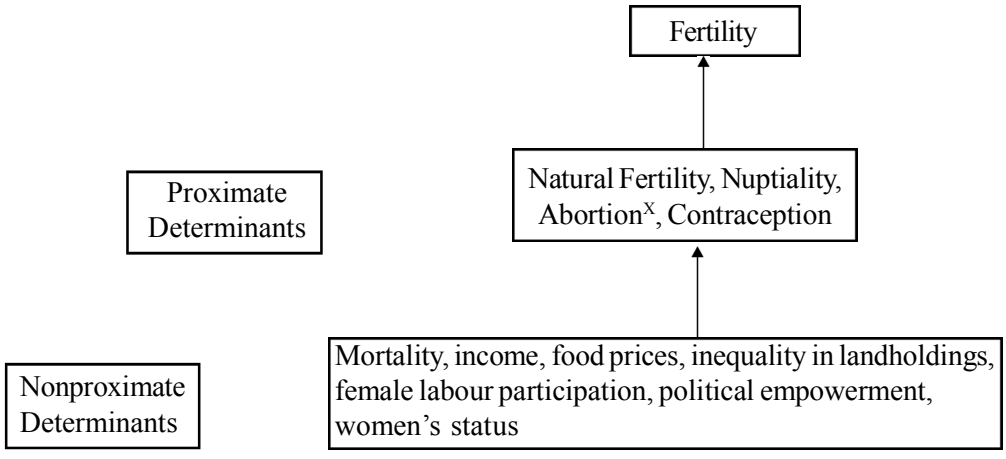
From 1921 or after the influenza pandemic of 1918 the crude birth and death rates began on a course of secular decrease.

Fertility

This brings us to the other main determinant of population size – fertility. In demography fertility refers to the number of live births expressed as a proportion of the total population (**Crude Birth Rate**), population of women (**GFR**), per woman (**TFR**), etc. There is general consensus that India has had high fertility, though the recorded levels are much below the biological maximum of human population. Drawing upon Bongaarts's useful model, fertility is seen as the outcome of proximate and nonproximate determinants. The proximate determinants for which time series data are available for the entire period of the study, are natural fertility and nuptiality[1]. Even for nuptiality, the data are not annual but available only at the time of the decennial census. The second group of variables, that Bongaarts categorised as nonproximate determinants of fertility are those that affected fertility *via* the proximate determinants, such as mortality, income, food prices, inequality in landholdings, female labour participation, political empowerment, women's status.

The chart below (**Figure 3**) provides a schematic view of the determinants of fertility that are studied here.

Figure 3: Determinants of Fertility



[X] Abortion has not been analysed for lack of quantitative information.

[1] Nuptiality literally means – relating to marriage. When nuptiality (proportion of married women in a population) is high population increases.

Demographers had in earlier discussions viewed pre-transitional populations as characterised by uncontrolled high fertility. Louis Henry presented his concept of 'natural fertility' based on his family reconsititution of Crulai in Normandy in 1953. Henry initially defined natural fertility as legitimate or marital fertility that was unchecked by either contraception or induced abortion. Henry defined 'natural fertility' as "fertility of a human population that makes no deliberate effort to limit births." (Louis, 1953). Subsequently (1961), he refined it to "fertility in the absence of parity-dependent birth control…."

There has been a large amount of work on the biological aspects of human fertility and the biological maximum is supposed to be fifteen live births per woman. However, even 'natural fertility' societies have experienced fertility levels much below this maximum. The difference between total fertility and **total fecundity** in 'natural fertility' regimes can be explained largely by the 'exposure to risk' which is governed primarily by the length of sexual partnership, eg. marriage and **lactational infecundability**.

Studies of natural fertility in India have estimated the natural fertility to be low in the pre-transitional period at six births per woman in the 1930s increasing to seven and nine in the 1970s and 1980s with improvements in healthcare. Sriya Iyer includes widowhood as a one of the depressants of natural fertility in India. However, Henry's two definitions and subsequent use of the term seems to exclude widowhood as a determinant of natural fertility; the latter being more related to the broad category of nuptiality. (2002)

Estimating the level of natural fertility in india for the historical period in terms of lactational infecundity, post partum amenohrrea, coital frequency, etc. Is simply not possible in the absence of data. We next come to the other proximate determinant of fertility that is nuptiality. Although the annual vital registration series did not collect data on marriage, the decennial census does provide us with data on marital status by age. This permits estimation of the proportion married by age and the mean age at marriage.

