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**GENDER DIFFERENTIALS IN FAMINE
MORTALITY : MADRAS (1876-78) AND
PUNJAB (1896-97)**

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MASTER OF PHILOSOPHY

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CERTIFICATE

Certified that this dissertation entitled “**Gender Differentials in Famine Mortality: Madras (1876-78) and Punjab (1896-97)**”, submitted by me in partial fulfillment of the degree of Master of Philosophy is entirely my own work and has not been considered for award of any other degree either at this or any other university.

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INTRODUCTION

Famine represents a crisis with many dimensions - economic, social, political, historical and demographic. A famine is usually a well-defined event with a definite timespan,¹ but it also relates to trends in the social, economic and political lives of people over a long period in the sense of emerging from a particular cause of events taking place in a society. Famines are thus rooted in these events, but the chain of causation is interpreted differently from different perspectives. The most important of these are the Malthusian and political economy perspectives.

While famine is a crisis in every sense of the term, and therefore takes on all the drama and vividness of abnormality, it is recurrent and systematic in its impact on peasant societies. Mortality patterns, famine disease patterns and patterns of destitution, all mirror in an exaggerated manner the 'normal' course of things. While the abnormality of famine is mirrored in acts and actions that would be considered unspeakable and unthinkable in non crisis periods, this abnormality clearly affects most those who are normally the most vulnerable in terms of social security, nutritional status and poverty. Famine mortality therefore represents both crisis and continuity.

Gender is one of the most basic and universal forms of hierarchy and differentiation in social life. Gender inequity represents a hierarchy that is manifested at a variety of levels - in the discrimination against girls and women with regard to food, health care, education, employment, and political participation, as well as in the

1. Arnold, D (1988: p.6).

ideological justification of discrimination on the basis of sex differences in temperament, ability, needs, etc. Moreover, gender discrimination is implicated in the articulation of other forms of hierarchy as well - such as caste and class. The way in which gender inequity is manifested will depend to a large extent upon the relations between social groups differentiated on the basis of these other hierarchies.

One of the cruellest and most poignant forms of inequity is the unequal distribution of life chances between different groups within society. The poor and the marginal have lower life expectancies, higher rates of mortality and morbidity, as well as less access to health care than the well to do. Moreover, they form a significant proportion of the population. The very fact that life chances are distributed unequally is a cause for concern and calls for social activism in bridging the gap. The task of the social scientist is also to explore changes in the causes and nature of such distribution over time.

The distribution of life chances on the basis of gender has been the subject of research for a long time. Gender differentials in infant and child mortality, the quantum of maternal mortality, the gender differential in the pace of mortality decline, and gender differentials in life expectancy have reflected the discrimination against women within the household and in the community, state and market. Moreover, the most basic form of discrimination is with regard to food. While this access is mediated by differentials in employment, earnings, education, access to technology, etc., the fact that the bulk of mortality for both sexes occurs during the first ten years of life indicates that household level discrimination is implicated in differential life chances.

This is especially so since the household is the setting within which the distribution and allocation of food on the basis of the perceived needs and contributions of members takes place. Yet, gender differentials in life chances are influenced not only by dynamics between members of a household, but by the position of the household within a larger social setting. Thus, while overall mortality and morbidity of untouchable or agricultural labour households may be high, the gender differential in distribution of food and mortality will depend on a variety of factors such as the worth of female children within the household, maternal employment, etc. In the Indian context, gender differentials in mortality in the twentieth century have been found to vary directly with caste status and landholding, and have been especially pronounced in the North and North-West regions. Moreover, the regional contrast in the gender differential in mortality has been found since the first national Census in 1881, and has been extending in incidence over time.

That famine mortality tends to exhibit the same patterns of victimization as normal mortality, and that most famine mortality occurs from diseases that are normally prevalent indicates that we need to look outside the event of famine in a search for understanding mortality patterns. Since the main factor uniting victims of non-crisis mortality was poverty and insufficiency of food it is hypothesized here that class, caste and gender differences in the incidence of hunger provided the basis for famine mortality. Moreover, until the early years of the twentieth century, neither health care nor famine relief policies contributed to a great extent to change either the quantum or distribution of mortality. This implies that while starvation during the

period of high price rises could be implicated in the patterns of death and disease during famine, the causes of famine mortality are rooted in the enfeeblement of people from long periods of inadequate food intake. Thus the distribution of chronic hunger and its social logic must form the basis of an analysis of mortality differentials during famines. The distribution of famine mortality on the basis of gender must take into account the intra household distribution of hunger as well as the dynamics of caste and class.

The subject of this study would be a comparative study of gender differentials during two nineteenth century famines - i.e. the Madras famine of 1876-78 and the Punjab famine of 1896-97. The choice of these two instances was made for the following reasons. Firstly, famines occurred with sinister frequency during this century, at a time when the improvements in transport, technology and communications and the unification of administration across the subcontinent could have prevented famines or limited the extent of the mortality caused by them. These two famines occurred after a period of at least fifty years of far-reaching socio-economic, political and cultural change wrought by colonial rule. Further, both these famines were relatively well-documented.

Finally, gender differentials in famine mortality have generally shown a pattern of relative female survival advantage during famine a trend commented upon by Dyson (1991), Sen (1989), Rivers (1988), Mohanty (1989) among others. Yet most of these studies have not taken famine locations in North India into account in the analysis of gender differentials in mortality. Maharatna's study (1996) finds that Northern famine locations such as Punjab and United Provinces in fact exhibit a pattern of relative

female disadvantage in mortality. Thus there is a regional variation in the pattern of mortality that enables us to critique explanations for a relative female survival advantage during crisis.

The objectives of the study would be as follows:

- 1) To explain the gender differential in famine mortality between the two regions with regard to contrasts in agrarian history social structure and responses to colonial rule.
- 2) To explore the relationship between gender differentials in non crisis or normal mortality, and famine mortality, in the two regions. This would essentially use quantitative data as a starting point to explore the determinants of crisis and non crisis mortality differentials.
- 3) To understand how social processes and structures influencing risk and vulnerability operated differently for different social groups leading to different mortality outcomes.
- 4) To understand how gender ideology and relations of power between social groups influenced social and administrative responses to famine.

When looking at famine mortality, three main issues arise which could guide research fruitfully:

- 1) The linkages of famine mortality with trends and differentials in non-crisis mortality.
- 2) The specific logic of a social system in the distribution of mortality.
- 3) The different routes to mortality and their articulation at various levels.

The first chapter attempts to define the problem of gender differentials in famine mortality from a public health perspective. It also seeks to look at dominant theoretical explanations of famine as a phenomenon, and of the distribution of mortality. Finally, gender issues in the analysis of famine mortality are addressed.

The second chapter looks at the demographic and epidemiological indices of famine for the two locations. It also seeks to evaluate dominant explanations of gender differentials in famine mortality in the light of these indices.

The third and final chapter looks at the links between chronic hunger and famine mortality, and the social logic of the distribution of chronic hunger in causing mortality differentials during famine. It attempts to explain the reason for the contrasting pattern of survival by gender during the two famines.

It is hoped that this work will provide some insight into the varied levels and ways in which gender - differentiated social processes impinge upon female survival both during normal and crisis periods.

CHAPTER - I

GENDER, FAMINES AND CHRONIC HUNGER: A THEORETICAL OVERVIEW

I- *Public Health, Gender and Famine Mortality: A Perspective.*

The aim of this study is to analyse gender differentials in mortality during two nineteenth century famines i.e., the Great Famine of 1876-78 in Madras Presidency and the famines of 1896-97 and 1899-1900 in Punjab, the latter two being treated together for analytical purposes.

While famines have been defined in a variety of ways the two most common elements used in definition of famine include the mortality effects of famine (i.e., an elevated death rate above a 'normal' level) and inability of communities to gain access to food (most often manifested in high foodgrain prices). In other words, famines have been defined as crises of mortality and crises of subsistence.¹ In recent times researchers have focussed on the effects of famine on other demographic variables, such as fertility and migration,² or socio economic variables such as family disorganization, economic dislocation, etc.³ Yet the two most common elements in definitions of famine remain the coincidence of mortality and subsistence crises.

Because of the historical links between drought and food scarcities several scholars especially in the first world, have tended to define famines in terms of poor

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1. See Alamgir (1980); Maharatna (1996) Lardinois (1985) Hugo (1984) Dando (1980) for reviews of definitions of famine.
 2. Dyson (1991), Lardinois (1985) and Ladurie (1979) discuss the fertility effects of famine. Lardinois (1985) and Whictcombe (1982) discuss the migration effects of famine.
 3. See Dyson and Maharatna (1992) for the Maharashtra drought. Sen (1981) discusses the Bengal famine of 1943.

rainfall or monsoon failures. Yet, as Dando (1980) explains, drought is not famine. Drought and famine are not inevitable companions of each other. The failure of rains may not cause a famine (as for example, during the 1970-73 drought in Maharashtra) and famines have been known to occur even in the face of adequate rainfall (for example, the Bengal famine of 1943).⁴

An important issue in the definition of famine pertains to the distinction between the event of famine and processes of hunger, undernourishment and starvation. Famines have generally occurred in societies in which some or many people do in fact suffer from chronic hunger and seasonal variations in food intake.

Due to this, it is difficult to separate the horror of famine from the dismal ordinariness of food insecurity. Yet, some definitions of famine do in fact make such a distinction. For example, Sen distinguishes famine from starvation and poverty. While poverty reflects deprivation, both relative and absolute, starvation reflects absolute dispossession. Further, starvation can be distinguished from famine both in terms of the suddenness of the collapse in food consumption during famine as well as the fact that famines may not affect all groups in a famine affected nation.⁵ Further Sen states:

"Problems of (i) existence of much regular starvation (ii) worsening trend of regular starvation (iii) Sudden outbreak of acute starvation are quite distinct. While they can accompany each other they need not, and often do not, do so."⁶ Yet we wish to reiterate that in fact, these three are not so distinct. Inasmuch as all three tend to affect

4. Greenough (1984) documents the disintegration of families that occurred during the Bengal famine of 1943 due to death, separation and abandonment. See also Agarwal (1989).

5. Sen, A (1981:39-44).

6. Ibid., pp.42.

the same strata of people, we cannot separate them quite so easily. Finally even Sen's case studies show that the suddenness of the collapse in entitlement to food occurred among groups who could well have suffered a low level of food intake for long periods-for example, agricultural labourers, artisans, paddy huskers and transport workers.⁷ When we are looking at famine mortality, the suddenness of the collapse in intake of food cannot be considered as a cause of mortality in isolation from the lowness of intake over a long period of time. Similarly, Dando defines famine as

".... a protracted total shortage of food in a restricted geographical area, causing widespread disease and death from starvation".⁸

Moreover, Dando writes that "There is a great difference between hunger or malnutrition and famine, but to many, the dividing line between hunger and famine is uncertain. Most people would agree that there are degrees of hunger or even food shortages which do not justify the use of the term "famine."⁹

While indeed hunger and famine are not the same thing hunger is implicated in famine mortality. Dando's definition of famine mortality is flawed in as much as it only takes account of deaths from starvation. On the other hand both Sen and Maharatna (1996) stress the role of starvation induced disease which is identified by elevated mortality rates in a famine affected area for some time after the peak in mortality.¹⁰

7. Sen (1981: p.70).

8. Dando (1980: p.65).

9. Dando, W.(1980: 58).

10. Sen, A.K. (1980:pp.202-206);

Maharatna, A (1996). See Table 2.2, pg.30 showing elevated mortality rates for years after the event of famine in five famine locations.

While Maharatna stresses the mortality aspect of famine as central to its definition, he writes that,

"...elevation in mortality during a crisis is expected because of the adverse influence of acute undernutrition on morbidity and mortality".¹¹

Maharatna's definition also attributes the mortality crisis to acute undernutrition and its effects on morbidity and mortality. On the other hand, there are several reasons why one would need to take into account the role of chronic hunger in causing famine mortality. The event of famine does in fact stand apart by virtue of this drama as well as the meanings attributed to it both by those suffering from it and by observers. Yet, to make such a sharp distinction between chronic hunger and famine excludes the former from the causation and distribution of famine mortality. There is evidence that low levels of intake of food over a long period of time which do not constitute a crisis, nevertheless have adverse mortality and mortality effects.¹² Further, the exclusion of chronic hunger from the purview of famine mortality acquires relevance because both hunger and famine are emotive concepts that call into question the legitimacy of the state. Yet, as long as chronic hunger does not deteriorate into acute starvation which causes a visible increase in death rates over a short period of time the legitimacy of the state is preserved intact. Yet mortality differentials that occur during non-crisis periods implicate such chronic and invisible hunger in the differential life chances of the poor, the marginal and the vulnerable. That it is these very groups in society which suffer the most implies that we must draw a running line from chronic hunger to famine mortality "caused" by starvation and starvation-induced disease. A public health

11. Maharatna, A. (1966:3).

12. See Reddy, V.(1993).

perspective on famine would entail addressing the causes, distribution, incidence and prevalence of disease and death among communities grappling with famine. Much of the physical suffering of famine can be attributed to causes beyond direct starvation. The epidemiology of famine reveals a magnification of pre-existing causes of death with regard to infectious disease, lending support to the supposition that famine as event nevertheless represents a larger process and draws its contours in vivid, often lurid shades. That is, famine as crisis represents both abnormality as well as consistency with existing patterns of the distribution of disease and death. Insofar as public health addresses the preventive, promotive, rehabilitative and curative aspects of the health of populations, a public health perspective must address famine as a phenomenon rooted in the social relations between groups and societies. To discuss famine as a problem of the science of nutrition¹³ is to obscure the political character of lack of food in communities and societies, and its consequences for them.

While the emphasis on chronic hunger blurs the distinction between famine and long-term processes in the causation of mortality, it does not follow that either famine or hunger are placed above the other in terms of priority. Insofar as famine encompasses several kinds of distress-not just nutritional stress-a public health perspective needs to take into account the entire gamut of influences on health and survival during the crisis.

Finally, seeing the event of famine as genetically related to chronic hunger does not necessarily mean confusing all degrees and levels of hunger with famine. Yet it

13. This is the approach used by J.P.W. Rivers (1988) and to some extent by W.Ayckroyd (1974). Both Rivers and Ayckroyd discuss in clinical detail the nature of the nutritional deficiencies experienced by famine affected communities, without touching upon the political issues surrounding famine-most importantly, the access to food.

does mean that policy measures such as famine codes would need to assume more than a mere fire fighting role. That is to say, while measures to identify the impending onset of a crisis and to tackle it are absolutely necessary,¹⁴ an equal emphasis must be given to tackling issues of seasonal unemployment, poverty, the inability to purchase food at any price level among some groups, and the health effects of inadequate intake of food over long periods of time. This perhaps is the most important issue in the definition of famine and its links with famine mortality. A public health perspective on famine cannot avoid drawing attention to the rootedness of famine mortality in vulnerability which arises from relations of power between different groups.

A gender perspective on famine in the light of the above arguments would seem to follow naturally inasmuch as gender difference and hierarchy is one of the most basic and universal forms of power relations between groups of people. Further, relations of power that involve gender inequity or hierarchy occur not only between individuals, but also between groups of men. 'The position of women' has been a long standing basis of defining inferiority or superiority between groups of men, and the control of female fertility and labour has also informed larger relations of dominance.¹⁵ The most basic assumption that a gender perspective in public health would involve is that "...in

14. Some signals of distress upon which famines relief operations were to be commenced were as follows: (emphasis mine).

1. The contraction of *private charity*, indicated by the *wandering of paupers*.
2. The contraction of credit.
3. Feverish activity in the grain trade.
4. *Unusual* movements of flocks and herds in search of pasturage.
5. *Unusual wanderings* of people.

(Report of the Indian Famine Commission, 1901)

15. This is especially true of modern and colonial society where the 'liberation of women' acquired importance as a symbol of moral superiority.

most societies and through most of recorded history, women as a group have been in a socially, economically and politically inferior position to men as a group".¹⁶

In other words, gender as a principle of hierarchy is a valid point of view from which to begin scientific investigation.

Secondly, it involves looking at the ways in which the health and lives of populations is affected by the unequal distribution of both symbolic and material resources on the basis of gender. Finally, a gender perspective in public health would look at processes within the household and family-which have traditionally been 'black boxes' in social sciences research as determining the life chances of individuals. For example, Sen notes that economic analysis has until recently viewed the household either as a single member unit; or as a unit wherein divisions are made by an altruistic household head; or as a unit composed of rational individuals each making choices for himself or herself, and eventually these choices would harmonize.¹⁷ An example of an approach which looks at famine mortality in terms of one of these approaches is Greenough's study of the Bengal famine of 1943. Greenough sees the large scale desertion of women and children by male household heads as expressing the assumptions of a shared symbolic order where male life was placed above that of female life. By extension, the desertion of women was the result of a consensual agreement shared by men and women alike.¹⁸ On the other hand, Agarwal critiques and extends Sen's arguments in her assertion that decisions within the households are determined by the bargaining power of each individual, which in turn is determined by

16. Woolley F.R. (1993: 485-500).

17. See Sen (1990).

18. Greenough, P.R. (1984).

the options they have outside the households.¹⁹ Thus the life chances of individuals are determined crucially by their gender. This determination takes place to a large extent by the operations of processes of allocation and distribution within the household; yet the context within which the household is set and the power relations between groups of which it is a part, also play a role in these household processes. Moreover, gender relations involve men and women of different households- i.e., belonging to different strata. For example, Saradmoni's finding that in the rice economy of Tamil Nadu, the female *padiyal* often subsidizes her husbands work,²⁰ exemplifies the operation of patriarchy on a larger scale than between individual men and women. Gender hierarchy thus is crucial to defining the operation of other hierarchies through the symbolic, the biological and the material control of women's productivity and fertility. From a public health point of view, then, gender becomes important not only in terms of women's health, but in terms of how the determinants of women's health involve a wider set of hierarchies.

II- *Famine and Chronic Hunger: A Review of Theoretical Formulations.*

We have tried above to emphasize that the crisis of famine tends to overshadow the ordinary and long term insufficiency of food which exists among socially marginal groups, and which may be seen as compromising their ability to withstand economic and food crisis. Studies on famine have in fact tended to focus on elements within the crisis such as acute starvation or starvation related disease, and the efficiency or inefficiency of famine relief operations in the causation of famine mortality and its

19. Agarwal, B.(1994), Chapter-2.

20. Saradmoni, K. (1987).

magnitude. Explanation for the differentials in famine mortality have also tended to focus on elements within the crisis as shaping famine mortality patterns.²¹

There are however two main theoretical perspectives which in addressing famine, do look at the relationship between famine as mortality crises, and long term social processes and institutions. These are

- (a) The Malthusian Framework,
- (b) The Political Economy Perspective

We discuss each below.

The Malthusian Framework

The classical Malthusian notion was that famine resulted from the imbalance between rates of population growth and food supply. Famines along with disease and wars, were Malthus' "Court of Last Resort",²² Nature's way of restoring the balance between the supply and demand for food. Famines thus were positive checks on population growth. (They were also "positive" in ways that we shall describe presently).

Intrinsic to the Malthusian understanding of famine was an understanding of peasant societies and the poor as governed by irrationality and as morally, spiritually, economically and sexually incontinent. Societies which faced the threat of famine were societies in which people were unable to restrain their fertility. Among the poor, then, their vulnerability to death and disease during famines as well as during "normal" periods was a consequence of unrestrained reproduction and large families. The crux of

21. For example, both Sen (1981) and Greenough (1984) look at the patterns of destitution resulting from famine as causative of famine mortality.

22. See Cotts, Watkins, S. and E. Van de Walle (1983).

the Malthusian approach was the inability of social institutions in peasant societies to create the conditions conducive to moral and sexual restraints among them. This restraint was seen as a necessary precondition for the social organization necessary for surplus production; which in turn was necessary in order to prevent the decline in food availability that culminates in famine. Famines in this understanding, belong firmly in a pre-capitalist society Seavoy propounds the theory that famines are intrinsic to peasant societies where commercial agriculture did not exist and where the desire of peasants to avoid hard work led them to practice the subsistence compromise which meant the production of subsistence quantities of food.²³ The subsistence compromise rested on the equalized sharing of cultivation rights and the equalized sharing of harvests. This enabled peasant societies to put very little labour into the work of cultivation, and to share the risks of a bad harvest equally. Moreover, peasant societies are also characterized by institutions intended to minimize the hard work of cultivation. For example, the joint family system and the caste system in India enable the owners of land to shift the work of cultivation on to those who are least motivated to increase their labour input and produce surpluses i.e., low caste labourers who get fixed shares of the harvest, and children. High fertility in peasant societies also expresses the desire to avoid hard work, as children become a source of cheap labour. The desire to avoid hard work, combined with unrestrained fertility and a social organization emphasizing the equal sharing of risks underlie the peasant vulnerability to famine. Thus the escape from famine in peasant societies can only be achieved through the forced commercialization of agriculture and the destruction of all sources of social security so as to force peasant farmers to produce surpluses for the market.

23. Seavoy, R. (1986).

Thus the Malthusian perspective on famine is intimately tied up with an understanding of the nature of peasant social institutions. Within this perspective, both chronic hunger and famine are the result of the inability of these societies to exercise the moral restraints necessary for surplus production. The *ancien regime* model of historical demography interprets mortality crises as recurrent features of peasant societies because populations tend towards the carrying capacity of the land. Where land cannot support the growth of populations, chronic hunger and starvation are manifestations of a decline in food availability. Peasant societies respond to good harvests by a lower age at marriage and increased fecundity. Over time, the population growth caused by changes in marriage and fertility patterns creates a decline in food availability per capita. While normal harvests may support the increased population at lower levels of intake chronic undernourishment and disease result from the decline in food availability. A poor harvest can immediately create famine among such societies.²⁴

Tied up with the theory of population which was an attack on the moral, spiritual and intellectual bases of non-western societies the Malthusian tradition provided an explanation for poverty in these societies, as well as ideological justification for the liberating influence of western capitalism, which was introduced mostly during colonial rule in the third world. Explanations rooted in this tradition see famine as an inevitable feature of peasant societies due to the decadence of their social institutions, most notably marriage, family and the social relations of production. The Malthusian tradition completely ignores the experience of colonialism as altering social

24. For examples of the *ancien regime* model, see the work of Ladorie, Meuvret, Goubert and Abel.

institutions in a manner that weakened the ability of people to withstand crises. Because it uses the reference point of internal or endogeneous factors that inhibit surplus production it sees famines essentially as a problem of food availability on the other hand, Sen notes that "Starvation is the characteristic of some people not *having* enough food to eat. It is not the characteristic of their *being* not enough food to eat. While the latter can be a cause of the former it is but one of many possible causes."²⁵

In other words, the Malthusian approach focuses entirely on food availability and not on distribution at a variety of levels. Thus it cannot explain differentials in mortality on in chronic hunger except from the point of view of "savage" customs or in Seavoy's case, the desire of dominant males to avoid hard work by transferring the burden of labour on to children, women and low caste persons. On the other hand, if the motivating factor in production was this desire to "offload" work, the distribution of food would also presumably be such that these persons were physically able to undertake such labour. This questions is not addressed by Seavoy's analysis.

The assumption that famine mortality acts as an equilibrating mechanism in the demographic system and reduces populations to the carrying capacity of the land would logically be reflected in a fairly long stabilization period after the famine. However, Watkins and Menken (1988) find that recuperative mechanisms such as low mortality and high fertility operating in the post-famine periods restore population to their pre-famine size in seventeen to fifty five years. Clearly the value of crisis mortality as a balancing mechanism is limited if populations regain their former size so rapidly.²⁶

25. Sen, Amartya (1981:p.1).

26. Watkins, S.C. and Menken (1985: 647-75).

Because the Malthusian perspective concerns itself largely with peasant societies as a whole, or to some extent the poor in a modernizing society, it is unable to address completely the reasons and causes of mortality differentials in these societies. If famines acted as a positive check on population growth, they would presumably affect large families most adversely. Yet, Krishnaji shows that family size in rural India varies directly with landholding size.²⁷ In most famines, large landholders were able to escape famine mortality to a much greater extent than persons with little or no land. In this case, it would seem that the role of famine as a positive check on population growth was a limited one.

With regard to the understanding of chronic hunger as caused by population growth outstripping food, Sen's entitlement approach provides a useful critique. In case studies of four famines in Asia and Africa, Sen argues that famines can occur without a decline in total food availability. Indeed, in all these famines, the total amount of food available did not decline substantially in relation to non-famine years. Instead Sen's approach stresses the sudden collapse among groups of famine victims of entitlement to food. The entitlement to food depends on the value commanded by the goods or services an individual is endowed with, and a collapse in entitlement to food occurs when the value of a person's endowment bundle falls sharply in relation to food. Thus, according to Sen, the decline in the value or price that agricultural labour could command, led to the effect of the famine on this group. The occurrence of famine in Sen's analysis thus need not at all be a natural concomitant of a decline in food availability. Sen's model thus shifts the focus from food supply to the relations between

27. Krishnaji, N. (1984).

groups in gaining access to food that is available. Because access to food is indeed unequal, this emphasis would seem to make sense if one is to avoid generalizing the causes of hunger across societies. In short the Malthusian approach is not only bad policy in terms of its attack on the poor, but also bad science in terms of its assumptions.

On the other hand, Sen's entitlement approach enables one to think of famines not simply as a shortage of food but rather as a failure of the social institutions governing access to food. It is also useful in that it enables one to analyse mortality differentials as a result of the unequal distribution of entitlement to food in society. The analysis of mortality differentials as resulting from differentials access to food is clearly missing in the Malthusian approach. In its assumptions that famine mortality is a remedy for overpopulation, one would expect to find that mortality affects the most densely populated regions and the most fecund groups in society. Yet, we find that on both one case studies of famine i.e., Punjab 1896-97 and Madras 1876-78-we find that the more densely populated and prosperous regions such as Ganjam and Vizagapatam in Madras and the Central Punjab districts of Jullunder, Hoshiarpur and Ferozepur escaped the famines with less mortality while sparsely populated regions such as Bellary, Cuddapah, Kurnool and Anantapur in Madras, and Rohtak Hissar, Gurgaon and Karnal in Punjab suffered the maximum distress in terms of migration mortality and suffering.²⁸ The Malthusian understanding of famine, chronic hunger and population density is clearly flawed in the light of these data. On the other hand Sen's entitlement approach provides a framework for intra-class, intra-household distribution

28. See Whitcombe (1992), for Madras; and The Report of the Indian Famine Commission (1898) for Punjab, See Chapter-II for a discussion of affected areas within each region. See also the Madras Famine Review and the Punjab Famine Report.

of resources as well as the distribution of access to food. Yet as we have seen, we need to critically look at Sen's conception of famine mortality and link it with the long term social conditions that lead to differential risk of death among groups.

(2) The Political Economy Perspective:

The second approach we need to consider in analysing famines is the political economy approach. The political economy approach sees famines as an outcome of unequal relations of power between peasant societies and imperial rule. Changes in the social structure and economy wrought by colonialism are seen as skewing the balance between food and population which render peasant societies vulnerable to famine. Moreover, the political economy approach provides a critique on the nature of famines in the nineteenth and twentieth centuries. Bhatia writes:

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"The development of means of communication and transport helped to distribute a local scarcity evenly over the country as a whole, resulting in a rise in price of food grains which rendered food beyond the reach of the poorer sections of the community..... Thus instead of absolute lack of food in one region, famine assumed the form of a sharp rise in prices. The process was helped by the emergence of destructive forms of speculation in food grains. The disappearance of domestic stocks, which people were accustomed to keep in the past, and the development of a large export trade in grain, which siphoned off annually a substantial part of cereal production in the country, were factors which contributed to the rise in prices of food grains during the period of famine. As a result of these developments, the rise in prices and the consequent suffering of the people, were out of all proportion to natural scarcity.²⁹

29. B.M.Bhatia (1967: p.9).



Bhatia's ideas seem to anticipate much of Sen's arguments that famines need not result from a shortage of food supply *per se*, but rather that they come about from a collapse in the institutions governing access to food. Bhatia looks carefully at the long-term conditions surrounding the occurrence of famines in India between 1861 and 1943. He documents a trend towards pauperization and downward economic mobility among the agricultural classes during this period. Especially affected were the small cultivator, the artisan and the agricultural labourer. The small cultivator was hard-pressed by excessive rent demands in permanently settled areas like Bengal and by revenue demands from the state in the raiyatwari areas. The artisan faced the decline of his trade in competition with cheap imports from England. Especially affected were weavers and potters. A proportion of artisans were thrown into cultivation of pieces of land that were owned or rented by them, the payment of rent or revenue of which led to large-scale indebtedness and mortgage. Many were reduced to subsistence from agricultural labour. Agricultural labourers were hit by the monetization of wages and the secular rise in prices of food. (pp.10-13).

Three main processes contributed to the vulnerability of the agricultural masses.

These included:

- (1) The destruction of indigenous industries through imposition of heavy trade tariffs against import of Indian goods in England.

Following the European industrial revolution, the manufacturing industry was smothered by imports of cheap textiles and industrial goods the production of which had sustained many small producers. Particularly affected were the potter, the oil expeller and the shoemaker. (p.17).

- (2) Changes in land tenures and the creation of a rapacious rentier landlord class. According to Bhatia, the creation of ownership rights in land, with rights of alienation and sale, was a distinctly colonial development. For many small cultivators pressed by demands for rent or revenue, land was a surety against which they borrowed from the moneylender. (p.20).
- (3) Colonial rule in India had the effect of commercializing the production and sale of agricultural produce. Production came to be dominated by crops such as indigo, jute, cotton, tea and coffee. Moreover even the production and sale of food crops became geared for sale at prices dictated by international trade. (pp.21-39).

Fundamental to an understanding of famine therefore are the relations between a colonized, largely peasant people, and imperial rule. The logic of colonial rule itself contains the seeds of famines in the shape of exploitation, expropriation and dependence. For Bhatia, the nutritional vulnerability of a population impoverished by changes in their mode of subsistence lie at the root of famine. The shift to cash cropping and consequent depletion of food stocks, excessive revenue demands, uncontrolled price rises and declining wage rates, and finally, the creation of a rack-renting landlord class who made useful political allies for the British, were processes that squeezed the countryside dry. Moreover, protective measures such as irrigation were neglected in preference to railways, which served imperial trade interests. Finally, a harsh famine policy governed by interests of retaining political credibility and economizing expenditure, was unable to limit the damage caused during the event of famine.

The political economy approach sees famines as intrinsically related to the poverty and vulnerability resulting from changes wrought by imperial rule in the social institutions of peasant societies. While these changes affected entire societies, their impact was differentiated according to the class position of different groups. Thus while on the one hand, the changes in technology, communication, irrigation, etc created the basis for capitalist development, the destruction of the means of livelihood of the majority and the changed social relations of production altered class structure and agrarian relations as well. Therefore, the political economy approach provides an exploratory framework for the analysis of mortality differentials and hunger inasmuch as it documents the unequal access to the means of production under imperial rule.

Yet, this approach as it has been used, is problematic in two aspects. Firstly in attributing agency entirely to exogenous factors in the analysis of social change. Such an approach neglects the long tradition in historical research which emphasizes continuity between pre-colonial and colonial forms in social relations. This has relevance for an understanding of famines and chronic hunger inasmuch as the differential entitlements of individuals depended not only on relations of power between an imperial nation and its colonial subjects, but also on those between colonial subjects themselves. In other words, relations of power and equity of distribution depended on changing relations between castes, classes and genders in the colonial context, and to attribute the outcome of contests for power to an overarching imperial rule entirely neglects the fact of upward mobility within this context for some groups at the cost of others.³⁰

30. For example, Clark (1983) discusses how during the nineteenth century, the Kanbi Patidars of Gujarat, consolidated their position as a dominant agrarian caste in the region. The practice of female infanticide was an important part of their strategy. Moreover, the limitation of the supply of women among the Patidars also resulted in an increase in crimes of violence against women of the other important community of the region the Kolis who were losing control over land at the same time see Alice Clark (1983).

This brings us to the second problem with this approach. In the analysis of causation of famine, gender issues in the distribution of hunger and in the entitlement of different groups, have been completely neglected. Processes of impoverishment and hunger appear as if they affect men and women within the household equally. On the other hand it neglects the possibility that poverty and hunger may not have been shared equally within the household. Caste and clan strategies of dominance may have impinged upon relative female survival, (See footnote 30). While the political economy perspective contains the theoretical basis for analysis of differentials in life chances, the gender blindness of its proponents have largely excluded gender and household distribution issues from its purview.³¹

Gender is an important fault line along which the distribution of goods and services within the household takes places. Yet the gendered nature of household processes has been neglected in economic thought and research until recently. Kynch and Sen outline three main types of household models in economics. These are:

- 1) That which assumes that the household has only one member who earns an income and spends it on his or her utility.
- 2) That which stresses family cohesion to the point of analysing the behaviour of the entire household as guided by the pursuit of one uniform and integrated objective-i.e., the maximization of "family welfare".
- 3) The approach which sees family behaviour as based on the individual pursuit of welfare but also admits concern for others. The individual aims to maximize utility from a set of basic preferences that are constant and the behaviour of

31.Ibid.

individuals is guided by explicit and implicit markets. This approach underestimates the extent to which behaviour is governed by non-market rules. Most public policy assumes either explicitly or implicitly that the household is an undifferentiated unit wherein divisions with regard to distribution and allocation are made by an altruistic household head or that resources get "automatically" optimally distributed by forces of demand and supply.³²

The analysis of the differential impact of the Bengal famine of 1943-44 made by Greenough tends to use the second model- i.e., that the behaviour of the household is governed by a shared notion of family welfare. Greenough's argument concerns the non economic-i.e., cultural basis of the abandonment of female and child dependents by male household heads. Yet in claiming that a shared notion of male superiority made women acquiesce to abandonment, Greenough tends to neglect the political economy of how such household decision were made.³³

Moreover this viewpoint carries the familiar notion that the concept of personal welfare is inapplicable to rural Indian women because they are socialized to think of their personal welfare in terms of the welfare of their families.

Sen stresses that the household is an arena both of cooperation and conflict over the allocation and distribution of resources. This allocation takes place on the basis of the perceived contributions and the perceived interest of each member, as well as their "break down position", i.e., their options outside within the household in case negotiation breaks down. Sen argues that these bases of distribution within the household are loaded against women because most women's contributions to the

32. Kynch and Sen (1983:163-80).

33. Greenough, P.R. (1984).

household are perceived to be smaller than those made by men, and because women tend to attach relatively less value to their own well being relative to the well being of others in the household.³⁴

Agarwal extends and critiques Sen's arguments on a variety of counts. She argues that Sen's conceptualization of perceived outcomes is flawed. Women's attempts to maximize family welfare are often not a negation of personal interests simply because women are for more dependent on the family for their personal welfare than men. Moreover, notions of legitimate shares may depend not only on perceived contributions, but also on perceived needs which are rooted in cultural constructions of the differences between human beings. Finally, she makes the important point that relative bargaining power depends crucially on the existence of options outside the household- in the community, the market and the state.³⁵

With regard to the intra-household distribution of food and of hunger, the bargaining approach above enables us to understand that the prosperity of households on vice versa does not automatically describe the position of women within these households. The political economy perspective on famines used by Bhatia is completely silent on the gendered distribution of hunger caused by the overall colonial pattern of the economy. Moreover, it fails to take into account the relations of dominance determined not only by processes of upward or downward economic mobility but by changes in caste and kinship patterns. These shifts in dominance not only influenced agrarian relations to a great extent but were also crucial in determining the gender

34. Sen, A., (1990).

35. Agarwal, Bina (1994), Chapter2.

distribution of life chances and of hunger.³⁶ Also, within the new relations of production created by colonial rule, particular patterns of marriage accompanied changes in status. Marriage networks were important ways in which dominance was consolidated within a region.³⁷ The gender dimensions of this pattern of relative dominance were important aspects that Bhatia, and others, neglect.

A final critique of the political economy approach to famines with regard to its gender blindness involves the neglect of gender as a variable that "distorts" the process of capitalist development in Third World countries. While we have pointed out the neglect of the household dimension within which hunger is distributed, significant gender disadvantages also occur at the levels of the state, the market and the community within a modernizing nation which condition women's access to never forms of economic mobility and therefore distribute life chances unequally by gender even within a context where prosperity might accrue to some groups. Within a world systems perspective, women of the Third World often form the underbelly of subsistence workers who subsidize the benefits of surplus production and profits in the Western capitalist countries. Custers (1997) finds in his comparative study of workers under the factory system in West Bengal, home based workers in Bangladesh and Maria Mies' lacemakers of Narasapur, that gender disadvantages are built into the world capitalist system where women participate as peripheral workers. While expropriation of surplus is especially glaring in the case of home based garment workers, women in Third World factories do not fare much better. Low wages and little formal organization are combined with unpaid domestic work which means a fifteen or sixteen

36. See Chapter-III for a fuller discussion on this.

37. See Clark (1983). Also see Malavika Kasturi (1997).

hour work day for them.³⁸ Similarly, among the Balmiki sweeper caste in Delhi, there is a distinct sexual division of labour. Men are usually employed by municipalities to clear streets and garbage dumps partly by mechanical means or in hand pulled carts while women and children clear dry latrines manually and carry human and kitchen wastes on their heads. Male sweepers started moving out of the profession in the early twentieth century to take up higher status jobs as night watchmen or shop or factory owners while women continue to carry on their traditional occupation.³⁹

With regard to the role of colonial exploitation, therefore, we find that gender discrimination predates and outlives it. Finally, the burden of poverty falls unequally on women. Because women are involved with maintaining the physical and social reproduction of the household, conditions of poverty increase the time expended by women in tasks such as getting fuel, gathering food, etc. A larger proportion of female heads of household are poor, depend on wage labour and are unemployed, illiterate or less educated, than male heads of households. Also, a larger percentage of female-headed households are below the poverty line. Women have a lower average number of days of employment than men. Further, the prosperity that occurred in states like Punjab in independent India does not seem to have benefited women as much as men, because with a rise in incomes, there is a shift from bridewealth to dowry even among agricultural labourers.⁴⁰ Gender discrimination thus appears to skew the nature of economic growth that occurs. This would mean that where a groups fortunes

38. Custers, P. (1997).

39. See Karlekar, M. (1986).

40. Agarwal, Bina (1985).

improved, female life chances need not necessarily have done so. And at the same time a group's decline need not have narrowed the gap between men and women. For example, among some of the Rajput clans who fell into economic decline in the nineteenth century, a switch to bridewealth payments occurred along with an increase in female infanticide.⁴¹

To conclude, then, while the Malthusian perspective cannot provide a comprehensive explanation for mortality differentials during famines, the political economy approach needs to take into account the gender-differentiated impact of the social and economic changes in social structure that rendered a colonized people vulnerable to a sudden collapse in their entitlement to food.