Figure 4: Proportion of Married per thousand Females and Mean Age at Marriage

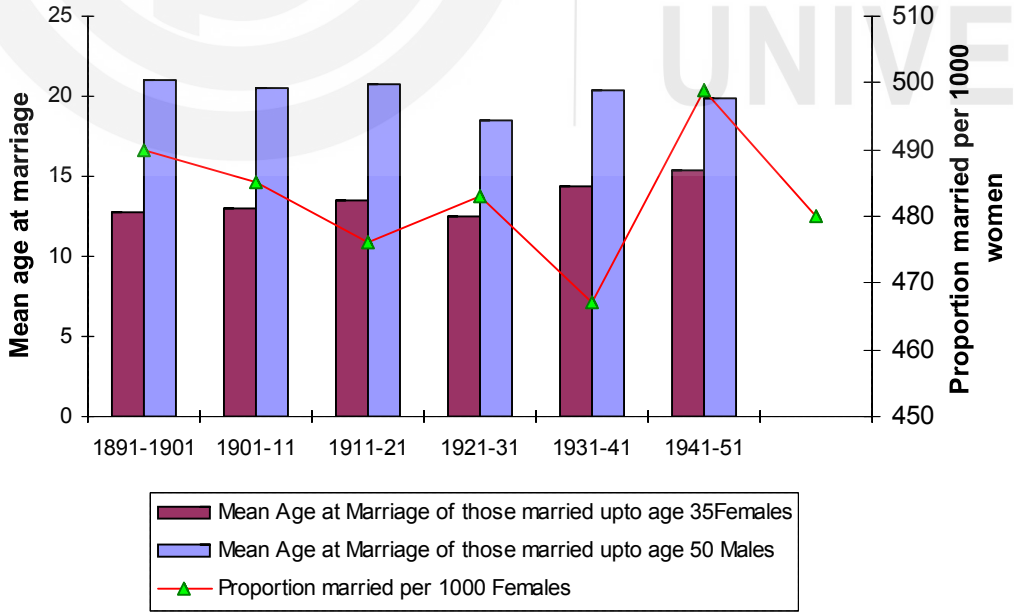


Figure 4 above shows the mean age at marriage increasing marginally from around 13 years to 15 years for girls between 1891 and 1951. This marginal change in the age at marriage at the all-India level can be safely assumed to have had no great affect on fertility. Similarly, the mean age at marriage showed a small downward trend between 1891 and 1941 with a spike in 1931, that was probably caused by increased marriages to circumvent the Sarda Act.

Thus despite nuptiality showing a small decrease, fertility continued to increase possibly due to the increase in natural fertility. Small increases in the age at first marriage for very young women do not alter fertility significantly. Widowhood also contributed to keeping the fertility level much below biological limits. At the all-India level the near universal incidence of marriage, absence of contraception and the low age at first marriage contributed to high fertility. According to Thomas Malthus, population is regulated by two kinds of checks – the "preventive"and the "positive". The preventive check which mainly operated through delayed marriages and celibacy was of small significance for India as a whole whereas the "positive" check operating through increased mortality and diseases was much more significant.

Mortality apart from periodically lowering population size also worked in tandem with fertility. Fertility responded to mortality in two ways: First by "replacement" and secondly by "hoarding". Replacement refers to a process by which a live birth replaces a dead child. Hoarding, on the other hand implies having more births than needed in order to attain an expected family size, given the expectation that some children would die. Thus, in the course of demographic change over time, we find that high and volatile mortality pushed up fertility often after the period of crisis ended. After mortality began on its course of decline, fertility continued to remain at pre-mortality transiton levels resulting in steep population increases as was witnessed in India till the 1980s.