Moreover, it needs to look at processes of distribution within the household as impinging upon female survival. There is enough evidence that gender does in fact influence a person's entitlement to food over a long period, although the articulation of entitlements to food may have taken different forms within different caste and class contexts. Moreover, there is also evidence that gender influences life chances over the long term; that indices of survival vary by gender, caste and class in different parts of the country.⁴² This means that we need to look at how gendered processes of distribution and allocation of food within the household impinged upon an individuals' ability to withstand crisis. As Bhatia has shown, changes in the form and nature of institutions during the nineteenth century increased the vulnerability, hunger and death

41. See Kasturi, Malavika (1997).

42. See, for example, Dasgupta (1987:77-100); Sen A.K. and Sengupta, S. (1985); Harris, B. (1990).

among large sections of people. We would need to penetrate to the level of the household in order to envision the differential impact of colonial rule on men and women.

Yet, prior to that, one would need to look at the indices of famine as crisis in order to examine whether the key to an analysis of mortality differentials by gender lay therein. This is done in the next chapter. We will also seek to examine the validity of existing theories of gender differentials in famine mortality.

CHAPTER - II

GENDER DIFFERENTIALS IN FAMINE MORTALITY: MADRAS (1876-78) AND PUNJAB (1896-1897)

In the last chapter, we emphasized that while famine is a crisis, it cannot be separated from the long term, less dramatic processes of death and hunger as they are distributed in society. Yet, the focus of our study is gender differentials in crisis mortality. In order to explore the relationship between crisis and process, we begin by looking at the elements of the crisis.

Famines as events or crises are marked by three main features, namely:

- 1) A sharp and sudden peak of deaths within a short span of time
- 2) A marked rise in the prices of staple foodstuff
- 3) A fall in conceptions.¹

These last two features distinguish famines as subsistence crises, distinct from other mortality crises like epidemics, which occur without a subsistence crisis.

Famines are also social and economic crises in agrarian societies marked by a disruption of the 'normal' course of things. Employment, social institutions such as family and marriage, and obligatory social relationships between patron and client are disrupted or otherwise transformed. Moreover, famines have also usually been associated with monsoon failures. Yet, as we have noted, drought is not famine.²

Crises that we know as famines have their roots in social structure. There is method in madness and reason in chaos even during times of crisis. This is exemplified

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1. See Lardinois (1985), p.454.
 2. One may choose to emphasize the fact of monsoon failures as Loveday (1914) does, or instead the ability of populations to withstand these. As we have noted in the previous chapter the trajectories by which this ability or lack of it is constituted has been interpreted differently by the Malthusian and the political economy perspectives.

by the degree of continuity in patterns of suffering and mortality as well as social responses and the epidemiological indices that lead to death. Famine mortality thus represents a magnification of existing social structure and patterns of stratification.

In this chapter, we will seek to examine the epidemiological and demographic indices during two nineteenth century famines - i.e. the famines of 1876-78 in Madras Presidency and 1896-1897 in the Punjab with a specific focus on mortality patterns.

The chapter will be divided into two main parts. In the first, we will look at data regarding prices, mortality, fertility and rainfall for the two famine locations. The questions we are seeking to answer include:

- How did these indices behave in these two instances of famine?
- Is there a significant pattern with regard to age, sex and social differentials in famine mortality?
- What, if any, are the trends and variations with regard to gender differentials in famine mortality?

The second section will examine critically the dominant explanations that have been offered for gender differentials in the light of the data presented.

I *THE DEMOGRAPHY AND EPIDEMIOLOGY OF FAMINE: MADRAS 1876-78 AND PUNJAB 1896-1897:*

1.1 MADRAS: 1876-78

The famine that ravaged large parts of South India between 1876-78 was precipitated by a series of climatic disturbances beginning with cyclonic rainfall in 1874. In 1875-76, drought prevailed in varying intensity across 14 of the 21 districts of the Presidency. The winter rains of 1876 failed completely. Following this, there was heavy loss of cattle and crop failure leading to increases in the prices of foodgrains and

necessitating some imports of grain. By the end of 1876, large numbers of villagers began to migrate from the famine districts. In January 1877, the first mortality peak occurred with an increase of 90 per cent in the crude death rate over the average for the previous four years. Scarcity was officially declared in Madras town and in seven districts - Nellore, Cuddapah, Bellary, Kurnool, North Arcot, Coimbatore and Madurai. Relief works were opened in these districts, but wages were low and admission tests were very harsh, given the prevailing Malthusian influence on colonial policy.³ By March-April 1877, scarcity had intensified into famine as evidenced by sky rocketing prices in South Arcot, Trichinopoly and Tirunelveli. In the early part of 1877, cattle mortality was high and meat was therefore cheap and abundant. Even though famine conditions prevailed, Dr. W.R. Cornish, who toured the famine districts in March noted:

"... a general tendency to leanness in all classes... ribs, collar and shoulder bones are all unusually prominent... ..But many had a fair amount of muscular development and clear, glossy skin."⁴

Colonel Richard Temple who inspected the famine districts in January 1877 was impressed by the seeming muscularity of the labouring population on relief works and ordered the daily food ration to be reduced from one and a half pounds to one pound of grain per adult - with disastrous effects. In April, Cornish found 30 per cent of the labour gangs to be in a state of emaciation and exhaustion. By July 1877, 60 to 70 percent of the labouring population of the famine districts were suffering from scurvy, anaemia, kwashiorkor and wasting. In children, there were signs of arrested growth

3. See Ambirajan (1976), on the Malthusian influence on famine policy.

4. Cornish 1878, quoted by Whitcombe, (1993: p.1170).

and development. Menstruation was delayed in teenaged girls and had ceased altogether in severely emaciated women. The population of pregnant women was remarkably low and the birth rate was 25 per cent (1877) and 50 percent (1878) below the average.⁵

Mortality peaked first in January 1877 with an increase of 90 per cent over the average crude death rate for the previous four years. May saw a second mortality peak; followed by successive peaks in December 1877 and again in August 1878 following the failure of summer rains in 1878 June. Prices which had been rising steadily from November 1876 continued to rise through 1877 and peaked in September that year. In this month, 2,300,000 persons were on relief in twelve districts. However rainfall was abundant in September 1877 and prices fell from October 1877 to May 1878. When the rains failed again in June 1878, there was a second peak in prices and number of persons on relief. Following heavy rain between July and October 1878, there was a gradual decline in both the number of workers on relief and in prices. By December 1878, famine relief officially ended.⁶

The Epidemiology of the Madras Famine

The epidemiology of the Madras famine revealed a variety of disease epidemics that occurred over a base of famine. Famine mortality occurs mostly from diseases that are common during non crisis years but attain epidemic proportions both in terms of incidence and virulence in famine periods. These epidemics exhibit themselves in distinct seasonal patterns reflecting the patterns of non crisis periods. During the

5. Ibid.

6. Whitcombe (1992); Lardinois (1985).

famine of 1876-78, smallpox deaths peaked early (around March 1877). Cholera deaths attained their highest pitch in May, with a secondary but slighter peak in August 1877. However the overwhelming proportion of mortality was caused by fever deaths, as in non-famine years. Fever deaths peaked late in August - September 1877, along with diahorrea and dysentery. In 1878, a similar pattern followed, with smallpox deaths peaking in March, cholera in May-June, and diahorrea and dysentery as well as fever deaths peaking in July-August.⁷ However, in 1878, following the torrential rain of July, August and September, a far greater proportion of deaths were attributable to fever, presumably largely composed of malaria.⁸ In 1877, fevers accounted for 30 percent of deaths; smallpox for around 6 percent; Cholera 23 per cent; diahoreea and dysentery 9 percent and others 33 per cent; while in 1878, fevers accounted for 48 per cent of the total, smallpox seven per cent, and others 35 per cent.

7. See Whitcombe (1992).

8. Malaria has been the most serious epidemic threat to human beings, especially in pre-modern societies. Recently, the links between nutritional status and epidemic Malaria have been the subject of much debate. Maharatna (1996: p.81) sums up the three main hypotheses regarding epidemic malaria as a cause of famine mortality.

- (a) A relatively low incidence of malaria owing to dryness during the drought year reduces the population's immunity level; and this enhances the chances of a malaria epidemic when the rains resume in the following year.
- (b) Since a fever mortality peak appears to have often occurred after the resumption of rains when (along with the beginning of normal farm activities) people presumably begin to experience an improvement in their nutritional level, it may be an outcome of the 'refeeding of malaria'.
- (c) In view of a strong correlation found (historically) between food scarcity and fever (or malaria) mortality in parts of the Indian subcontinent, the occurrence of malaria epidemics in the wake of famines may be related to acute nutritional stress and its debilitating effects.

Maharatna, in reviewing the evidence for these hypotheses, finds that hypothesis 'C' is the most plausible, although not completely without problems. See Zurbrigg (1997) for a critique of the refeeding malaria hypothesis. Zurbrigg finds in her study of malaria in Punjab between 1868-1908 that variations in the amount of the rainfall cannot explain as much of the incidence of malaria over the period as variations in the price of foodgrains. This implicates the role of hunger in disease causation.

Rainfall

We have already mentioned the lack of perfect correspondence between rainfall food prices, mortality, fertility and social distress in terms of timing. However, there does exist some amount of correlation between the different series. After the failure of the winter rains of 1876, the rainfall during January and February 1877 was below average. While there was some rain between March and May 1877, the rains failed during the crucial period of June, July and August. While September through December 1877 saw abundant rainfall, the crisis was precipitated a second time by low rainfall through the first six months of 1878.

Prices

Food prices attain their first peak during July, August and September 1877, a second peak in March 1878 and a third in July 1878. Mortality also peaked first in September 1877, attained a smaller second peak in November that year and a third in July 1878. The path of mortality closely follows the seasonal pattern of malaria but malaria assumes far greater significance in the second year of famine (1878) after the rainfall in June and July.⁹

The data provided by Whitcombe and Lardinois shows a close correspondence between the time path of rainfall, food prices and mortality. Whitcombe interprets this as evidence of the 'refeeding malaria' hypothesis. According to this, famine mortality results not from a decline in foodgrain availability but rather from the excessive rainfall occurring after prolonged periods of drought. Rainfall is conducive to the multiplication of the anopheline vector which transmits the plasmodium responsible for causing

9. Whitcombe (1992).

malaria. Moreover, proponents of the refeeding malaria hypothesis use evidence showing lower concentration of the plasmodium in persons who are undernourished to suggest that the increased availability of food after the rainfall, due to resumption of agricultural employment, might actually activate the growth of the plasmodium and cause death from malaria. Zurbrigg (1994,1997) convincingly refutes this hypothesis. Zurbrigg's work shows that while the concentration of the plasmodium might be lower in the blood of persons who are undernourished, case fatality from malaria is much higher among the chronically hungry. Clearly, then, the role of rainfall as causing changes in disease ecology leading to higher death rates is problematic. Moreover, as Zurbrigg argues, the emphasis on changes in disease ecology shifts the focus from the role of chronic hunger in causing mortality to the 'independent' action of the disease agent. This emphasis is firmly rooted in the germ theory of disease which completely neglects the role of human agency and social institutions in the causation, distribution and limitation of disease and death through history.

Fertility and Migration

We have already discussed the mortality effects of the famine in terms of timing and disease pattern. Looking at fertility, we see a close correspondence between troughs in the conception index (i.e. the number of births in the year following the mortality crisis) in end 1877, and again in mid 1878, coincident with the mortality peaks. The crude birth rate continues to be low until 1880, when it accelerates above its pre famine level¹⁰

10. Maharatna 1996: p.32.

With regard to migration, Whitcombe writes:

"Distress migration began in the earliest stages of the famine in late 1876 and moved along established routes of seasonal migration in search of work and food. Large numbers of the labouring poor migrated from Nellore, Chingleput and North Arcot to Madras city; from Nellore and Kurnool to the Kistna delta; and from Coimbatore to Trichinopoli and Malabar. The peak of distress migration took place at the same time that food prices and mortality peaked - i.e. from April to July 1877.¹¹

Lardinois also writes:

"Between October 1, 1876 and July 31, 1877, approximately the duration of the crisis, the departures towards Ceylon, touch 195, 693 persons being the annual equivalent of 234, 832 individuals, of whom 23 per cent are women, and 10 per cent children, as against the average annual figure over the three previous years of 105, 158 persons, with 17 per cent women and 7 per cent children. If one adds 20 per cent to those to take into account the departures towards other directions, one arrives approximately the figure of 300000 emigrants during the crisis period, which is an increase of 200 per cent. Still a certain under recording which some authors do not hesitate to evaluate at 50 per cent has to be admitted... these movements are doubly selective according to sex and age and according to region of departure. Between 1870 and 1876 out of a sample of 170,000 persons of all destinations it is found that 63 per cent are men (45.2 per cent between the ages of 20 and 29). The essential manpower that works in Ceylon is Tamilian, coming mostly from Tinnevely, Ramnad or Salem or specific villages."¹² Lardinois goes on to note that the trend towards migration to Ceylon gets reversed from 1879 onwards till 1881. In the 1881 Census, migration does not seem to have left any trace. Yet, famine testimonies show evidence of rural-urban migration, of "hungry peasants fleeing their villages and abandoning their wives and children in search of a job or some aid from the colonial authorities."¹³

11. Whitcombe (1993), pp.1169-70.

12. Lardinois (1985), p.459.

13. Ibid.

The destination and composition of migrant groups is of special relevance in an analysis of mortality differentials. Migration serves as a response to seasonal variations in employment even in non-crisis periods for large sections of the labouring poor, especially those who do not own land and depend for employment on their agricultural labour. While famine literature refers to "aimless wandering" among famine victims, population movements during famine can be construed as purposeful insofar as they take place along routes which have been used to facilitate survival in non crisis years. Yet migration and migratory movements themselves have been seen to contribute to mortality by facilitating the spread of epidemic disease from human host to host. Lardinois writes: "Migration is often 'death on the march'... ..it is not hunger that kills but a sudden growth in the traffic, a multiplication of virulence".¹⁴ He also opines that "the independence that we noted between the curve of death and the curve of prices... clearly shows that it is a question of mortality due to epidemics which conforms the high birth rate.... (these are epidemics which) grow over a base of famine... while mortality is caused largely by diseases common to the period and place, the hike in the prices of foodstuffs and the rigidity of their fluctuations lead to high prices of grain being the decisive cause of mortality."¹⁵

The imperfections in price data and their lack of complete correspondence with the mortality series may not preclude a causal relationship between hunger and mortality. It is evident that most famine mortality was not due to starvation. This implies both that we need to look beyond acute starvation as well as the fact that the

14. Lardinois (1985: p.457.)

15. Lardinois (1985), p.457.

imperfection in the relationship between the index (food prices) and the quality (food availability) we look for may show up here. Because the peaks in food prices almost always predate the mortality peaks, high food prices as indicating dearth must be seen as one of the causes of death, although other influences operate to define the course of the mortality trend. Also, unless we have different mortality trends for social groups marked by differential levels of entitlement to food, we cannot explain the lack of correspondence as a result of independent epidemics, especially in the light of studies showing that the poor and the marginalized tend to have greater rates of mortality and morbidity even within the same epidemic environment. While there is a relationship between poverty and indices of health status such as mortality and morbidity, the exact nature of the process by which they are linked has been the subject of a long standing debate in public health and in historical demography. Specifically, researchers have debated whether there might be a synergism between malnutrition and infection that makes it difficult to establish an original 'cause' in terms of priority. Also, with regard to mortality trends in the past, some research on France and England prior to the eighteenth century has indicated that even those who had high standards of living for the period, such as the aristocracy, had extremely short life expectancies.¹⁶

Insofar as migrant groups are characterized by precedent and antecedent conditions that influence their access to food, these conditions need to be taken into account in analysing "death by migration," as it were. However, this is a point we will return to later in the chapter.

16. See the articles by M. Livvi Bacci and Anne G. Carmichael in Rotberg and Rabb (1983) and also the introduction and Walter's article in Walter and Scholfield (1989). Zubrigg (1997) convincingly demonstrates that the incidence of hunger has been a moving force in populations throughout history. For recent periods, see Sen and Sengupta (1985) and the studies of Khanna and Narangwal in Punjab.

TABLE 1
STRUCTURES BY AGE AND SEX OF THE POPULATION OF MADRAS
PRESIDENCY IN 1881 (SMOOTHED DATA)

Age	Famine Zone			Non Famine Zone			Total		
	M	F	M/F (Percent)	M	F	M/F (Percent)	M	F	M/F (Percent)
0-4	5.24	5.55	94.4	6.74	7.11	94.8	6.15	6.50	94.7
5-9	6.70	6.89	97.3	6.90	6.95	99.2	6.82	6.93	98.5
10-14	5.87	6.00	97.8	5.66	5.75	98.4	5.74	5.85	98.2
15-19	4.87	4.93	98.7	4.70	4.71	99.8	4.77	4.80	99.4
20-24	4.55	4.51	100.8	4.21	4.20	100.2	4.34	4.32	100.5
25-29	4.44	4.31	103.0	3.99	3.91	100.6	4.13	4.06	101.6
30-34	4.24	4.04	104.9	3.69	3.63	101.6	3.90	3.79	103.0
35-39	3.65	3.56	102.6	3.30	3.25	101.5	3.43	3.37	101.9
40-44	2.83	2.78	101.7	2.66	2.62	101.6	2.73	2.68	101.7
45-49	2.12	2.15	98.6	2.11	2.10	100.1	2.11	2.12	99.5
50-54	1.59	1.72	92.1	1.66	1.74	95.1	1.63	1.73	94.0
55-59	1.20	1.40	85.6	1.30	1.46	89.4	1.26	1.44	87.9
60+	2.15	2.71	79.3	2.57	3.14	81.6	2.41	2.99	80.6
All age	49.45	50.55	97.8	49.43	50.57	97.7	49.42	50.58	97.7

Source: Lardinois (1985), p.460.

TABLE 2
POPULATION LOSSES IN SALEM DISTRICT DURING THE FAMINE OF
1876-78

TAWQS	MALES		FEMALES	
	Above 10	Below 10	Above 10	Below 10
Salem	-17.1	-28.3	-13.0	-40.7
Atur	-5.8	-12.3	-0.7	-11.7
Namakkal	-13.8	-20.4	-7.6	-21.9
Tiruchengodu	-28.8	-36.8	-25.0	-38.0
Oosoor	-24.3	-44.4	-21.3	-37.0
Krishnagiri	-28.0	-20.2	-18.2	-32.6
Dharmapuri	-25.8	-30.7	-15.3	-33.7
Tirupattur	-12.1	-14.9	-2.4	-24.0
Utan Uanai	-20.2	-39.9	-14.0	-39.2
Average	-19.3	-28.2	-13.3	-29.6

Source: Ambirajan (1989).

Mortality Differentials by age, sex and social group in the famine of 1876-78.

Not all people suffered equally during the famine. We get some idea of its differential impact from the following data.

Lardinois (1985) analyses the age and sex composition of the populations in the famine and non famine zones in 1881. (See Table 1). As a measure of mortality differentials, however, this table has the following limitations. Firstly it does not enable a comparison of pre famine and post famine population structures as this table covers only the post famine population of zones differently affected by the famine in terms of prices and mortality. Thus it is a spatial rather than a chronological analysis. Also, because we are looking at entire populations and not at vital rates, we have no idea of migration on population structure. However Lardinois mentions that by 1881, there was little trace of the migratory movements that had occurred during the famine. Thus we can assume that this factor did not affect population structure very significantly. Finally, we do not know whether the famine and non famine zones had the same demographic regimes prior to the famine.

We can derive the following from the table:

- (1) Children aged 0-4 years and 5-9 years make up a larger proportion of the non famine zones. The decrease in these age groups in the famine areas is hypothesized by Lardinois to be a combination of excess mortality as well as a decline in conceptions during the famine. Lardinois notes that while in 1871, the age group 0-4 years composed 18.3 per cent of the population, in 1881, this age group constituted 12.7 per cent of the population.
- (2) There was also a reduction in the age groups over 50 years in the famine zones.

- (3) The age groups 10-14 years, 15-19 years, 20-24 years, 25-29 years, 30-34 years, 35-39 years, 40-44 years and 45-49 years make up a larger proportion of the famine zones, showing that the famines as crises affected the very young, as well as the elderly, of both sexes to a greater extent than adults. Moreover the population losses among female children was greater than for male children under ten.
- (4) With regard to sex differentials in mortality, Lardinois notes that the decrease in population between 1871 and 1881 was stronger for females in the age groups below ten, while it was stronger for males in the age groups above ten, with the maximum survival advantage enjoyed by women between the ages of fifteen and forty four. The proportionally stronger decrease among males aged fifteen to forty four is also found by Ambirajan (1989) (See Table 2) We find that on the whole, the age group fifteen to forty four years makes up a larger proportion of the famine zone than the non-famine zone. We note that the differences between males and females in the under ten age groups is smaller than the differences in the older age groups, where female survival exhibits itself. Also the shrinkage in the age group over fifty is similar for both sexes in the two districts of Salem and Kurnool which Lardinois analyses.

While changes in population structure are only a proxy for survival chances, we get an idea of relative survival chances by age and sex from this data.

The impact of the famine on different social groups is more difficult to discern from existing data. As in all famines in India, the most numerous victims came from

TABLE 3**CHANGES IN CASTEWISE POPULATION OF KURNOOL (1872-1881)**

Castes	PK	RK	NK	NL	KK	SL	CM	MP	Total
Brahmins	-14.8	-14.1	-25.3	-19.9	-33.9	-0.5	-11.5	-11.5	-17.2
NBUC	-23.0	-37.0	-21.8	-21.6	-54.7	-35.5	-14.3	-11.2	-21.4
Yadavas	-28.9	-30.8	-35.0	-27.0	-33.8	-4.0	-16.1	-10.1	-25.1
Artisans	-45.1	-40.3	-32.1	-26.1	-49.6	-15.8	-8.6	-1.7	-28.3
Boyas	-45.5	-38.2	-35.6	-41.5	-47.9	-17.9	-17.8	-30.3	-37.9
Chenchus	-52.9	-39.6	-12.3	-38.5	-57.1	-20.4	-9.0	-1.0	-27.5
Madigas	-50.7	-42.3	-35.1	-36.4	-31.4	-25.7	-15.7	-36.8	-38.6
Muslims	-39.4	-30.6	-31.5	-22.9	-11.4	-24.6	-6.3	-3.6	-24.2
Total	-39.3	-35.6	-29.2	-28.6	-43.2	-5.7	-12.0	-14.4	-27.3

Source: Rajashekhar (1991)

PK - Pattibonda RK - Ramallakot NK - Nandikotkur
NL - Nandyal KK - Koilkuntla CM - Cumbum
MP - Markapur SC - Sirvel
NBUC - Non Brahmin Upper Castes

the agricultural labour castes and also from among the small cultivators.¹⁷ Although we do not have mortality data disaggregated by caste, Rajashekhar (1991) uses data from the Censuses of 1871 and 1881 to show that population losses between the two censuses in Kurnool district were greater for the Madigas, Boyas, Chenchus (i.e. the agricultural labour castes) and artisans than for Brahmins or the cultivating caste of Reddis (See Table 3) Rajashekhar also notes that the balance of migration was too insignificant to have contributed substantially to population losses. It is however, important to note that in two taluks, namely Koilkuntla and Sirvel, the Non Brahmin upper castes also had significant population losses. The overall caste structure and its relationship to class and economic relations would perhaps account for this. Where the non Brahmin upper castes formed a larger proportion of the population, their relations to the means of production and to the Brahmins would probably impinge upon survival. Yet, the most striking feature of Rajashekhar's data is the impact upon the low caste agricultural labourers. The caste structure of the population would influence access to famine relief as well as the dependence on the demand for agricultural labour which would collapse during famine. More importantly a more deeply rooted and long term marginalization would also be characteristic among these castes.

Rajashekhar also analyses the overall female survival advantage during the famine and ascribes it to a variety of factors He writes:

"Younger and middle aged men are likely to do hard work either in relief camps or as agricultural labourers. Such hard work, coupled with physical deterioration during the famine, would make them much more vulnerable to epidemic diseases and lead to higher mortality rates among them. On the other hand, the survival chances of adult women left behind in the villages to look after the

17. See Bhatia (1967):Arnold (1984,1988).

children and the old would improve as the incidence of famine induced diseases would be less here. The deserted women would also be helped by friends, relatives and others. However the women in the relief camps are not likely to suffer from exhaustion as gratuitous relief is generally liberally provided to them. (for instance, in the Bengal famine of 1943, women constituted nearly 60 per cent of those who received free relief). Deserted women would also be helped by friends, relatives and others. Added to that, females have better (hormonally determined) immune resistance. Given the fact that higher mortality rates are mainly due to the spread of famine induced diseases, such resistance may help women to fight infectious diseases better than men... Females however are said to be the victims of social discrimination... under the influence of patriarchal values (where) priority is given to the feeding of adult males and male children so as to ensure the continuance of the male time. Moreover women in the reproductive age groups are likely to be more susceptible to famine despite the fact that they are biologically stronger than men." (p.124) Rajashekhar goes on to affirm McAlpin's assertion that "females have greater biological capacity to resist the rigours of famine - a capacity that is not offset by social factors." (p.124)

Rajashekhar's analysis rests on four main propositions.

- (1) Firstly, that young adult and middle aged males are required to do hard physical labour on relief camps which exhausts them and contributes to greater mortality. This would imply that women were not required to do these tasks or were given lighter tasks.
- (2) That survival chances of women left behind in the villages are better as compared to male migrants, and that they have better informal support systems.
- (3) That gratuitous relief is provided more liberally to women in relief camps as evidenced by the greater proportion of women among those who received free relief.
- (4) That better female immunity adds to resistance to disease, and therefore, death.

While the first two statements are not substantiated the third infers that because women constituted the majority of those receiving gratuitous relief in Bengal in 1943 women *per se* find it easier to obtain gratuitous relief. On the other hand Arnold (1984: p.108) suggests that receiving relief was associated with loss of ritual status and was therefore resorted to only those who were really destitute. The presence of a larger proportion of women on gratuitous relief may also be inferred to result from a lack of any other alternatives for survival, as compared with men for whom migration and abandonment of children was an option. As regards the first and second propositions, there is no evidence to suggest that in the Indian context, the village is epidemiologically a safer place to be in than en route to a large town. Also there seem to be flimsy grounds to suggest that men were required to work harder than women on relief works. On the other hand, there is evidence that women were paid lower wages than men on the relief works.¹⁸ Finally, as regards the help given to deserted women, this would be plausible if one had reason to expect that such support systems existed and that neighbours, friends and relatives were in a position to help. In a situation of such widespread suffering and dearth as the Madras famine, this seems unlikely. However we do not have evidence either to prove or disprove this statement at present.

18. Famine relief work was generally divided into four classes:

- A - Professional labourers
- B - Labourers but not professional
- C - Able bodied but not Labourers
- D - Weakly.

(Report of the Indian Famine Commission 1898, pg. 78).

In the famine of 1896-97, "the standard tasks of the code for the two highest classes A and B were often in excess of the capacity of the relief workers consisting largely of women and children... (If women and children were unable to do these tasks they were put into a lower class) in which if the task were low, the wage for its performance was also low." (Ibid; pg. 76).

Rajashekhar also uses data that separate females into age categories that lump the 0-15 age groups together, while the Salem census data uses the 0-10 and 10 and above age groups. Rajashekhar's data indicate better female survival chances even in the younger age groups, while Lardinois' data as well as that provided by Ambirajan (1989) show a distinct divide between infant and juvenile mortality, on the one hand, and older age groups.

While this is not to deny the possibility of a variety of variables operating to influence the gender differential, we need more careful investigation of what these are. We have no idea of which caste or class groups the females who survived belonged to, although we have some idea of the relative survival chances of different caste groups. Gender represents a basis of social entitlement that differs within units such as households castes or classes. For example while ritual status may often concur with material entitlements in the case of males, this may not be the same for females. Processes of economic development or growth have been shown to occur differently and unequally for men and women in the same household (See Section III: previous chapter for references). Again, improved ritual status of the household within a local hierarchy need not necessarily represent improved life chances for women. This implies that an analysis of specific situations and their historical antecedents are essential for the explanation of the interactions between gender, caste, class, socio-economic processes, and survival.

To summarize, in the Madras famine, we find firstly a close correspondence between mortality peaks and high prices. Yet the mortality peaks occur in a seasonal pattern, with mortality peaks from smallpox, malaria, dysentery and diahorrea occurring in a succession. While Lardinois and Whitcombe both stress the role of epidemic

disease and disease ecology in the causation of the mortality peak, the underlying basis of acute starvation as seen in food prices is seen by Lardinois as causative of famine mortality. Yet the occurrence of acute starvation cannot completely account for the familiar seasonal pattern of diseases that cause deaths during famine. With regard to the social basis of victimization, we find that while the labouring and untouchable castes form a significant proportion of victims, there is an overall female survival advantage. This needs to be explained in terms of the history, ecology and social structure of the region and period.

1.2 *PUNJAB 1896-1897*

The famine of 1896-97 must be considered in conjunction with the famine of 1899-1900. The former affected only some portions in south-east Punjab, and certainly did not cause as much suffering as it did in other provinces such as Berar, Bombay and the Central Provinces. However, Hissar district was hit relatively severely by the 1896-97 famine, along with portions of Gurgaon, Delhi, Rohtak, Karnal and Ambala, which were not protected by the irrigation system of the Western Jamuna Canal. The affected area in 1896 covered 12,000 square miles with a population of 3 1/4 million.¹⁹ In 1899-1900, the population of the affected tract was 1,496,323, although the total population affected was 3,358,000.²⁰

The Indian Famine Commission Report of 1898 attributes the distress to

"...the failure or premature cessation of the monsoon of 1896... that these conditions were less serious in the Punjab than elsewhere was partly due to the fact that Punjab had enjoyed a series of excellent harvests from 1892 to 1895, and despite the indifferent kharif of 1895

19. Report of the Indian Famine Commission (1898), p.1.

20. *Ibid.*

and rabi of 1896, the people were in a more favourable position than those of some other provinces to meet the strain of 1896-97" (p.187).

2.1 **The Demography and Epidemiology of The Punjab Famine** Looking separately at the epidemiological, demographic, price and rainfall data we find the following.

(1) **Rainfall**

Drought occurred in late 1895 and early 1896. Rainfall especially between June and September 1896 was scanty and ceased by October. However in January 1897, there was late and prolonged rainfall. While the second half of 1897 and 1898 also experienced good harvests, the monsoon failed again in 1899, leading to a subsistence crisis.²¹

(2) **Prices**

The price of jowar began to rise from mid 1895 and continued its upward climb through 1896. It began to decline only in September 1897. Thereupon it declined steadily till June 1898, and then began to rise again till September 1899. From September to December, the price of jowar declined, and then rose to a second peak in January 1900. The third peak in the famine - the maximum for the entire period from 1896 to 1901 - was reached in August 1900, after a steady rise through the first eight months of 1900. Following heavy rainfall in August 1900, prices began to decline although they attained small peaks in September 1901 and June 1902.²²

21. Maharatna 1996: p.60.

22. *Ibid.*

3) Mortality

In 1896 (the beginning of the famine) mortality was below the average for 1891-95. However there was a rise in mortality in October to December of 1897, most of the mortality being attributed to fever deaths. Thereupon it declined through 1898 and most of 1899, although it attained a slight peak in August 1899 and November 1899. However it reached a staggering crescendo in October 1900 before reaching another minor peak in October 1901. However mortality levels remained elevated till the end of 1902.

We see that the mortality peak corresponded with the rise in food prices through the period. However, when the first peak in mortality (October to December 1897) was attained, food prices had already begun their decline. Following the rise in food prices from June 1898 to September 1899, mortality peaked in August 1899 and again in November. In 1900 the maximum food price was attained in August and deaths followed in October. However, after this, while food prices began to move downwards, the mortality curve remained elevated till 1902, reflecting the health effects of an elongated period of privation.

We see that throughout the period, the mortality peak followed the peak in food prices, indicating a fairly regular relationship between acute hunger and famine mortality. Yet Whitcombe attributes the mortality during famine to the ecology of malaria epidemics as independent of the nutritional status, or as related to it in reverse-i.e., hunger as affording protection against malaria. The neglect of the links between food prices and mortality is an important lacuna in Whitcombe's work.

(4) Fertility

During the first famine period of 1896-97, fertility as measured by Dyson's conception index (i.e. births of the following year displaced by 9 months) remained higher than baseline, until it reached a trough in February 1897. The conception index stayed low through 1897, then accelerated beyond the pre-famine level till the drought created another trough in end 1899. A major trough was reached in June 1900, but conceptions were lowest in October 1900, coinciding with the mortality peak in that month. Another major trough coinciding with a mortality peak was reached in January 1901. Thereafter the conceptions returned to normal.

Given below in Table 4,5, and 6 are the vital statistics of the years 1896 and 1897 as well as 1900 compared with the mean of the previous five years. (The decennial average is used in case of that for 1900). These are taken from the Famine Commission Report of 1898 and 1901. We note the following.

- (1) In 1896, the birth rate was high in all districts.
- (2) In 1896, the death rate was elevated above the five year mean in all districts except Lahore Delhi and Gujarat. It is significant that the mortality rate was highest in the dry, sparsely populated districts of the south east, while the densely populated central Punjab and canal colony areas did not see such suffering.
- (3) In 1897 the trend of an elevated death rate continued in all districts except Ambala, Lahore and Gujrat. The death rate was the highest above average in Hissar. The birth rate also was also higher than average in all districts except Hissar.
- (4) The following table shows the death rates per mille for the year 1900. The Famine Commission Report of 1901 notes:

"A special enquiry regarding the death rates in Hissar elicited the fact that the fever in the early months of the year was of a non-malarial type, and aggravated by famine conditions. On the relief works the mortality was not high... Very high fever rates were recorded in the closing months of year. We have no doubt that much of the mortality was due to an unusually unhealthy autumn acting upon a population predisposed to disease by privation." (Report of the Indian Famine Commission 1901: p.70).

The chronology of the mortality returns shows the familiar seasonal pattern of fever mortality, which tends to dominate the mortality trend and occurs during that last quarter of the year. There was also some cholera from June to October, but this was restricted mostly to Hissar district. Similarly the incidence of bowel complaints increased during August and September 1897. The fever that occurred was the "ordinary malarial type which annually prevails with greater or less intensity at this season and which always occurs when a year of heavy monsoon rainfall succeeds a year of drought. All observers are agreed that it was neither infectious nor contagious. They agree also that the mortality which was caused by it was increased by the enfeeblement of health which a prolonged period of privation had produced. The increase due to this cause was probably small, for the evidence shows that the state of enfeeblement from privation which prevailed in certain parts of some provinces at the end of the famine, was very exceptional in the Punjab".²³

Fever mortality seems to have accounted for the bulk of famine mortality during both 1896-97 and 1899-1900, but to a much greater extent in the latter. Fever mortality had several peaks - June 1899, September 1899, January 1900, June, July, August and September 1900. September 1900 was the maximum peak in fever

23. Report of the Indian Famine Commission 1898: p.190.

TABLE 4
VITAL STATISTICS – PUNJAB 1896 AND 1897

<u>DISTRICT</u>	<u>Mean birth rate 1891-95</u>	<u>Birth rate 1896</u>	<u>Birth rate 1897</u>	<u>Mean death rate 1891-95</u>	<u>Death rate per mille population, 1896</u>	<u>Death rate per mille population, 1897</u>
HISSAR	40.2	45.4	34.0	30.3	32.9	45.0
ROHTAK	42.6	47.8	45.7	29.3	35.2	32.7
GURGAON	45.8	49.0	46.9	32.0	35.0	37.4
DELHI	42.1	47.2	46.0	40.1	36.3	33.3
KARNAL	43.8	47.9	49.4	38.8	40.4	40.5
AMBALA	37.0	36.6	37.2	40.6	40.9	30.3
FEROZEPUR	41.6	50.8	48.0	30.8	31.8	31.7
LAHORE	41.7	47.0	45.0	36.2	31.0	26.8
GUJRAT	37.7	40.3	36.0	29.0	22.9	21.9

Source: Report of the Indian Famine Commission, 1898.

TABLE 5
MONTHLY RETURN OF MORTALITY FOR 1897 AND JANUARY 1898
(PER MILLE PER ANNUM)

DISTRICT	JANUARY 1897	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	JANUARY 1898
HISSAR	25	21	23	29	36	41	40	46	69	92	75	44	28
ROHTAK	29	20	21	20	23	34	25	26	47	53	60	35	24
GURGAON	21	19	19	22	26	27	24	30	64	87	67	43	30
DELHI	25	20	22	25	28	30	25	27	41	61	55	41	30
KARNAL	27	22	20	24	32	32	27	37	44	87	79	56	37
AMBALA	29	27	23	22	23	24	22	26	44	46	44	34	31
FEROZEPUR	20	22	26	24	28	27	25	27	32	50	57	43	34
LAHORE	26	21	20	19	22	23	20	22	26	38	46	38	29
GUJRAT	18	18	16	19	20	17	17	18	22	27	35	36	25

Source: Report of the Indian Famine Commissions, 1898.

TABLE 6**MORTALITY IN FAMINE DISTRICTS 1990**

DISTRICT	SMALLPOX		FEVER		DYSENTERY AND DIAHORREA		CHOLERA		ALL CAUSES	
	1900	Decennial Average	1900	Decennial Average	1900	Decennial Average	1900	Decennial Average	1900	Decennial Average
HISSAR	1.7	0.9	70.0	21.1	3.6	0.7	8.3	0.8	96	28
ROHTAK	0.6	0.3	51.3	22.6	1.6	0.6	3.5	0.7	68	31
GURGAON	2.5	1.1	32.2	25.8	2.9	1.8	1.7	0.4	50	37
DELHI	0.5	0.4	34.1	27.4	2.6	1.7	0.6	0.6	54	43
KARNAL	0.2	0.8	55.4	19.8	1.8	0.7	2.0	0.8	74	31

Source: Report of the Indian Famine Commission, 1901, p.70.

mortality which tended to overwhelm the entire mortality curve. We note that the proportional rises in mortality were the highest in the dry south-east districts of Hissar, Rohatak, Gurgaon and Karnal. This would contradict to some extent Whitcombe's thesis that independent outbreaks of malaria after torrential rain were responsible for the bulk of the mortality. While malaria was indeed responsible for the bulk of mortality, it seems to have had less to do with rainfall and more to do with the impoverishment of people in those districts. The bulk of the fever mortality also occurred late, after the peak in the numbers on relief had been reached, and had actually begun to decline. This pattern of fit between mortality and numbers on relief also occurred during the earlier famine - numbers of persons on relief works were maximum at a point when mortality was very heavy during the end of 1897 (coincident with the only trough in conceptions during the famine 1896-97) when relief works had almost all been closed.²⁴

(5) Migration

We do not have figures for the quantum of migration during the two famines in Punjab. Guz (1989) notes that by July 1897, when over 10 per cent of the population of Hissar district were on relief, "much wandering was observed with a few deaths occurring on the roadside from thirst" (p.197). Bhattacharya (1985) observes the existence of two types of cyclical migration in nineteenth century Punjab - the first, "a regular annual movement between uplands and lowlands in search of pasture, and

24. Interestingly, a similar time path of relief and mortality seems to have occurred in the United Provinces famine of 1907-08 examined by Maharatna (1996). Here too mortality peaks after relief works had been closed, while in the famines in Bombay (1910-13) Berar (1896-97 and 1899-1900) and Bombay (1876-78), both mortality and the numbers of these on relief works seemed to have reached a maximum in close succession.

between single cropped to double cropped areas in the agricultural off-season; the second, a more irregular but not infrequent movement conditioned by cycles of good and bad seasons. Migration of this type was generally to irrigated areas. While in South-East Punjab, short term cyclical migration was common in response to the insecurity of agriculture, central Punjab was marked by long term patterns of emigration to the canal colonies and overseas. The demographic history of South Punjab was more markedly shaped by demographic crises such as the famines of 1896-97 and 1899-1900; central Punjab and the canal colonies were profoundly influenced by inflows of migrants both in good and bad years."²⁵

While we do not have data on the size and composition of migrant populations during the famines, this information establishes the existence of regular population movements along established routes, well before the famines we are looking at, in informed search of employment and food. We do not have information on the routes of migration, but presumably these were dotted by urban centres where employment and food thus were available. Also, we can presume that most famine migration followed the route from the South-East - where population was sparse, rainfall uncertain and famine most cruel - to the irrigated tracts of Central Punjab and the canal colonies.²⁶

Mortality differentials by age, sex and social group in the famines of 1896-97 and 1899-1900.