14.3.2 Age Structure of the Population

Next, we come to the age-structure of the population. The age-distribution of a population is primarily determined by fertility and secondarily by mortality. The Indian age pyramid unlike that of advanced industrial countries has a very broad base and a very narrow top suggesting that a large proportion of the population is young.

Figures 5a and 5b clearly show that the age distribution remained remarkably stable with a large and virtually constant proportion of young people. In a closed population as that of India's, the large proportion of children points to high levels of fertility. The age distribution also suggests a high dependency ratio. Further, the youthfulness of the population also ensured a continued population momentum that would last beyond the onset of fertility decline.

Figure 4a: Summary Age Distribution-Males

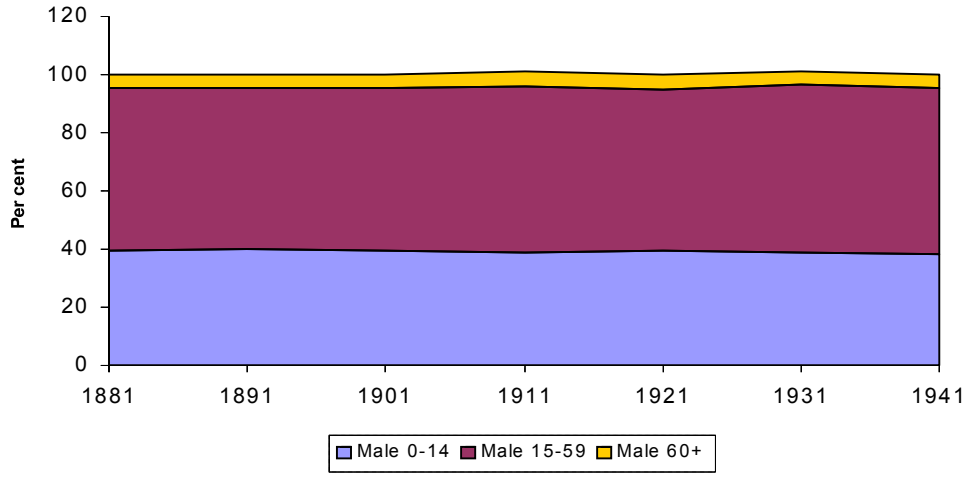
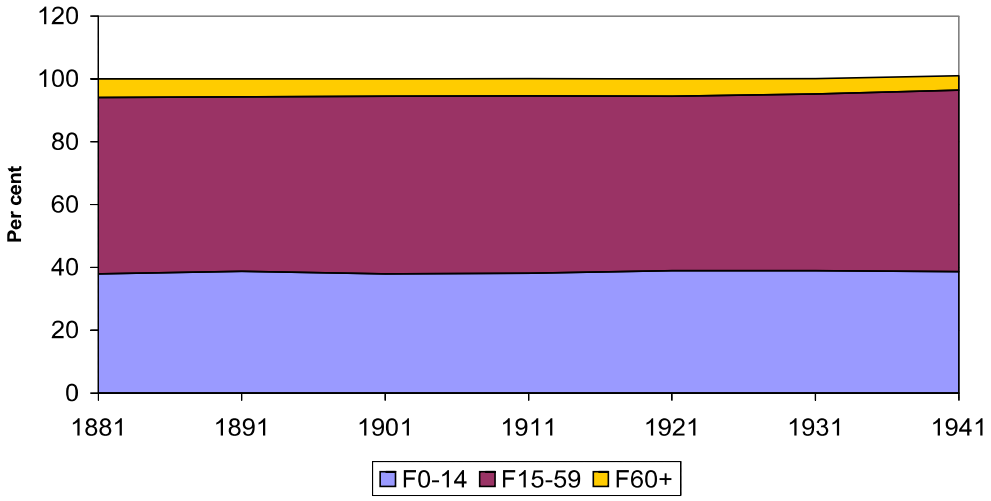


Figure 5b: Summary Age Distribution – Females



14.3.3 Sex Composition of the Population

We now come to sex-composition of the population. The sex ratio at birth usually falls between 1040 to 1070, internationally. In other words 104 to 107 male babies are born for every 100 female babies. On the other hand male mortality is also generally higher than female mortality in the older age groups. Despite this, India has exhibited a continuous decrease in the proportion of women. This is explained by lower life expectancy at birth for females. This all-India trend however does not hold good for many parts of India as we shall see in our discussion of regional trends.

Table 1: Sex Ratio, Life Expectation at Birth and Dependency Ratio

	1871-1881	1881-91	1891-1901	1901-11	1911-21	1921-31	1931-41
Sex Ratio	1040	1042	1037	1047	1056	1062	1069
Dependency Ratio	79.1	79.8	77.6	77.4	80.1	76.1	75.1
e0 Males/e0 Females	0.93	0.96	0.98	0.97	0.93	1.01	1.02

Notes: Sex Ratio-Male population per 1000 females; Dependency Ratio: Population aged 0 to 14 years and above 60 years per 100 people between ages 15-59, e_0 males/e_0 females: Life expectation at birth for males divided by life expectation at birth for females.

In terms of demographic variables we can conclude with confidence that the population of India grew slowly from 1871 to 1921 largely because of the mortality check despite high fertility. In the post-1921 years up to the 1980s fertility remained high but mortality declined leading to rapid population growth and resulting in a very young age population. Women fared badly in terms of mortality relative to men throughout our period.

This fairly simple story of colonial indian demographic history becomes very much more complex when we study demographic variables in relation to social institutions and economic change. Demographic variables such as mortality, morbidity, nuptiality, sex ratios and fertility are not exogenously determined variables. They are predicated on a host of institutions and conditions that are influenced by context specific patterns of social and economic change. To study these linkages we are compelled to look at smaller and more homogenous regions for otherwise we lose sense specifics at levels of aggregation as large as India.

14.4 REGIONAL VARIATIONS

British India was a creation of the colonial state premised on political and administrative considerations. Stretching from the Himalayas in the north to the tropics in the south, and from the deserts in the west to the deltas of the east, British India was formed by the differential incorporation of pre-existing peoples, polities and institutions into a new colonial state. Generalisations for an area as varied as India with its many constituent regions and sub-regions conceal a number of regional and sub-regional particularities. This necessarily compels us to disaggregate the various component regions and zones within colonial India to get a more nuanced picture.

Population increased in the pre-mortality transition period (1871-1921) at an average annual growth rate of 0.37 per cent for India as a whole.

Table 2: Population Increase, CDR, CBR and Sex Ratio

	1871-1921	1921-1941	1871-1921	1921-1941	1891-1921	1881-1941
	Annual ROG (%)		Average CDR		Average CBR	SR
East Zone	0.52	1.37	46.7	46.65	53.4	1025
West Zone	0.14	1.3	42.1	46.45	54.5	1077
Central Zone*	0.47	1.29	31.3	46.35	53.7	1031
North Zone	0.19	1.25	47	42.95	47.3	1122
South Zone	0.47	0.92	33.65	33.95	41.3	985
All India	0.37	1.22	45.85	43.25	49.4	1050

Source: Based on Visaria and Visaria (1983).

*** Data suspect, ROG, CDR, CBR and SR refer to rate of growth, Crude Death Rate, Crude Birth Rate and population Sex Ratio respectively**

In the next period (1921-1941) the growth rate sharply increased to 1.22 per cent for the country. On disaggregating the country into five geographical zones: East, west, central, north and south, we see that in the first period the central and south zones exhibited the highest growth rates. However in the subsequent period, a marked reversal took place. The south zone now showed the lowest rate of population increase.

The fertility and mortality estimates in Table 2 should be taken as best as indicative and in no way can they claim any accuracy. What the figures do suggest is that mortality acted as a major check on population increase. South India fared much better in the pre-1921 period with relatively high growth and a lower level of mortality. There again seems to be a clear connection between high mortality and high fertility. In terms of the sex composition of the population, except for the south zone, and the east zone (in 1881 and 1891) the country as a whole registered an excess of men over women. Further, as the experience of the south zone points to, regions with a longer history of relatively lower fertility and mortality, appear to have attained fertility transition earlier than those that experienced longer periods of high mortality and fertility.