The mortality during the famine years in Punjab exhibits the familiar patterns of risk and vulnerability of the very old and the very young. Given below are

25. Bhattacharya, N. (1985): "Agrarian change in Punjab 1860-1940", Unpublished Ph.D. Thesis, J.N.U., Chapter-1.

26. *Ibid.*

TABLE 7**CRUDE DEATH RATES BY AGE AND SEX IN PUNJAB (Excluding 1892)**

Year	Age Group	IMR	1-4	5-9	10-14	15-19	20-29	30-39	40-49	50-59	60+	CDR	
1891-5	M	215.71	48.30	10.24	7.22	8.18	11.53	15.08	23.52	36.97	105.01	30.35	
	F	242.18	49.72	10.94	8.25	9.30	12.53	16.29	21.28	31.95	104.03	31.26	
1900	M	280.39	94.97	20.29	13.10	13.31	14.64	20.21	31.03	49.76	146.37	45.53	(1.50)
	F	311.26	106.24	21.96	16.20	17.63	17.84	23.23	29.71	45.24	154.37	50.20	(1.59)

Note to table 7: Reproduces the crude death rates (CDR) per mille by age and sex in Punjab during the non-crisis period (1891-95) and year of maximum crisis (1900) excluding 1892 which was an epidemic year.

Source: Maharatna, 1996: p.75.

TABLE 8**INCREASE IN CRUDE DEATH RATES IN 1900 OVER THE AVERAGE FOR 1891-95
(Excluding 1892)****NON CRISIS MORTALITY (1891-95)**

Age Group	IMR	1-4	5-9	10-14	15-19	20-29	30-39	40-49	50-59	60+
F	69.08	56.52	11.02	7.95	8.33	5.31	6.94	8.43	13.29	50.34
M	38.20	46.67	10.05	5.88	5.13	3.11	5.13	7.51	12.79	41.36

Notes to table 8: Shows the simple difference in crude death rates between the crisis period and non-crisis period, for each age group, obtained by subtracting the non-crisis CDR from the crisis CDR. (See Table 7).

TABLE 9

GENDER DIFFERENTIALS IN NON-CRISIS MORTALITY RATES

S =

IMR	1-4	5-9	10-14	15-19	20-29	30-39	40-49	50-59	60+
89.07	97.14	93.60	87.51	87.90	92.01	92.97	1.01.5	115.7	100.9

S = (MALE DEATH RATES AS A PERCENTAGE OF FEMALE DEATH RATES FOR EACH AGE GROUP)

$$S = \frac{M}{F} \times 100$$

Notes to table 9: Shows the value of S. This figure represents male CDR as a percentage of female CDR for each age group during the non-crisis period. It is obtained by the formula S (for each age group) = Male CDR/Female CDR x by 100. (See Tables 7 & 8).

TABLE 10

**GENDER DIFFERENTIALS IN CRISIS MORTALITY RATES
(1900)**

S1 =

IMR	1-4	5-9	10-14	15-19	20-29	30-39	40-49	50-59	60+
90.08	89.39	92.3	80.8	75.49	82.06	86.99	104.44	109.99	94.8

(MALE DEATHS AS A PERCENTAGE OF FEMALE)

$$S1 = \frac{M1}{F1} \times 100$$

Notes to table 10: Shows the value of S1 this figure represents male CDR as a percentage of female CDR during 1900 obtained by the formula S1 (for each age group) = male CDR in 1900/female CDR in 1900 X 100. (See tables 7,8 & 9).

TABLE – 11

CRISIS MORTALITY & NON-CRISIS MORTALITY : GENDER DIFFERENTIALS

IMR	1-4	5-9	10-14	15-19	20-29	30-39	40-49	50-59	60+
1.01	-7.75	-1.31	7.43	12.41	-9.95	-5.58	-6.06	-5.7	-6.1

Notes to table 11: Shows the difference in the gender differential in mortality (male CDR as a percentage of female CDR) between the year of maximum crisis (1900) and the non-crisis period (1891-95). It is obtained by the formula $C = S1 - S$ for each age group. (See tables 7,8,9 & 10).

Maharatna's figures which show crude death rates by age and sex in the pre-famine baseline and prime famine years. Maharatna's data point to two very important characteristics of the mortality patterns of the Punjab famine. The first is the overwhelming concentration of mortality among infants, and the second is the marked female mortality disadvantage both in normal and crisis periods. (Table 7). We also note the following:

- (i) The age groups which suffered the greatest excess mortality during famine were infants (0-1 year) and the very old (60 years and above).
- (ii) Children in the age groups 0-1 year, 1-4 years and 5-9 years experienced far greater proportional increases in mortality as compared to all age groups between 10 and 49 years.
- (iii) Infants experienced the greatest proportional increase in mortality of all age groups.

Turning to sex differentials in mortality we note the following. (See Tables 7 and 8).

- (i) In terms of overall crude death rates in the year of maximum excess mortality i.e., 1900, we find that the crude death rate for females (1.59) is higher than for males (1.50).
- (ii) In all age groups except 40-50 years and 50-60 years the proportional increase in mortality during 1900, over the baseline level (i.e., the average of the years 1891 to 1895, excluding 1892, which was an epidemic year) was higher for females than males.
- (iii) Table 7 provides the basis for a broad computation of the relationship between crisis and non crisis mortality by gender. We provide the computer figures in Tables 8,9,10 & 11. In the period taken to represent non crisis mortality (i.e.,

1891-95) when we measured male deaths as a percentage of female deaths. We find this figure (S) to be less than 100 in all age groups except 40-50 years, 50-60 years and those above 60. The value for S was lowest in the age groups 10-14 years, 15-19 years, and for infants indicating that the non-crisis differential favoured infant males and teenaged males the most, while it favoured females over the age of 40.

- (iv) In year of maximum crisis (1900) the value of S1 (male deaths as a percentage of female deaths) favored females only between the ages of 40 and 59. However, the female disadvantage in the infant group (0-1 year) decreased marginally from the non crisis differential. On the other hand in the age group of 15-19 years, 10-14 years, 20-29 years and 30-39 years (in that order) S1 (male deaths as a percentage of female deaths during the year of maximum crisis) decreased, indicating worsening mortality for during the crisis in these age groups. The survival chance among old women over 60 years) in non crisis periods also decreased during the crisis period as S1 fell to 94.8 while S was just above 100.
- (v) Finally, we looked at the difference between male death as a percentage of female deaths in the year of maximum mortality, and male deaths as a percentage of female deaths in non crisis year i.e., the variation in the magnitude of the gender differential in mortality between non crisis and crisis years. The value of C was computed using the formula $C = S1 - S$ for all age groups. The value of C is negative in all age groups except 0-1 years, indicating the differential as measured by differences in percentage narrowed in the year of crisis over the baseline. Where male deaths as an a proportion of female deaths

TABLE 12

INFANT MORTALITY RATES, 1895-1902, HISSAR DISTRICT

Year

	Normal	1895	1896	1897	1898	1899	1900	1901	1902
	*								
	174	183	218	269	177	194	481	262	243

*Normal is the average for 1893 and 1894.

Source: Guz (1989), p.209.

TABLE 13**RATIO OF MALE OF FEMALE DEATH RATES, 1893-1902, HISSAR DISTRICT.**

	Ratio All Ages*	(Male/Female) Infants+
Year		
1893	0.97	1.08
1894	1.00	1.12
1895	1.00	1.07
1896	1.00	1.13
1897	0.95	1.00
1889	0.95	1.13
1899	1.00	1.06
1900	0.97	1.03
1901	0.97	1.30
1902	1.02	1.12

* $(\text{Registered Male Deaths}/\text{Number of Males in 1891})/$
 $(\text{Registered Female Deaths}/\text{Number of Females in 1891}).$

+ $(\text{Registered Male Deaths}/\text{Registered Male Births})/$
 $(\text{Registered Female Deaths}/\text{Registered Female Births}).$

Source: Guz (1989), p.208.

was over 100 per cent (i.e., worse mortality for males) - in the age groups 40-59 50-59, the differential narrowed to favour males, during crisis while in the other age groups, it favored females, but only marginally in the year of crisis.

Table 12 and 13 show Guz's data for Hissar district in Punjab. (Guz 1989: p.208-209). They corroborate Maharatna's finding for the entire province with regard to infant mortality. These show that not only was infant mortality staggeringly high during non crisis periods but that infants experienced dramatic mortality increase during both famines. However the groups that suffered the maximum proportional mortality increases during the crisis were children aged 1-4 years and the elderly. During the two peak mortality years (i.e., 1897 and 1900) the share of infant deaths in total mortality declined but Guz attributes this mostly to a decrease in the number of births. The age groups 5-9 years and 10-19 years also suffered significant mortality increases during both famine years.

Male survival advantage also emerges in Guz's analysis. She uses male female death ratios as an index and finds that "during both famines the ratios of male to female death rates dropped in favour of males and the differential persisted for one year after the famine. Furthermore although the ratio of male to female infant mortality rates shows the usual biological advantage of females in non famine years, it dropped to almost unity during the famines. Both ratios fell more sharply in the earlier famine than in later one". (p.207).

We see in the Punjab data, therefore, *a deviation from the general direction of gender differentials in famine mortality in South Asia.*²⁷ Yet this trend is consistent

27. In most famines in South Asia as elsewhere, crisis mortality tends to be worse for males. This pattern was observed in the Madras famine of 1876-78 and Sen (1989) documents other studies which corroborate it. See Sen (1989), p.55.

with the regional variation in relative survival chances of males and females - i.e, a clear North-South contrast. A pattern similar to the Punjab famine is observed by Maharatna for the United provinces famine although it is more pronounced in the case of Punjab. This has relevance for our analysis of the socio economic and cultural correlates of famine mortality trends in different regions. Moreover, the finding that the gender differential in mortality during the crisis, actually widened in favour of males points to a very real female mortality disadvantage. The survival advantage enjoyed by women above 40 years of age remains unexplained.

With regard to mortality differentials by social groups, there is even less data for Punjab than for Madras. Zurbrigg (1992: PE6) writes:

".... those affected first by increasing hunger would be landless labourer and artisans whose normal earnings, marginal at best, left no reserves."

She goes on to describe how the changing pattern of wage payments (from kind to cash) from the late 1860's onward led to a decline in the real wages of farm labour. Further, from the 1860's onwards there was a shift in agrarian class structure, with increasing tenancy cultivation.

"....Upto 1860, three quarters of the land was cultivated by independent peasant proprietors, but by 1900, a little less than half the area was cultivated directly by peasant owners and over 40 percent by tenants at will with few or no occupancy rights.... Over the same period, the terms of tenancy worsened as the British tenancy law shifted the balance further in favour of landlords by making it easier to evict tenants.. Bhattacharya describes how the frequently indebted small peasants, dependent on production loans even in normal times, resisted the process of complete dispossession and increasingly survived on the basis of under consumption and intense self exploitation. What was retained by the petty tenant after paying half or more of the produce as rent might amount to less than the total wage of a regular labourer.. Thus basic survival was precarious and dependent on wage labour earnings.... for the landless".

In addition, traditional village artisans and servants made, up a further group of

landless households, many of whom lived at subsistence levels in normal times and would have been quite incompletely insulated from declining earnings during period of scarcity and associated economic depression. This is particularly true of traditional weaver communities whose livelihood since the mid-nineteenth century had been especially undermined by increasingly large imports of textiles from Britain".²⁸ The reports which followed both famines also note that weavers were particularly affected, not just in the Punjab, but throughout the country. Special relief measures were taken for their relief in Madras Bombay and Bengal.²⁹

We can thus assume that the groups worst affected by famine would be the landless agricultural labour, the small tenant who was often hopelessly in debt, sharecroppers, and the service castes who had already experienced economic decline thought shifts in the mode of payment and the commoditization of grain.

To summarize:

1. The indices of mortality and food show clear patterns chronologically, with mortality following food prices regularly in both famines. However, in the Punjab famines the birth rate was not affected by famine as it was in Madras. This makes the use of fertility decline of doubtful value in identifying famines.
2. Epidemiologically, the importance of fever mortality is reaffirmed during both famines, as in ordinary years. Cholera, diarrhoeal diseases and smallpox mortality also increase in magnitude, but fever dominates the total mortality. This is especially vivid in the second year of all the famines (i.e., 1877, 1897, and 1900) after unusually heavy rainfall. This points to the need to examine the

28. Zurbrigg (1994), PE-6.

29. (See the reports of the Indian Famine Commission 1898 and 1901).

links between starvation and malaria mortality, especial in the light of debates regarding the role of epidemic disease outbreaks in causing mortality and the neglect of the role of hunger in creating vulnerability to death among the marginalized.

3. With regard to age differentials in mortality, we find that the old and the very young are particularly disadvantaged during the crisis in both regions, a trend consistent with the burden of non-crisis mortality. In Madras, while the age groups between fifteen and forty nine years had relatively better chances of survival, the pattern differed for men and women, with women in this age group expressing a survival advantage over men. While juvenile and infantile mortality was worse for females, the differences were much closer than in the adult age group. The maximum 'gain' for females, however, was in the age groups over 40 years.

In Punjab, a similar pattern occurred with regard to age differentials, in mortality. Infant and juvenile mortality as well as mortality among the elderly rose proportionally to greater extent than those between 10 and 49.

However the gender differential in crisis mortality, while following a pattern consistent with non crisis mortality in the region, differs directly from the pattern observed in Madras. In all age groups except those between 40 and 59 years, both crisis and non crisis mortality was worse for females in Punjab. However in the year of maximum crisis, male deaths were a percentage of female deaths (indicating worse female mortality) in all age group except those between 40-59 years. The difference was especially pronounced in the age groups between 10 and 39. The male death rate as a percentage of female death rate grew marginally in the year of maximum crisis, except for infants. We see extremely adverse survival chances for female infants, and

for females in general except those over the age of 40 years in Punjab.

As regard mortality differentials by social group, we find that in both famines there is consistently worse mortality among those who are normally most vulnerable to hunger, starvation and economic insecurity. In Madras this occurs among the castes who were traditionally associated with agrestic servitude and landless labour. In Punjab while the extent of landlessness in was not as pervasive as it was in Madras, the small cultivator, the tenant and the artisan suffered the most during periods of scarcity.

With regard to migration, we find in both regions that migration is a survival response, so to speak, among groups threatened by hunger both during periods of crisis as in periods of 'normal' economic insecurity and hunger. Inasmuch as crisis migration follows routes established by long experience in peasant consciousness as likely to provide food and work to keep body and soul together, it is purposeful and 'rational'.

II. *GENDER DIFFERENTIALS IN FAMINE MORTALITY: A CRITICAL REVIEW OF SOME EXPLANATIONS.*

We noted the existence of two divergent patterns with regard to sex differentials in famine mortality in the two instances of famine examined above. We noted also their consistency with non crisis mortality patterns by gender within the two regions (although, due to constraints of data, more complete analysis was possible for the Punjab famine.) We noted also that mortality tended to occur most heavily among those groups which were most marginalised within particular social structures. An explanation of gender differentials in famine mortality would then find root in the interaction between gender, caste, class and economic and cultural entitlements within a specific historical situation.

Yet, while the existence of a gender differential in mortality has been noted by several researchers,³⁰ the variations in its occurrence and its antecedents have not been enquired into very systematically.

Moreover, the explanations offered for the differential have tended to be either extremely broad, generalising one variable for the entire subcontinent and its history of famines, or extremely narrow, focusing on only one aspect of the determinants of famine mortality. For example, both Mohanty (1989) and Rivers (1988) generalise the sex-selective migration hypothesis and the survival ability hypothesis across all instances of famine. Dyson (1991) on the other hand only focuses on female fertility decline as affording protection to all women against death.

There are three main kind of explanations that have been used to explain gender differentials in famine mortality. Before we discuss these in detail, it is necessary to mention that these explanations focus on the trend we noted in the Madras famine of 1876-78 i.e., worse male mortality and relative female survival. It is true that in several famines in the Indian subcontinent, the trend has been towards worse male mortality. This occurs even in regions which note an adverse female: male ratio over the long period i.e., with regard to gender differentials in non crisis mortality. (For example, Bombay, Bengal and the Central Provinces).

However, Maharatna (1996) shows that there are exceptions to this trend, which further conform to the North-South divide between regions which have contrasting patterns of relative female survival.

Most attention that has been focused on the subject of gender differentials in famine mortality looks at the relative male mortality disadvantage during subsistence

30. See Rivers (1988); Sen (1981); Dyson (1991); Mohanty (1989); Guz (1989); Arnold (1984); Greenough (1982).

crisis. On the other hand, when we use a comparative method we are enabled to be sensitive to variations in the phenomenon we can conceive of as an ideal type. Here the phenomenon pertains to relative survival during crisis.

While the comparative method is concerned with causality, it enables an understanding of variations in process as well as the interaction of different variables, it enables us to understand how the phenomenon is shaped and varies temporally and spatially.³¹

With regard to gender differentials in famine mortality, we note three main kind of explanations for the relative female survival advantage. These include.:

1. The thesis that females are biologically stronger than males and are physiologically better able to withstand food scarcity (Rivers 1988, pp.91-2).
2. That the decline in fertility as measured by conception leads to better survival chances among women. (Dyson 1991, 1992).
3. Sex selective migration increase the risk through exposure to famine induced epidemics of males in a weakened nutritional state. (Mohanty 1989).

It is evident here that each of these explanations rely on a single variable to explain the trend in mortality, and further that each of these explanations assume a

31. While a comparative study requires a rigour and mastery of technique that this particular study can only hope to emulate, we can paraphrase Dewey and Hopkins (1978) on its advantages: Firstly, comparisons can change priorities, raise new questions and suggest fresh answers. Secondly, they provide means of confirming or rejecting explanations which seem irrefutable if viewed in a single setting. Thirdly, they underline singularity by revealing the inadequacy of general explanations. (Dewey and Hopkins 1978: p.5-6). In this case, the explanations offered by Dyson, Mohanty and Rivers focus on the generalization of sex differentials across different famines locations without going into the particulars of these locations or into the circumstances underlying the exceptions to this trend. On the other hand, we might be able to throw light on the different routes to survival and mortality in these regions rather than attempt to answer what causes the male mortality disadvantage across the subcontinent.

universal pattern across famine locations, with regard to these variables. A discussion of the antecedents and implications of each of these variables is however necessary to examine their validity.

(1) The biological thesis:

The explanation that biological mechanism are responsible for the survival advantage has been used in some studies.

Rivers (1988) writes:

"Western cultural prejudice would have us believe that women are more vulnerable to famine than men. However there is little physiological justification for this view. Indeed... females ought to be less vulnerable to deprivation having smaller needs for energy and most nutrients because they are smaller than men, have a lower metabolic rate and higher body fat. Laboratory experiments certainly show that male animals are more vulnerable to deprivation than females. Physiological vulnerability is, however, modified by social factors which can totally reverse these expected effects... despite their lower physiological vulnerability, there is evidence that in famines as in other types of disasters, there is an increased morbidity and mortality among adult women and female children, reflecting male discrimination against them. Indeed even where there is no sex difference in death rates or nutritional status, male discrimination can be inferred from the fact that females should be less vulnerable."³²

The possibility of superior biological survival capacity among females is also mentioned by Dreze and Sen.

They write:

"With regard to the intensity of female deprivation in famine situations) it is possible that two divergent tendencies come into play. First... women appear to have certain biological advantages over men in survival, and there is some evidence that these general advantages enhance the relative ability to cope with temporary distress situations vis-a-vis men. Second, the factors that govern the distribution of food, health care and general attention among men and women may undergo changes in

32. Rivers (1988: pp.91-92.).

famine situations. This influence can act in the opposite direction if it takes the form of greater discrimination against women. These divergent tendencies can result in a rather complex pattern of sex differentials in the experiences of famine. On the other hand there is considerable evidence that the proportionate increase in mortality is typically lower for women than for men in famine situations. This was, in fact, the observed pattern in most of the famines for which relevant demographic data are available. It is however sometimes the case that in particular age groups the increase of female mortality is more pronounced than that of male mortality, even when the overall increase of mortality may affect men more.

On the other hand, a number of studies also bring out the fact that, in many societies the priorities of the family are often pro-male in distress situations. Insofar as greater physical distress co-exists with a smaller increase in mortality for females vis-a-vis males the explanation may have to be sought, at least partly, *in terms of greater female ability to survive nutritional stress.*

The two possibly opposite tendencies noted earlier can lead to different patterns of sex differentials in food intake, anthropometric status, mortality rates and socio-economic indicators of stress. There can also be important inter-regional differences in the connections.

- (1) between economic distress and patterns of sex-and age-specific deprivation of food and other commodities.
- (2) between the distribution of deprivation in intake and that of undernourishment
- (3) between the distribution of undernourishment and that of mortality.

The overriding fact that is altogether difficult to escape is the remarkable relative deprivation of women in many parts of the world in normal (non famine) situations.... however as far as the question of famine mortality and nutritional damage is concerned, it appeared that sex discrimination at worst' only supplements in a relatively small way the enormous destructive forces that come into play in famines."³³

33. See Dreze, J. and Sen, A. (1989:pp.55-56.).

While both mention the fact that social discrimination against females can reverse the tendencies set into force by their biological superiority, they implicitly place causal emphasis on the biomedical variable. Sen already mentions the normal (i.e., non crisis) gender discrimination in the distribution of food, health, etc. As we have seen, this discrimination has led to an adverse sex ratio (i.e., female: male ratio) over the course of the last century though excess female mortality. Attributing superior biological capacity to withstand scarcity would contradict this. If female deprivation on a regular basis within the family leads to greater proportional mortality in non crisis periods, there are no grounds to suppose that females are possessed of a superior biological capacity to withstand scarcity. Evidence of intra family gender discrimination is corroborated by evidence of greater degrees of proportions of undernourishment among females in rural India.³⁴

Thus we can assume that the ability to withstand acute starvation in times of famine would be compromised among female who already suffer the health consequences of chronic undernourishment. Also, the argument that women are smaller and therefore, require less energy is based on the assumption of a homeostatic metabolic mechanism that enables the body to adjust on adapt to food shortages.³⁵ Unless we can separate the influences on differences in body size, it would be erroneous to hold body size, as evidence of nutritional requirement.³⁶

34. See NNMB repeat survey (1996).

35. See Osmani, S. (1991) for a good review of the debates surrounding the adequacy of intake with regard to variations in requirements and "adaptation" to less intake.

36. Satyanarayana, K. (1986) The Social Epidemiology of Nutrition in Ranga Reddy District, Unpublished Ph.D. Thesis, Jawaharlal Nehru University.

Satyanarayana found significant links between economic class and growth. Scheduled caste boys whose families were also landless fared the worst in terms of stuntedness [less height for age.], but a majority of those who were stunted were from scheduled caste backgrounds, even those who were well off. There seems thus to be a link

In reality, also it is difficult to separate the biological components of mortality from the social and historical, simply because all three sets of variables interact in a mutually reinforcing manner. For example with regard to body size as determining nutritional requirements, K. Satyanarayana (1986) finds that boys who are stunted (i.e., low height for age) also experience significant disadvantages in opportunities to improve their nutritional status through employment, education, etc.¹⁶ One can then see an interaction between social determinants and so-called 'fixed' biological variables. In other words, to explain a general trend with regard to gender differentials in famine mortality by reference to biological mechanisms and variables is to separate these analytically from their social antecedents. While the social determinants of survival can be isolated within the laboratory to determine what relative survival chance would be if these determinants did not operate on natural biological system of human beings, whole populations are realities that have emerged historically, culturally and socially, and these aspects are inseparable from the biological processes that operate within individual human beings. This would imply that as an explanatory thesis, the so-called 'biological' superiority of females is of limited validity in explaining gender differentials in famine mortality.

2. Reduction in conceptions is perhaps the mechanism through which relative female survival is ensured.

One of the features of subsistence crisis is, as we have noted, a fall in conceptions. This feature is seen to be the key to the relative survival advantage among

...Continued...

between stunting and social placement, indicating that health is very much tied up with one's position within the system of stratification and that one's abilities to improve one's health is determined to a great extent by this system; also that social position manifests itself in indices of growth, and vice versa.

females in a perspective most completely articulated by Dyson (1991). Noting that all the instances covered in his study of South Asian famines were marked by a reduction in a number of conceptions in the year preceding the mortality crisis. Dyson suggests that:

"..... (in connection with lower proportional increase in mortality for females)... many reasons e.g. different propensities of man and women to migrate and the higher levels of women's body fat can be adduced in this context. But an important conditioning factor may have been lower levels of pregnancy and lactation among women consequent upon anticipatory fertility decline." (Dyson 1991b,p.294).

In an earlier paragraph, Dyson also suggests that:

"The major famines were all preceded by periods of mounting adversity; conceptions declined long before the climax of mortality. Consequently birth rates were much reduced by the time when deaths peaked... Caldwell, Reddy and Caldwell's conclusions regarding survival strategies in South India during the drought of 1980-83, when the birth rate declined, yet mortality failed to increase... suggests that we might be wrong to rule out an element of conscious planning in explaining such anticipatory behaviour." (Dyson 1991b; p.293).

Greenough (1992;p.103-104) picks up the threads from Dyson in suggesting that firstly, the suppression of fertility is a protective state that enhances women's survival. He further states that:

"Pregnancy and child birth, *-always hazardous to a women's health in rural South Asia*, (emphasis mine) are particularly dangerous during a famine. Thus, if conception is suppressed, women who would otherwise be at risk of fatal complications will escape them." (p.103) Secondly, he makes room for Dyson's suggestion that this inhibition of conception represents a degree of conscious agency among women who have otherwise been portrayed as "victims of authoritative adult males who appropriate decisions making about all matters related to the survival of the lineage, the family and its individual members...." (ibid.) Greenough believes that it is possible that Bengali

women were active during the famine of 1943-44 (as Bina Agarwal (1990) suggests) and goes on to note that it is possible that this active posture took the form of "bargaining" with their husbands for survival through the inhibition of conception. (ibid.)

There are really two main hypotheses wrapped carefully into the fertility reduction hypothesis. The first is that fertility is a source of risk in 'normal' i.e., non crisis, periods. Secondly, there is the suggestion that such suppression of fertility is an act of conscious agency on the part of hundreds of thousands of women who bargain with their husbands for their survival.

The first hypothesis is questionable both conceptually and empirically. While maternal mortality and death during pregnancy is a serious problem that requires attention, one needs to examine why it occurs. A serious problem for several women is anemia, which results in a large proportion of maternal mortality. However, one needs to examine whether it is the states of pregnancy and lactation *per se* that endangers women's health or the conditions surrounding women's lives and work-both domestic and paid-that makes such states dangerous for women. Also, it is infant and child mortality rather than adult deaths among females, as with males, that constitute the largest threat to survival.

With regard to our two case studies of famine, this proposition would need to be borne out by better survival among women of the age group fifteen to forty nine in both cases. In the case of Madras, we find that while the above 10 years age groups did indeed register better survival chances among females, this was concentrated mostly in the age groups above forty. There was a decline in the number of women's 15-49. In Punjab, there is the coincidence of both high fertility and worse female mortality, lending support to Dyson's thesis. Further, in the age groups fifteen to forty nine, the

increase in female mortality were smaller than for infants, children between one and nine years and women over forty. Yet, paradoxically in Punjab, this age structure of famine mortality did not prevent an overall worse survival rate for females.

However, we do not know how much of a risk to health pregnancy and lactation constituted in non crisis periods; nor can we separate the supposed health risk of pregnancy from the social conditions surrounding female lives. Evidence of intra-family discrimination against girl children is strong in the case of Punjab (see Dasgupta 1987). One suspects that such discrimination could be implicated in the risk of death run by pregnant and lactating women.

With regard to the suppression of fertility as an act of conscious planning on the part of women who negotiate successfully with their husbands for their survival, one recalls Le Rey Ladurie's study of famine in 17th century France, where 'famine amenorrhea' occurred widely among women in the reproductive age group, and which, it seems likely, was responsible for the temporary sterility and absence of conceptions among them. Ladurie seems to anticipate Dyson in that he sees this reduction in conceptions as contributing to the relative female survival advantage during the famine; he sees the reduction in conceptions as a trade off made by women whose immediate concern was their survival. Yet Ladurie also notes that famine amenorrhea which represented this trade off between survival and normal menstruation was a reflection of the anguish of deeply traumatized women. It seems unlikely, then, that this trade off was the result of conscious agency or bargaining by women in India, inasmuch as choosing survival over death, even if it did occur, cannot be held to represent free agency or active positions adopted by women, it was a choice forced on them.³⁷ The

37. Ladurie, E.L. (1979): "Amenhorrea in Time of Famine."

fertility reduction thesis fits in well, however, with the ideas of Western feminist theory regarding reproductive freedom which was adopted by the population establishment in the advanced capitalist countries as an ideological justification for population control policy and the reproductive health care approach into which it was packaged in the 1990s. This approach sees gender inequity around the world as embodied in relations between men and women in the sexual and reproductive sphere. The productive aspects of gender inequity as related to relations between the genders in the household, community, state and market, and as transcending the relations between individual man and women do not find a place here. Thus this approach does not look at gendered productive roles and their cultural, social and historical antecedents; it limits its view to reproductivity and sexual inequality, rather than gender inequity rooted in relations of production *and* reproduction.

3. Sex Selective Migration and Male Mortality

The preceding two explanations see the gender differential in mortality as a question of relatively better female survival during famines. The migration hypothesis sees it as one of worsening male survival. The migration hypothesis is cited both by Lardinois (1985) and Mohanty (1989).

Mohanty (1989) utilises data from the Census and the Sanitary Commission Reports in an analysis of gender differentials in mortality during the famines of 1896-9 and 1899-1900 across British India. His arguments run as follows:

- a) Between 1891 and 1901, the sex ratio across India (sex ratio number of females per thousand males) rose from 958 to 963.
- b) The rise in the sex ratio was the maximum in Central Provinces, which was affected by both famines. It also occurred in North Western Province and

Oudh, Rajputana, and Bombay. Sind which was unaffected by the famines did exhibit any such rise in sex ratios.

- c) The decrease in the death ratio (the ratio of female to male deaths) started in the age group 5-10 years and reached a maximum in the age group 25-30 years.
- d) The Regional Census Superintendents of the Central Provinces and United Provinces noted, firstly, a link between sex ratios and migrations and secondly, that the death ratio was highest during the epidemic phase of the famine.
- e) The 1901 Census noted that the pattern of out migration largely consisted of males.
- f) In Rajputana and Bombay, the increased sex ratios were attributed both to improved enumeration and lower female mortality.
- g) In Punjab and Madras, female mortality was offset by migration. Yet, the higher female mortality rate here is attributed to social discrimination out-weighing greater male mobility.

Mohanty's thesis rests on the assumptions that:

1. Greater mobility would increase the risk of mortality during famine.
2. Because the composition of migrant groups is generally believed to be male dominated, this would have led to a greater degree of male mortality as compared to that for females.

The thesis that such sex selective migration increase the risk for males of exposure to epidemic disease while in a nutritionally weakened state is also echoed by

Lardinois (1985):

"The cholera epidemic which rages is rapidly spread by this migrant population which often dies before reaching the city. (p.459).

Further, Lardinois concurs with Pierre Chaunu's statement regarding the European agrarian crises of the 17th century. "It is death on the march....it is not hunger that kills but a sudden growth in the traffic, a multiplication of virulence." (p.460) Lardinois concludes that "the differential migrations according to sex takes into account to some extent the adult masculine over mortality during the crisis." (p.460).

Whitcombe (1993) quotes Cornish (1879) on the Madras famine of 1766-78:

"(At the height of the famines from April to July 1766)" the labouring poor destitute of food and work, forsook their village homes to an enormous extent. The drought which had driven them out, deprived them of food, and water, on the way to the towns and camps. Foraging killed the migrants, the necessity to resort to usual respective and noxious kinds of food the result diarrhoea and death from dehydration."

Further "Most of the migrant were the able bodied poor. How many died en route will never be known. These deaths went for the most part unregistered. Circumstantial evidence suggests many thousands. Of these who survived the journey, hundreds of thousands were to die at their destination, victims of the circumstances of the food dearth (which brought) the people under peculiar insanitary conditions... Hundreds of thousands of destitute poor crowded the relief works and centres and towns where food is to be had; all this contributed to disorders of digestive functions, often with fatal consequences. The principal cause of death and disease was the deterioration in the water supply."³⁸

38. Whitcombe (1993), pg.1172.

This evidence is used in sometimes contradictory manners by both Lardinois and Whitcombe. While both note that migrants were overwhelmingly the poor and destitute Whitcombe agrees with Cornish in believing that 'polluted water supply is the principal cause of death.' On the other hand, we also have evidence that fever (mostly malarial) accounted for the maximum deaths, although cholera and diahorreal disease also caused a significant proportion. Since malaria is airborne by the anopheline vector, this contradicts the water supply thesis. Thirdly, we find that migration was indeed sex selective, at least during the Madras famine. (We do not have any data for Punjab). Yet during the famine of 1876-78 the proportion of females in the migrants groups increased . (See Lardinois 1985: p.459).

Finally, and most importantly, while it is presumed that migration as an activity increases the risk of death, this linkage neglects the point made both by Whitcombe and Lardinois: namely, that migration occurred mostly among the laboring poor. For such groups, migration was a response to seasonal variations in agricultural employment, as well as to economic crisis. These were groups whose normal intake of food varied seasonally and frequently tottered on the brink of acute starvation. Infection, disease and mortality would also be high among them in non crisis periods, rendering them vulnerable to any reduction in their entitlement to food. During famines they were the first to experience a collapse in their entitlements since they depended upon the demand for their labour on services, which in turn tended to collapse during famine citing migration as a cause of death means neglecting the conditions compelling groups to migrate in response to crisis.

On the other hand, we also do not have any evidence that the famine devastated areas where the migrants came from were epidemiologically any safer for those remaining unless they happened to be from groups whose resource position enabled

them to resist starvation. Lardinios cites the testimony of a journalist crossing a North Arcot town.

"Only these who were well off, it seems had stayed back, the Brahmin families who appeared to be well to do and whose wives and children were lavishly dressed". (Lardinois 1985; p.459).

Unless we can show that most women who remained believed belonged to these groups, we cannot substantiate this argument completely. We also miss the point that household resource positions do not necessarily indicate accurately women's resource positions. Women and girls who were "lavishly dressed" may not have been equally able to resist complete destitution or death simply because among Brahmin groups, the control of female fertility, sexuality, and labour power and through these, women life chances was an important symbol and strategy of dominance. Women who stayed behind in the villages could equally have been poor household needs with no other alternative. If migration increased the risk of death, we would need to examine why it was that people did migrate during famines, throughout history. Assuming that population movements were aimless and dangerous activities (except in the case of government sponsored migration, as in the Madras famine) comes from a perspective that views the peasant as an irrational actor governed by passion and prone to panic. On the other hand, migration may also be seen as a defense mechanism, a rational response based on past experience.

Finally, if population movements preceded mortality peaks during famines, it would seem logical to look at the social conditions of life and work among groups compelled to migrate, in our search for causes of death. We need to consider the hypothesis that death and chronic hunger over a long period rather than migration, underlay the increased vulnerability of migrant groups.

In that case the hypothesis that sex selective migration underlay worse male mortality and contributed to the gender differential in famine mortality would need rethinking. Sex selective migration cannot provide an explanation for relatively greater male mortality since migration is a response to greater risk of death among marginalized groups rather than a cause for it; and also those who did not migrate may not have been protected from death unless they had the resources to protect themselves.

In this chapter, we have tried to analyse the demographic and epidemiological indices for the two famine locations. We find a magnification of non crisis mortality both with regard to disease and seasonal patterns in mortality. These indices do not vary significantly between the two locations but there are differences with regard to age and sex specific mortality patterns. In particular, we find that the regional variation in gender differentiated chances of survival in non-crisis periods is reproduced in times of crisis. One would expect to find explanations for gender differentials in famine mortality in regional contrast with regard to social structure, economy, culture and ecology.

However, explanations for gender differentials in famine mortality have tended to focus on a single universalizing variable. The demographic and biological explanations exclude variations in social structure from their ambit or subordinate these to so-called universal biological or demographic processes. There is also a tendency to locate gender difference and inequity solely in the sphere of the sexual or reproductive differences between the sexes, while neglecting gendered relations of production that determine mortality and survival unequally. On the other hand, the migration hypothesis removes the reality of chronic hunger and food insufficiency from its discussion of mortality. In doing so, it overstates the case for the idyllic village

community, and the irrational peasant migrant, both of which impinge upon our understanding of social realities, of which gender relations form a significant part. The weaknesses of all three sets of explanations point to the need to chart out the social and economic processes influencing risk and vulnerability differently between groups marked by different levels of entitlements. That is to say, an adequate explanation would need to take into account the way in which social relations between groups conditions the life chances of each differently; and further, how the historical and social specificities of gender relations within a context influence survival and death within these groups.

CHAPTER-III

FAMINE MORTALITY AND CHRONIC HUNGER

In the previous chapter, we sought to summarize the movement of epidemiological, demographic and social indices of two famines in an attempt to understand the dynamics of famine as crisis. Central to the event of famine is a continuity with processes that occur in normal times. Famine as demographic, epidemiological and social crisis mirrors and magnifies patterns that occur in non-famine periods.