14.5 DEMOGRAPHY-SOCIETY INTERRELATIONS

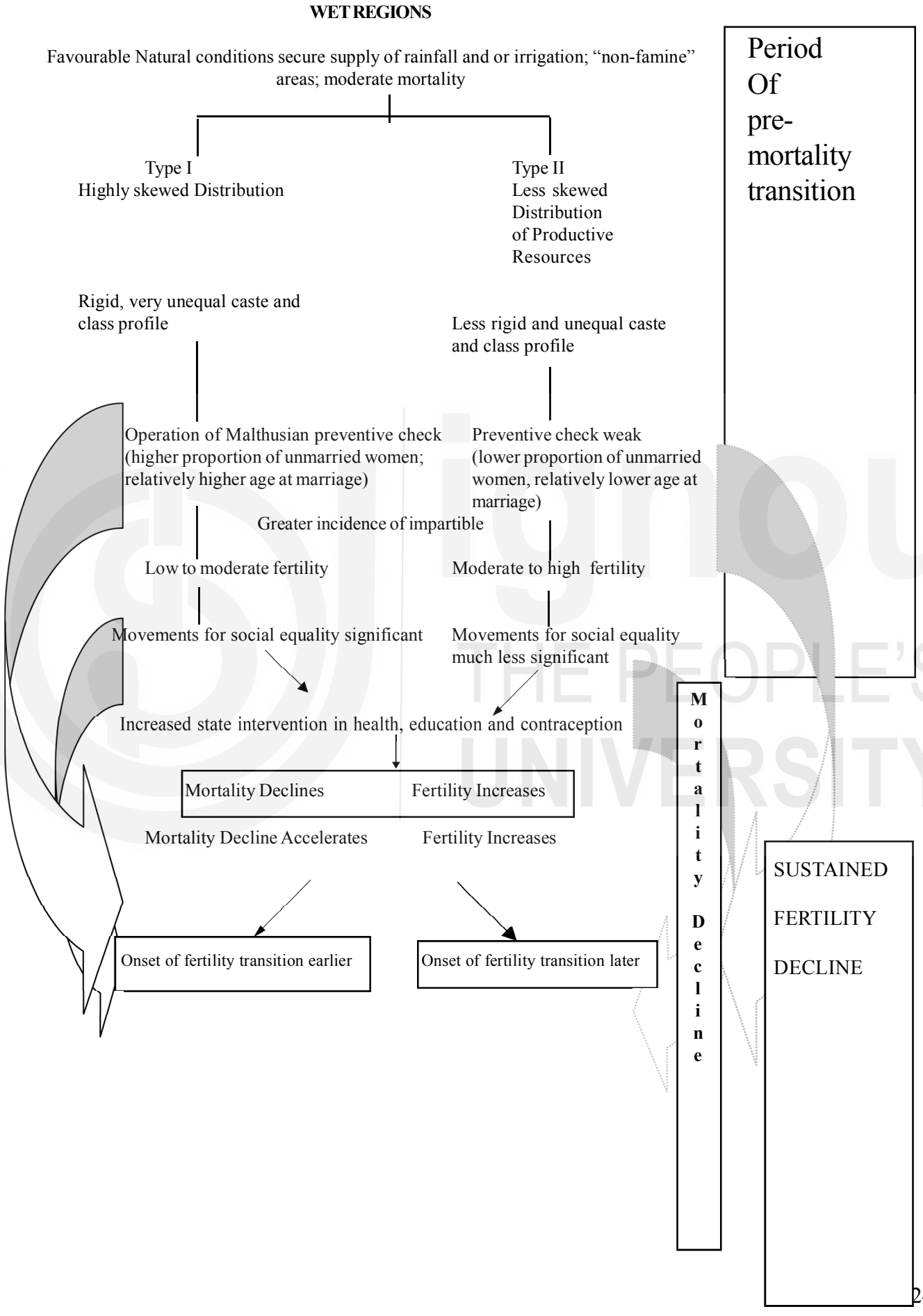
When confronted by questions such as why did the south zone have more women, or why did mortality increase till 1921 to fall subsequently or why did the age at marriage vary across regions, we have to look to changing social institution and economy for explaining the observed demographic phenomena.