We also find that this continuity exists with regard to the regional differences in gendered mortality trends. While it would be a mistake to assume that either of these events of famine can represent any regional pattern that is immutable over time, the broad North-South variation in relative female survival/mortality that Visaria (1968), Harriss (1989), Sen (1989), and others have commented upon tends also to occur with regard to mortality/subsistence crisis that constitute famines.¹

A similar continuity exists when we take into account the socio economic basis of famine victimization. There is a continuity between social marginality and the pattern of mortality. This continuity enables us to use, critique and extend Sen's conceptualization of famine as defined by a sudden collapse in the entitlement to food of particular groups in society i.e., famine mortality results from a failure to be entitled to an endowment/exchange bundle with enough food to avoid starvation. In Sen's terms, this failure is both sudden and specific to particular groups, and as such, distinct

1. See Visaria, P.M.,(1968): *The Sex Ratio of the Population of India*; Harriss, B., (1990) *The Intrafamily Distribution of Hunger* in Sen et al; Sen, A: *Hunger and Public Action*.

from undernourishment or starvation which are both less specific (i.e., more widespread within societies which experience them) and not so sudden or compressed over a short time span.² The point we wish to make is that the suddenness of famine masks its continuity with chronic hunger which may well be specific or more pronounced in groups that are socially marginal or vulnerable.³ In the same vein, famine mortality may follow upon the sudden collapse of a group's entitlement to food but its cause must be sought in inadequate entitlements to food over the course of a life time, or even generations. As Sen notes, famine mortality includes not only starvation deaths classified as such but also starvation-related disease epidemics which elevate the mortality figures in a famine affected community for years after the actual event of famine. Sen sees this elevated mortality as resulting from the event of famine as structured by the peak of mortality and acute starvation. On the other hand, starvation and starvation related disease must be seen as causing death over a normal pattern of inadequate food intake or chronic hunger.⁴ Moreover, this compromise of nutritional status takes place much before the event of famine itself.

2. See Sen (1981), Chapter Four, pp.39-41.

3. Indeed, this is a commonly recurring theme in studies of famine. For example, in the nineteenth century famines, we noted that agricultural labourers and artisan (who were displaced by the commercialization of the Indian economy as part of a colonial empire) formed the largest group of those who were killed, or made destitute during famines. Similarly, in instances of famine in other countries such as Africa or Ireland, those who found it hard to make a living from day to day formed the bulk of the victims. See Sen (1981), Chapters 6-9.

4. Although the issue of determining adequacy of intake is a controversial one, the use of Fogel's concept of nutritional status is useful here. Fogel determines nutritional status as the balance between the total intake of food and the demands made on the body. Inasmuch as most victims of famine are those who earn a living through manual labour, this issue in measuring inadequate intake is important, especially since infections which create a need for greater intake are most recurrent and lethal among those where means do not permit them to raise their level of intake. See Fogel (1992).

Thus, if famine represents a sudden collapse in the entitlement of individuals, we need to remember that among the victims, entitlements were not very substantial in the first place. In either words, the social epidemiology of famine shows a regularity with the social epidemiology of chronic hunger and social marginality. The study of differentials in famine mortality must take into account differentials in access to food over a long period of time as predisposing factors in causing death.

The connection between famine mortality and chronic hunger was evidently clear to nineteenth century administrators, especially those concerned with saving lives. In the Madras famine of 1876-78, the Surgeon-General of Madras, Dr. W.Cornish, observed that.

"the sickness and mortality (of famine) was almost entirely the result of chronic starvation".⁵ Going on to describe the condition of jail prisoners during the famines Cornish notes that

"People fled to petty crime as a means of saving themselves... for all practical purposes, our district jails were little else than well disciplined relief houses where relief was administered with exactness and regularity".⁶ Cornish also notes that while jails in the famine affected districts experienced mortality in the ratio of 215.7 per mille, those in non famine districts experienced mortality in the ratio of 68.3 per mille of strength. Finally, Cornish finds that the longer prisoners had been in jails, the lower was the mortality among them, demonstrating the effects of longer periods of an adequate diet among jail inmates; or as among the more recent prisoners, the effects of

5. *Madras Famine Review*, 1878, p.172.

6. *Ibid.*

previous privation.⁷ Jail populations presented the means for a controlled yet natural experiment of the effects of chronic hunger on mortality.

The links between chronic hunger (and by implication the social condition within which the majority of the population lived) and crisis mortality thus must underlie an analysis of famine mortality and its differential claims on members of society. While a number of short term factors-such as the nature and timeliness of official famine relief and personal assets and access to private social security networks)-may influence the pattern of famine mortality, the crisis of famine is critically influenced by the adequacy of intake and access to food over the long term.

However, to assume a universal and straightforward link between the incidence of hunger and famine mortality is also difficult. There is most often a time lag between the peak in food grain prices and the rise in mortality or fall in conception that make the famine event. If there is a lag, it must conceivably point to the "independent" role of epidemics rather than that of hunger. By implication, the focus shifts to control of epidemics in limiting mortality crisis, rather than altering the conditions within which differential access to food occurs. However, as we have seen in the previous chapter, the lag between the rise in food price and the mortality peaks do not necessarily provide conclusive evidence of independent epidemics. They may point to difficulties and imperfections in both indices -i.e., mortality rates as representing generalized levels

7. Cornish writes:

"That the heavy mortality in the jails was connected with causes antecedent to imprisonment is shown from the fact that of 3596 fatal cases, 2212 occurred in persons who had been under six months in jail and 642 deaths were among persons who had been in jail from six to twelve months. Among persons who had been in jail for seven years or more, the death rate was of the ratio of 53.8 per mille strength."
(*Madras Famine Review*, 1878, p.171).

across different sections of society and food grain price as indicative of food availability. Especially with regard to food grain prices, we need to keep in mind firstly that they do not necessarily indicate the ability of people to pay the prices i.e., the effective demand. Secondly, the kind of series used will affect the picture we get. Prices varied from region to region to a large extent. However, the uniform rise in prices over the 19th century across the country seem to reflect fairly integrated markets for food grains and therefore this problem does not seem to affect our particular situation. Finally, the rise in food prices ignores the relations of power between the small cultivators and the trader or money lenders. Both in Madras and Punjab, indebtedness and market dependence in the case of cash crops like wheat and cotton led to a tightening of control by large landowners and moneylenders over the markets for produce. Small cultivations who were indebted were often forced to sell food grains at low prices to moneylenders just after the harvest. This meant that even when prices were ostensibly low, the petty tenant or sharecropper would be chronically hungry and parted from the fruits of his labour. While we do not have data on hunger disaggregated by class over the long term, it is probable the large numbers of petty tenants, sharecroppers and artisans lived on the brink of hunger, a state which may have led to relatively high mortality among them which is not manifested immediately during the crisis. Finally, crisis migration could have skewed the recording of crisis mortality, if a large number of migrant deaths were registered in other regions or not registered at all.⁸

8. Such seemed to be the case during the 1876 famine in several provinces; also the famine of 1899-1900 and the Bengal famine of 1943. See Arnold (1984) and Lardinois (1985).

The point is that there seems to be no *a priori* reason to believe in the "independence" of epidemic outbreaks as a cause of mortality.⁹ There is on the other hand enough evidence that disease tends to be more lethal among people who are impoverished and hungry.¹⁰ On the other hand, M.Livvi Bacci (1983) cautions against an uncritical assumption that mortality differentials are directly related to class differentials. However, even Livvi-Bacci's examples point not to the ability of the disease agent to cause death independent of nutritional status, as much as gaps in our knowledge about the exact nature of the relationship between nutrition, disease and mortality.¹¹ Thus the imperfections in the mortality statistics in telling us about mortality differentials; the relationship between crisis mortality and non crisis mortality and the imperfections in price data in telling us about access to food probably underlie the lag as much as so called independent epidemic out breaks. A rise in food prices to any extent may have been more lethal for groups whose intake varied seasonally and was harvest defined. Further while the effects of acute hunger are visible and dramatic,

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9. The ability of disease agents to cause epidemics stems from the germ theory of disease which gives causal precedence to the agent's virulence in causing death. On the other hand, changes in the virulence of disease strains do not explain differential mortality in societies which are stratified.
 10. Zurbrigg (1994) in her analysis of malaria epidemiology between 1868 and 1908 in the Punjab finds that food prices account for malaria mortality to a greater extent than annual rainfall. The latter was held to be the main determinant of malaria incidence in a single year because of its connection with a favorable breeding environment for the malaria vector.
 11. Livvi-Bacci (1983) paraphrases the results of Hollingway's research on the British peerage between 1550 and 1750. The peerage generally had life expectancies that were almost the same as the general population, despite presumably better standards of living. However, after the mid eighteenth century, the peerage began to experience a mortality decline at rates faster than that of the general. This evidence does not seem to compare the standards of living of the peerage and the general population by indices that are specified. Moreover, the nature and extent of inequality between these two groups could have changed *with regard to food* after 1750.

those of chronic inadequacy are less so, and therefore less amendable to identification as a cause of famine or crisis mortality.

Dr. Cornish's observations implicate factors outside the famine event in the causation of famine mortality; and moreover, point to hunger (rather than the virulence of disease agents) in doing so. In our analysis of famine mortality, therefore we would need to take account both of the sudden collapse in the entitlement of some groups, as also explain how and why these groups came to have such precarious access to food in the first place-i.e., why they were vulnerable to a decline in intake during the event of famine.

Famine mortality thus represents one end of a continuum of chronic hunger. Evidence on the existence of chronic hunger in colonial India is abundant. Here, we quote Bhatia (1967) who reproduces sections of William Digby's *"Prosperous British India"*?¹²

"....in all parts of India there is a numerous population which lives hand to mouth, is always in debt owing to reckless expenditure on marriages and ceremonies... it is not an exaggeration to say that over the greater part of the continent the small cultivators and labourers live from hand to mouth... the prevailing depression of certain classes of artisans whose occupation has disappeared before the inroads of foreign goods is noticed in most provinces".

The Madras government reported that "The government entertains no doubt that the native labourers live from hand to mouth... the condition of the pariahs (who form twenty five per cent of the population). (is)... generally miserable.

12. William Digby's work used the unpublished results of the Economic Enquiry of 1888 to argue that British rule had resulted in the impoverishment of the rural Indian masses.

In the Punjab:

"In ordinary times, the greater proportion of population was stated to be normally above want but in terms of unusual scarcity not amounting to famine and high prices, the poorer classes whose standards of living is very low one no doubt reduced to great straits and do not get a sufficiency of food."¹³

By the end of the nineteenth century, the emergence of markets in land and in agricultural produce, de industrialization in the rural areas, the decline of many artisans and a downward trend in wages of agricultural labour had pauperized large sections of the population.

Dharma Kumar questions the growth of the agricultural labour population as a product of the nineteenth century and as a result of downward economic mobility among petty tenants, small cultivators and artisans. Yet, her own work shows a decline in the level and rates of wages in Madras presidency between 1873 and 1900.¹⁴ Although she attributes this downward turn to demographic growth among the agricultural labour castes, it definitely indicates chronic hunger among these castes. Also, Baker (1982) and Washbrook (1978) show that a process of concentration of land and economic resources was underway in the nineteenth century: the new relation of production led to the growth of prepares trading communities such as the Chetties the Komatis and the Gaudas during the same period.

13. See Bhatia (1967, p.145-150).

14. Kumar D., (1965), *Land and Caste in South India*, New Delhi: Manohar Publishers.

In the Punjab, the kamins or artisans had to increasingly turn to agricultural labour to supplement their income.¹⁵ There was also a substantial growth in the number of agricultural labourers.¹⁶ The volume of land transfers and mortgages from small cultivators to moneylenders and non agriculturists led to the passing of the Punjab land Alienation Bill in 1901.¹⁷ There was an increasing concentration of landholdings in the latter half of the nineteenth century, along with the growth of markets in land and agricultural produces. These markets became more and more integrated with international food prices.¹⁸ While there was a steady rise in wages of agricultural labourers across the province, the rise in real wages was marginal.¹⁹ Moreover, wages varied widely between different regions, being the highest in the south-east districts and lowest in central Punjab.²⁰ Here, it must be noted that because agricultural was extremely insecure in the dry, unirrigated South east districts, fluctuations in the number of days a labour could be employed were frequent. Also as both Darling (1925) and Mukherjee (1985) note, the size of landholdings also varied between the region and often land was so intensely fragmented that the small cultivator

15. See Bhattacharya N., (1985) *Agricultural Labour and Production: Central and South east Punjab 1870-1940* in K.N. Raj et al (ed.) *Essays in the Commercialization of Indian Agriculture*. Also see Banerjee H. (1982) *Agrarian Society in the Punjab 1849-1901*, New Delhi: Manohar Publishers.

16. See Bhattacharya, N., (1985b); Mukherjee M. (1985). *Commercialization and Agrarian Change in pre-Independence Punjab* in K.N.Raj et al.

17. Banerjee H., (1982), p.126-128.

18. Mukherjee M., (1985). See also Zurbrigg, S. (1994).

19. See Banerjee H., (1982) Tables 2 and 3 p.190-191. Banerjee's calculations show that in Amritsar, Delhi, Peshawar, Rawalpindi, Ludhiana and Multan, money wages rose uniformly between 1873-1901. Yet calculated in terms of real wages in seers of wheat, there was a secular decline across all districts.

20. *Ibid.*

either leased in land or worked as a sharecropper or agricultural labour on someone else's land. This was most evident in central Punjab.²¹ Indebtedness was a widespread phenomenon among Punjab cultivations. No less than 80 per cent of the cultivations were indebted to a greater or lesser degree. Strangely enough however, Darling attributes the phenomenon of indebtedness to "demoralisation" and improvidence on the part of the cultivators who, he claims, had prospered from the economic climate and state investments in irrigation. Similarly the Indian Famine Commission of 1898 notes that "....the mortality which was caused by it (i.e., ordinary fever) was increased by the enfeeblement of health which a prolonged period of privation had produced."

Yet in the same breath the report goes on to add that "....the increase due to this cause was probably small for the evidence shows that the state of enfeeblement from privation which prevailed in some provinces at the end of the famine was very exceptional in the Punjab."²² Thus it seems that at least with regard to impoverishment, Mirdula Mukherjee (1985) is justified in likening the Punjab to other provinces where a "forced commercialization" along with other aspects of backward capitalist development was the result of colonial rule. We will return to this theme in a later section.

Famine mortality had its roots largely in this process of impoverishment that occurred in both province and led to widespread hunger. We see that differentials in mortality by class tended to reflect the differential experience of the economic and social changes of the colonial period in India.

21. Darling, M.L. (1925).

22. *Report of the Indian Famine Commission*, (1898), p.191.

Extending this logic to the subject of our study- i.e., the regional variation in gender differentials in famine mortality, we would assume that these differentials were the result of gender differentials in chronic hunger. Moreover, the event of famine was also structured by the logic that created differentials in chronic hunger. We seek, thus to answer the following questions.

- 1) Was there a regional variation in the gender specific incidence of chronic hunger?
- 2) If so, what were the ways in which this gender differential was caused?
- 3) What was the social logic creating this differential?

I *GENDER DIFFERENTIALS IN CHRONIC HUNGER: THE INTER REGIONAL VARIATIONS IN SEX RATIOS*

We do not have data on the incidence and distribution by gender of chronic hunger during the 19th century. Therefore it is necessary to use a proxy index which will tell us about the distribution of hunger and non crisis mortality during this period. The variations in sex ratios between regions in the census data provide such a proxy.

Insofar as the sex ratios reflect gender differentials in non crisis mortality, we can assume that differentials in chronic hunger accounted for most of the mortality differentials at least where the ratio is reversed in relation to what we might expect from the sex composition of other populations in the world.²³

23. In most recorded populations in the world, there is an excess of male births over female births causing a slightly masculine ratio for any given cohort at birth. However, neonatal mortality tends to be much higher for boys, so at the end of the first year, the ratio is tilted in favour of girls. The ratio continues to exhibit higher rates of female survival during the life cycle, unless there is a gender differential in the entitlements of men and women causing greater mortality among the latter. See Visaria (1968) and the Report of the Census of India 1891 part I-A.

The sex ratios²⁴ unfortunately represent a very crude measure of hunger because they may be measures of the accuracy of recording rather than a measure of population sex composition. Further, even if we can accept that they represent accurately the broad trends in gender differentials in survival there is the problem of linking survival and mortality to hunger. How do we know that the gender differential in mortality represented the effect of insufficient intake of food? Could it have represented a gender difference with regard to exposure to disease, or medical attention? How important was the role of female infanticide which was known to be common among several communities, both in North India and in the South but especially in the North?

We hope to defend our use of the sex ratios as a measure of gender differences in chronic hunger on the following counts. First, that the sex ratios represent actual proportions of the population in India is testified to by the work of Visaria (1968). In an analysis of trends and variations in sex ratios for different regions of India between 1881 and 1961, Visaria concludes that while the under-enumeration of females was a phenomenon affecting census returns especially the Northern states like Punjab and Haryana, the degree of under-enumeration was far too small to account for the deficiency of females across the country. Further, while the accuracy of coverage has been improving with each subsequent census, the sex ratio has been declining indicating that it reflects a real phenomenon. (See Table I). While sex selective migration does account for some of the masculinity of the ratio on an all India basis, the nature of migration in these states does not account for the deficiency. Since these Northern

24. We cause the term 'sex ratio' to denote, as most Indian authors do, the number of females per thousand males in the population. In other countries, it denotes the number of males per thousand female.

Table-1

Sex Ratios (Males per 1000 Females) of the Enumerated Population of India and Constituent States, Union Territories and Other Areas: 1901-1961.

State ¹	1901	1911	1921	1931	1941	1951	1961 ²
India	1029 ³	1037 ⁴	1047 ⁵	1053 ⁶	1058	1057	1063
Andhra Pradesh	1015	1008	1007	1013	1020	1014	1019
Assam	1072	1079	1101	1129	1129	1140	1141
Bihar	949	958	984	1006	1004	1010	1006
Gujarat	1048	1057	1059	1058	1063	1050	1064
Jammu & Kashmir	N.A.	1142	1149	1156	1151	+	1140
Kerala	996	992	989	978	974	973	979
Madhya Pradesh	1010	1014					
Madars	958	960	972	974	988	993	1008
Maharashtra	1022	1035	1053	1056	1054	1063	1068
Mysore	1017	1019	1032	1036	1042	1035	1043
Orissa	964	947	921	937	950	978	999
Punjab	1179	1239	1218	1205	1176	1166	1157
Rajasthan	1105	1101	1116	1103	1104	1086	1101
Uttar Pradesh	1067	1093	1100	1106	1103	1099	1100
West Bengal	1058	1081	1105	1124	1174	1156	1129
Union Territories and Other Areas							
Delhi	1106	1261	1364	1385	1399	1302	1274
Himachal Pradesh	1130	1106	1109	1104	1115	1093	1084
Manipur	964	972	960	939	948	965	985
Tripura	1144	1130	1130	1130	1129	1106	1073
Goa, Daman & Diu	927	912	901	9299	933	897	935
North-East							
Frontier Agency	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Nagaland	1028	1007	1008	1003	979	1001	1072
Pondicherry	N.A.	945	950	N.A.	N.A.	971	987
Sikkim	1092	1052	1031	1034	1087	1103	1106

¹ 1961 Territorial boundaries.

² The values for 1961 are calculated from data on p. 320 of the source cited below: for earlier years, femininity ratios are converted into masculinity ratios.

N.A. = Not available.

³ Excluding Jammu and Kashmir, the North-East Frontier Agency (N.E.F.A.) and Pondicherry.

⁴ Excluding N.E.F.A.

⁵ No census was taken in Jammu and Kashmir in 1951. The Census Commissioner for the 1961 Census has assumed, however, that the 1951 population for each sex was the arithmetic mean of that enumerated in 1941 and 1961. According to the 1951 Census, the sex ratio of the population of India as a whole, excluding the estimated population of Jammu and Kashmir, was 1056 according to the 1951 Census.

⁶ Excluding N.E.F.A. and Pondicherry.

states are the ones with the most pronounced masculinity of sex ratios, the inability of the migration thesis to account for the masculinity suggests that other explanations are required. Finally, the sex ratio at birth shows an excess of males, but by age one, greater male neonatal mortality evens out the ratio. However, thereafter the ratios tend to grow more and more masculine, reaching a peak between the age of 30-35, after which they even out. Visaria concludes that greater excess female mortality due to social discrimination is responsible for the low all-India sex ratio. Moreover the pronounced North-South differential in the regional variation in sex ratios is corroborated by data showing greater rates of female undernourishment and less access to health care among female,s especially in children in North India.²⁵

We can thus be fairly sure that the sex ratios represent trends in mortality by gender. The regional variation also points to the rootedness of mortality patterns in social structure. The sharp variations in gender differentials in mortality by region have also been studied by Miller (1981) Bardhan (1982) Harriss (1989) and Agarwal (1985) among others.