While many social scientists initially conceptualised population as an exogenous factor in social change, demographers have increasingly come to recognise the close interrelationship between demographic and social variables.

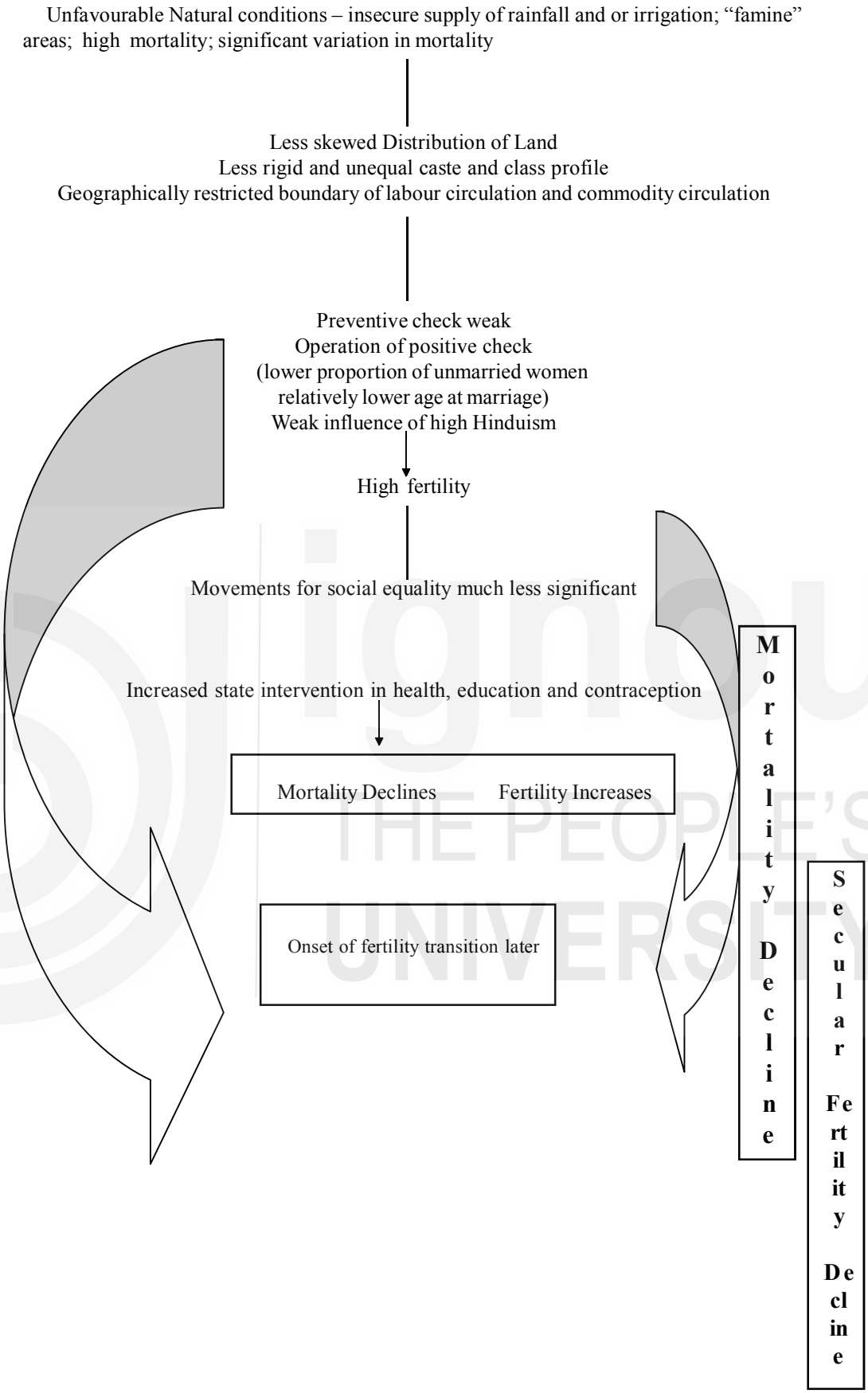
In the Indian case there have been some works on demography that have used data from the past. However, when resort is made to social structures of historical vintage, such as kinship systems, female autonomy in explaining fertility outcomes, these determining structures are seen as static systems. Recognition of historical contingency requires the viewing of these systems or structures as being subject to change at different rates through time. Social scientists try to explain a variety of phenomena in terms of a dependent variable that can be understood by resort to a set of explanatory variables. In the context of demographic change, extant research has argued for determinants ranging from cultural practices, to women's participation rates in the labour force to literacy. The problem with this approach is that when it is applied to a data set comprising socially and historically diverse component groups, the assumption being made is that the same relationship should hold good for each of the constituent groups. In the process contextual specificity is given short shrift.

Let us take two different demographic regimes to illustrate the varied ways in which demography and society and ecology relate to each other. Most regions of India in the colonial period can be described as high mortality-high fertility regimes. The exception to this was the moderate mortality-moderate fertility regime. While "dry" regions were characterised by the first type of demographic regime, the "wet" regions registered a greater incidence of the second type of regime. This division into "dry" and "wet" ecotypes is entirely schematic.

Figure 5a: schematic of Representation of Demography- Society Interaction



DRY REGIONS



The schematic diagram above tries to capture the differences in the structures, processes and demographic outcomes in the wet and dry regions. Demography in a sense is the most basic of social processes – the very process of biological reproduction on which is premised social reproduction. The extant social relations in the form of institutions based on prevailing configurations of economic, political and cultural power crucially impact upon the significance of the demographic variable. Thus, for locating the significance of

the demographic variable and its determinants and outcomes, both trends and conjunctures need to be examined closely.

Agriculture was the key variable in the political economy of India. Trend rates of change in all crop yields continuously stayed ahead of population between 1891 and 1946 except for the years 1936-1946. However, foodgrain output failed to keep pace with population increase from the decade 1911-1921 up to 1946, ironically the period when famines largely disappeared. The severity and the frequency of malevolent famines sharply fell. There were no major famines during the first half of the twentieth century. However, this is not to say that these were years of great prosperity. Scarcities, associated price hikes, endemic diseases and epidemics continued to take their human toll. Further, the economic growth of these years benefited regions and classes very unequally. In areas with high levels of agricultural commercialisation and a large section of the population (landless wage labour or poor peasants) dependent on the market for their food supplies, a sharp price hike usually resulted in heightened mortality. This section of the population was most vulnerable to 'slump' famines where a failure of entitlement was caused by shrinking employment, which occurred during years of lowered rainfall. High and volatile mortality led to short-run falls in conception rates followed by increased fertility. Generally, in such insecure agro-economic zones high fertility accompanied high mortality. Risk insuring social institutions were also not significant. Further, in the absence of high levels of inequality in landholdings and a small landless labour force coupled with a near absence of non-agrarian employment, access to education and migration, and movements for egalitarian change were not significant. In this context when mortality started declining fertility continued to remain high. Access to new technologies of health and contraception and ideologies of development failed to spread among the bulk of the rural population, making the reach of increased state intervention in the years after independence very limited.

Wet regions, on the other hand behaved very differently. In the pre-transition mortality phase, though they were largely safe from monsoon failure and ensuing famines, the steep social incline made the economically weaker agricultural workers and marginal peasants vulnerable to price hikes. However, the population of these areas were not ravaged by the repeated general famines. In many of these wet regions sharp social and economic contradictions resulted in powerful movements for class and caste equality in the 1920s and 30s. Though these movements *per se* did not have demographic outcomes, by raising popular empowerment and strengthening popular institutions at the village level, the population of the wet regions were in a better position to demand and utilise the increased intervention of the post-colonial state in the field of health and education. This greatly contributed to the continued mortality fall and the somewhat earlier onset of fertility decline.

The lower mortality, greater agricultural security, lower sex-ratios and somewhat lower fertility and higher age at marriage in colonial southern India in relation to the country as a whole, are features of long duration. These traits have been recently rediscovered as determinants of the accelerated fertility decline in parts of India; however, they seem to stem from a social and economic structure specific to many regions in South India that was already manifest during the colonial period. The contemporary differentials in the spatial distribution of fertility and nuptiality largely continue to follow earlier patterns. States and districts that have made major reductions in fertility in the contemporary period also happen to have been areas of relatively lower fertility in the past with distinct social and economic structures. By highlighting these trends and characteristics we hope to emphasise that the demographic transformations have to be studied over time paying attention to both historically conditioned and regionally varying structures and agency.

14.6 SUMMARY

On the basis of the decennial censuses conducted by the British we can reconstruct the demographic history of the colonial period. The figures in the census have problems, but if we interpret them with care and correct some of their biases, they give us a broad picture of changes within the population. If we look at these figures, the long-term trend

becomes fairly clear. Seen in absolute terms, the population grew steadily from the late nineteenth century. The rate of growth (ROG) however fell between 1881and 1921 and increased after that. It is clear that fertility rates did not go up, but mortality rates declined, leading to population growth. This Unit considers all the possible determinants of this increase. If we shift our focus from the general all India trends to the regional patterns, we discover interesting variations. This Unit looks into some of these contrasts, and suggests a broad difference between the demographic regimes of wet and dry zones.

14.7 GLOSSARY

Age Heaping	Age heaping occurs because many people round their age up or down to the nearest number that ends in 0 or 5. When the ages are graphed, the distribution is not smooth; instead, there are heaps over the ages ending in 0 and 5.
Age-Specific Fertility Rate	The number of births per woman within a specific age interval during a specified time
Crude Birth Rate	Crude Birth Rate is the number of births per 1000 of population
Crude Death Rate	Crude Death Rate is the number of deaths per 1000 of population
Digit Preference	Demographers have shown that people exhibit preferences for ages having certain terminal digits. This is referred to as digit heaping For example, single-year-of-age data shows a strong preference for ages ending in "0," with somewhat lesser preferences for ages ending in "5," "2," and "8." Conversely, these data show negative preferences for ages ending in "9," and "1" (Shryock et al. 1971, p. 204)
e_0 males & e_0 females	Life expectancy at Birth is denoted by the e and subscript 0 = e_0
GFR (Gross Fertility Rate)	Number of births of women per 1000
Loctational Infecundity	When the woman is breast-feeding her fecundity goes down
Smoothed Age Distributions	Age fluctuations reduced by using statistical techniques.
Total Fecundity	Biological ability to produce
Total Fertility Rate (TFR)	The total number of live births a woman would have on average, if she were to live to the maximum age

14.8 EXERCISES

1) What were the limitations of the data in colonial censuses?
2) Discuss the changing pattern of mortality-fertility curves during the colonial period.
3) Examine the question of population growth in the colonial period.
4) To what extent famines affected the population growth in the colonial period?
5) Why did fertility growth behave differently in dry and wet regions?

14.9 SUGGESTED READINGS

Agarwala, Shriman Narayan (1973), *India's population Problems,* Bombay: Tata McGraw Hill Pub. co.

Appadurai, Arjun (1997), 'Numbers in Colonial Imagination' in *Modernity at Large: Cultural Dimensions of Globalization*, Delhi: Oxford University Press.

Davis, K. (1951), *The Population of India and Pakistan*, Princeton: Princeton University Press.

Dyson, T. (1989), *India's Historical Demography: Studies in Famine, Disease and Society*, London: Curzon Press.

Guha, S. (2001), *Health and Population in South Asia,* Delhi: Permanent Black.

Visaria, Leela and Pravin. (1983), 'Population' in Kumar, Dharma (ed.), The *Cambridge Economic History of India*, Volume 2, Delhi: University Press**,** 463-532.

Zurbrigg, Shiela (2001), "Re-Thinking Public Health: Food, Hunger and Mortality Decline in South Asian History" in *Public Health and the Poverty of Reforms*, edited by Imrana Qadeer et al., Delhi : Sage.

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