This view (viz. excess female mortality) is also held by various Census Commissioners (See Census of India 1891, 1901, 1911; Punjab 1901, 1911; Madras 1901, 1911.) The Reports of the Census attribute the unbalanced sex ratios to excess female mortality caused by female infanticide, deliberate neglect of young girls, or unconscious son preference. A number of other factors are also adduced: greater exposure among girls and women to tuberculosis, malaria and plague; and the "dangers" of the practice of early marriages and early and repeated child birth for the

25. Visaria uses data from the community studies in Khanna, rural Punjab to substantiate his point.

health of girls.²⁶ However, the greatest emphasis was placed on the neglect of girl children consequent upon a generalized son preference all over North India; as well as the practise of female infanticide among several communities.

This brings us to our next question regarding the use of sex ratios as an index of chronic hunger. How do we know firstly, that the ravages of disease, epidemics such as the influenza pandemic in 1918, were not responsible for the trends shown by sex ratios? Even if we allow that "independent" epidemics do occur, we would expect that the masculine sex ratio would occur only or most visibly in decades when there was an epidemic of a magnitude significant enough to skew the sex ratios, and selective enough to do.²⁷ This might have occurred in the decades 1891-1901 (when Punjab experienced a number of epidemic outbreaks, notably of malaria in 1892) and 1911-1921, when the influenza pandemic in 1918 across India. However the masculinity of the sex ratio across India, and especially in Northern India, was a

-
26. The Census Reports place an emphasis on the practise of early marriages that sometimes reflect an Orientalist concern with "savage" customs. However these explanations are also reflective of the centrality of control of female sexuality and female labour power for defining superiority between groups of men, between dominant and subordinate populations; and especially for the ideological justification of oppression.

"...the five or six years in question (i.e., the ages of twelve to twenty when the sex ratio is at its lowest) include (among the majority of the population) the first childbed, an occurrence notoriously dangerous to female life, especially where the wife is immature physically and where the obstetric methods in vogue tend to restrict survival to the fittest only, the arrival of the girl at puberty (is) an event that is almost invariably accompanied with certain ceremonies of an exciting character and entails other demands on the constitution... This period is a critical one for girls in India, if only on the ground of the demands on the nervous system. (Census of 1891: A General Report, p.248).

27. There is some evidence that the influenza pandemic caused greater excess mortality among female as composed to males. See the Census Reports (India 1891, 1901, 1911) as well as Maharatna (1996).

phenomenon that spanned the intervening and succeeding decades as well-i.e., 1881-1891, 1901-1911, 1921-1931. This indicates that it was a pattern occurring despite the occurrence of epidemic disease and in fact straddling the epidemic disease decades as well as the "normal" decades.²⁸ Similarly the total contribution of famine mortality was not of a magnitude sufficient to skew the regional sex ratios.²⁹ Finally, Alaka Malwade Basu (1989) suggests that differentials in access to health care might be as important as differentials in access to food in explaining the gender differential in non crisis mortality. However, this proposition is untenable given the nature of modern health care available to entire rural populations. Even in 1947. Health care being so rudimentary in the rural areas, we can hardly expect that in the late 19th century, males had the kind of access to health care that would make such a difference to relative mortality.

Finally, we examine the role of female infanticide which was especially predominant in North and North West India in creating a gender differential in mortality. The Punjab Census Reports mention the practise of female infanticide among groups such as the Gujars, the Rajputs and the Jats. Among groups known to practise

28. It is difficult to term any one decade as normal because although all-India mortality crisis such as the famines of 1876, 1896 and 1899 did not occur in all decades, there were scarcities, famines and elevated mortality rates confined to a particular region in almost all decades.

29. See Klein (1984). *When the rains failed : Famine, relief and mortality in British India*, IESHR; 21,2. The thrust of Klein's argument is that while a more liberal famine relief policy contained the excess mortality caused by non food price after 1908, famine relief could not have been the cornerstone of the mortality decline that took place after 1921. The reason for this was that ordinary mortality levels were so high that the 'excess' caused by famines could not have been so drastic that its prevention could lead to such a decline. Instead, the demographic transition that took place after 1921 must be attributed to a substantial decline in ordinary i.e., non crisis mortality, from ordinary disease.

female infanticide, the sex ratio was indeed noticeably masculine.³⁰ However by the end of the 19th century, colonial administrator in different parts of the country had mounted a stringent campaign against female infanticide. By 1901, the census Report was confident in its assertion that outright infanticide was rare. Because of the nature of the crime, its location within the domestic sphere which the authorities were reluctant to enter into; the ambiguity and variety of methods used; and the secrecy surrounding its practice, it is perhaps difficult if not impossible to know the full extent of the practice. On the other hand, while only some communities were known to practise it, the sex ratios for the entire region (i.e., the Punjab) are masculine, including groups among whom female infanticide was non-existent, such as the Chamars and the Chuharas.

Finally, the age specific sex ratios show a dramatic decline in masculinity between the ages of twelve to twenty years, which occur even for groups which did not appear to have under reported the number of girls in this age group and which clearly cannot be attributed to female infanticide. Moreover, female infanticide cannot be completely distinguished from mortality due to hunger, in as much as little girls were often deliberately starved with a view to cause death.³¹ While the acute starvation that caused death in these cases can be distinguished from low nutritional intake over a period of time, the social valuation of female life which lowered life chances for women is an underlying thread that makes such a distinction difficult and hazy.

30. For example, Jats of all three religions (i.e., Hindu, Mohammedan and Sikh) had sex ratios of under 900 females per thousand males. Gujars, Hindu and Muslim, had sex ratios of 862 and 766. (Census of Punjab 1911, p.205).

31. *Census of Punjab*, 1911, p.230-235.

Thus one may conclude that the regional variation in sex ratios which occurs consistently over the Census years expresses a regional variation in relative survival chances of women and men. Moreover, these survival chances are strongly influenced by differences in nutritional status and in the incidence of chronic hunger. The North-South differential in non-crisis mortality that we note from Table 1 thus must be seen as an underlying basis for explaining the differential in crisis mortality.

Before we go on to examine the social logic that underlines variations in the incidence of hunger and mortality, we need to specify what it is we are looking at. The explanations for the North-South differential in non crisis mortality is substantiated by its occurrence across a number of states/regions in North or South India while we are seeking to explain the gender differentials pertaining to two specific instances of famine. It might well be that these instances either one of both-are aberrations and therefore do not represent a North-South differential as much as local variations in the epidemiology of hunger and famine. While the scale or level at which we look at the differentials is admittedly too broad to permit a refinement of detail, the fact that the 'Northern' pattern is represented by the famine of 1907-1908 in the United Provinces and the 'Southern' pattern by the famines in Berar and Bombay in 1896 and 1899 lend some weight to this assumption.

The next section will examine the gender differential in non crisis mortality as a reflection of a particular social logic. In other words, it seeks to critically review some explanations for the North-South variation in relative female survival.

II *THE SOCIAL LOGIC OF GENDER DIFFERENTIALS IN CHRONIC HUNGER: SOME EXPLANATIONS*

Why are girls more discriminated against the North India as compared to South India? The regional variation in non crisis mortality differentials by gender have been attributed to a number of factors. The Census reports echo Darling (1925) in the connections they draw between hypergamy, caste and relative female survival. The connections between hypergamy and female survival which form the basis of theories such as Dyson and Moore's theory linking female survival to the relative of women within a particular kinship system.

The Census Reports are clear that hypergamny and ruinously expensive dowries paid by a bride's father are the chief causes of low female worth in North India. On the other hand Bardhan (1982) and Miller (1981) link female survival to the worth of women resulting from the difference degrees of female participation in cultivation in different ecological zones. Before we go on to discuss the validity of each of these theories, it is however necessary to discuss the evidence on gender discrimination in access to food within the household within these regions. While the sex ratios summarize relative survival at an aggregate level, it is necessary to penetrate beyond the aggregate level to the place wherein access to food is mediated: i.e., the household.

Evidence on gender discrimination within the household is mostly available from a number of small scale community studies in the post independence period. Chen, Huq and D'Souza (1981) find evidence of gender differentials in access to food within the household in Matlab, Bangladesh. Similarly, there is evidence of discrimination in rural Punjab with regard to medical treatment and clothing. However, the birth order of the child is also important in considering discrimination: a

first born is likely to be given much attention irrespective of its sex. Similarly, a girl child born after two or more boys receives far more attention than one born earlier.³²

The Census Reports of Punjab, which historically had the lowest sex ratios, report discrimination from infancy with regard to the "early weaning of girl children in order that a male child may be conceived" (Punjab 1911,p.224), with regard to food given to children of different sexes-

"(Boys) are usually given more nutritious and fatty foods and delicacies while (girls) rarely partake of any luxuries" (Ibid., p.231.).

Between the ages of five and seven:

"...the treatment of girls during this age period is by no means congenial and it is during this stage of life that the children have generally to bear the attacks of measles, smallpox and other diseases. The neglect of the earlier years begins to tell now and the female children become more susceptible to attacks, "(Punjab 1911; p.232.)

Similarly the 1891 Census of India Report remarks that "...many a girl is allowed to die unattended, where medical aid would be at once called in if the son were attacked." (p.247).

The Census Reports have their drawbacks as sources of reliable information on the customs of people inasmuch as such reporting as took place was heavily coloured by the Orientalist assumptions of the compilers. However, the repeated reporting of such instance of daughter neglect, corroborated by community studies done in the post independence period, do provide us clues as to the existence of such neglect in North India.

32. See Dasgupta (1987) *Selective Discrimination Against Female Children in rural Punjab, India*, Population and Development Review, vol.13, no.1, 1987.

Barbara Harriss (1989) reviews the literature on intra household distribution of food in India. She finds some evidence of gender discrimination mostly in North India. This evidence is strongest for young girls and to some extent elderly women. Harriss stresses the point that class differences are important in understanding the gender discrimination in entitlement to food and access to health care.

Class differences between groups in the social valuation of individuals are a significant factor in understanding the distribution of hunger.

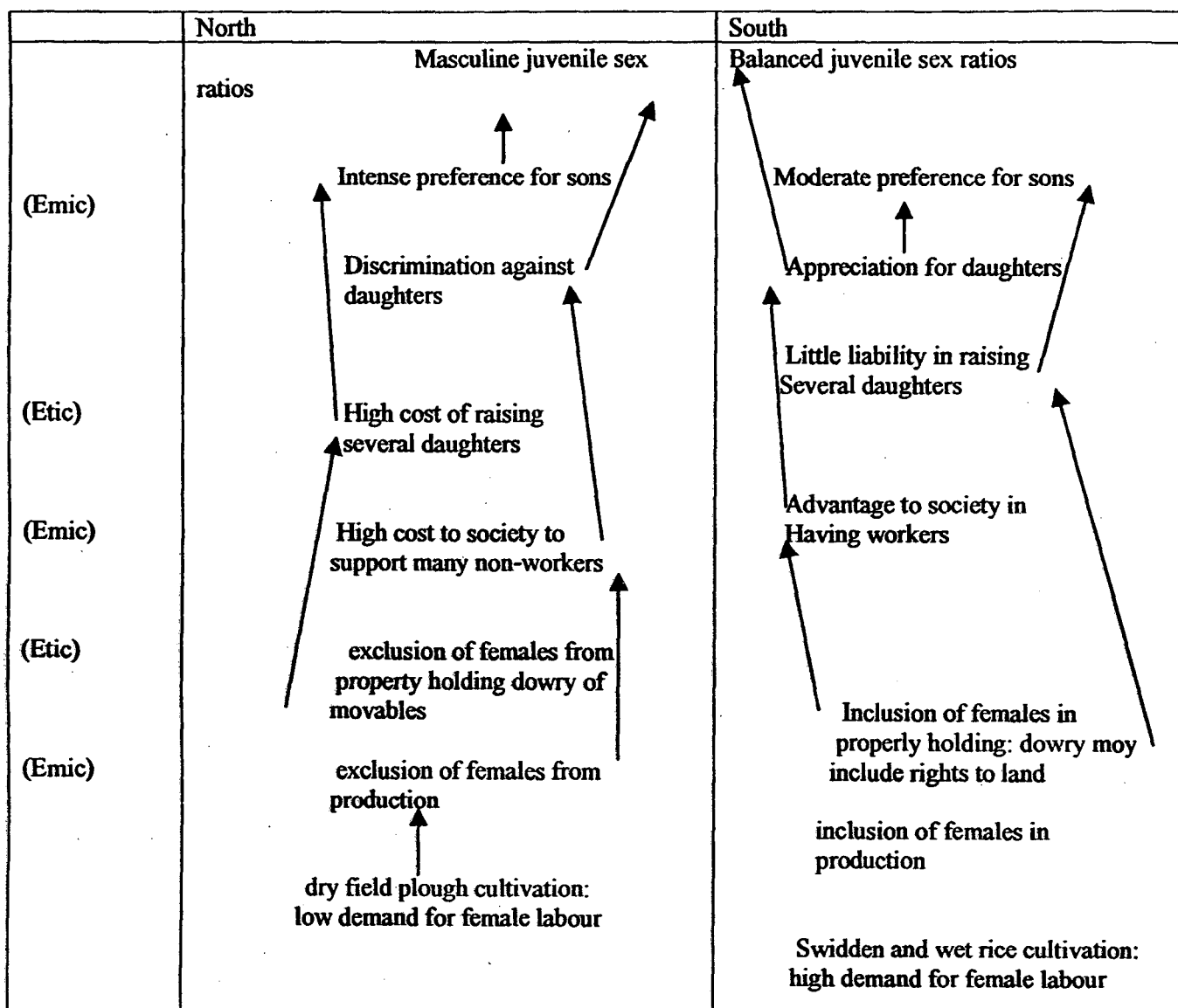
Yet, the evidence is complex and often contradictory Krishnaji (1984) finds that the sex ratio varies with landholding size indicating an inverse relationship between class and female survival. On the other hand, this may not represent higher female status among poor households as much as extremely high mortality among both males and females. Moreover Agarwal (1985) finds that a significant proportion of poor households are female headed; and that poverty is a result of the structural disadvantages that women face in the economy. Moreover, the better relative survival of women in poor households may not be linked to their labour participation as much as to caste factors which influence the structure of the labour market, especially for women.

Explanations for the North-South differential in relative female survival have tended, however, to neglect both issues of caste and poverty in their analysis. Moreover, these explanations (briefly elucidated below) have tended to discuss the differential in terms of an artificial distinction between 'economic' and 'cultural' factors, restricting the question of relative survival to one of unilinear causality.

An explanation for the North-South differential in female survival first propounded by Bardhan (1974) and schematized by Miller (See Table-2 below) posits

Table-2

Production, property and population in India: a north-south model



Source: Miller (1981) in Harriss, B and Watson, E (1987).

the regional variation in relative female survival as consequent upon the relatively higher demand for female labour in wet paddy cultivation which predominates in South India. Opposed to this is dry wheat cultivation in the North which demands relatively less female labour because the tasks involved require more muscle power and less delicate and skilled operations (such as transplanting) as compared to paddy cultivation. The differences in female worth arising from this differential demand lead to greater discrimination against females in the North and results in lower relative female survival. Miller's model looks at the interaction between agricultural ecology and labour market, on the one hand, and the nature of property holding i.e., social institutions governing ownership, use and disposal of property. Thus, in South India, the economic value of female children in paddy cultivation gives rise to a system of bride price rather than dowry among the laboring classes. Female children are both a valuable source of labour and a source of marriage payments to their natal families. Among propertied classes, dowry might include rights in land. The high female worth or value that arises from female labour participation modifies the extent of son-preference in North India. Further, in North India, low female labour participation leads to low female worth and exclusion from property holdings. Intense son preference and discrimination against daughters result in low female survival chances.

This model runs into several problems, the most important of which pertains to its neglect of caste in structuring the labour market, and the labour market as involving factors that pertain both to demand and supply of female labour. As Harriss points out, caste status is often inversely related to female labour force participation within high caste households. What is also important is that the social composition of a population may permit an exclusion of females in high caste households from the labour of

cultivation. There is a crucial linkage between caste structure and labour supply inasmuch as female participation in cultivation is common and necessary for subsistence among low caste households, but the land they cultivate is not their own.³³ The dependence of the lower caste population on agricultural wage labour thus becomes an ideological justification for their low rank, while also lowering the gap between male and female survival. The caste profile of a population (and more importantly the caste dominance structure) will be significant in determining female labour force participation. High caste groups generally have low female labour participation rates as well as low sex ratios. However this particularly applies to the South Indian states where dominance was traditionally based on ritual superiority. Thus even in regions where paddy cultivation predominates, the relationship of ritually high castes with those dependent on agricultural labour determines the nature of the market for female labour.³⁴

This points to the possibility that ecological differences can explain differences in social structure, but in far more complex ways than a simple link between demand for labour within an ecological setting, and survival. Historically, regions with different ecologies developed in different ways with regard to their cropping patterns, land ownership and tenures, demographic structure and markets.

The singular importance of water resources in defining landscapes and in a sense in determining social histories in different parts of India has been highlighted by

33. Thus the relations of power between households of different castes would be significant in explaining the level and extent of female labour participation. See Harriss and Watson, (1987).

34. *Ibid.*, See also Chakravarti (1992).

different authors in the context of Madras and Punjab.³⁵ Historically the 'dry' areas (i.e., those dependent on rainfall for cultivation) had some important similarities in the trajectories of social development they followed. In Madras, the dry areas covered most of the Deccan districts and some of the Andhra districts. These included the districts of Kurnool, Bellary, Cuddapah and Anantapur. Also included were some Tamil speaking areas such as Salem and the Arcot districts. These areas were sparsely populated and the most vulnerable to devastation from famine. On the other hand the coastal regions such as Ganjam and Vishakhapatnam were relatively better off, as were the Nilgiris.³⁶ The regions of paddy cultivation were those in proximity to rivers, such as the Kaveri delta, the Tambraparni Valley, and Tanjore district which was situated on the coast and enjoyed abundant rainfall. In contrast, the dry districts grew proportionately higher amounts of "inferior" cereals such as ragi, cholam and cumbu which tended to require little labour and other inputs, including irrigation.³⁷

In terms of caste networks and the control of resources, it is important to note that in Madras the wet regions such as Tanjore district had proportionately the highest concentration of Brahmins in terms of population.³⁸

Moreover, districts such as Tanjore also saw the control of rich wet lands by Tamil Brahmins.³⁹ The number of inam tenures which were concentrated in Brahmin hands was also highest in the wet districts. Yet, this does not warrant the conclusion

35. See Ludden, D. (1985) and Wahi, T. (1997).

36. See Lardinois (1985), Whitcombe (1992) and the *Madras Famine Review*, (1878).

37. See Ludden, D. (1985); Baker, C.J. (1984).

38. *Imperial Gazetteer of India Provincial Series: Madras (1903)*

39. Ludden, D., (1985); Ramamurthy, P.,(1993).

that the dry districts were any more egalitarian in terms of social structure. The irrigated or wet districts were marked by a caste hierarchy that emphasized a degree of mutual obligations between the mirasidars or titleholders and the tenants, agricultural labourers and artisans, the dry districts prior to British rule were characterized by the exercise of military force by the palaiyakkarans or poligars. The poligars were non-improving landlords who extracted produce from the cultivators. Cultivation in dry regions became more dependent upon non-agricultural moneylenders to pay revenue demands due to the insecurity of rainfall irrigated agriculture. Washbrook (1978) holds this dependence responsible for the early commercialization of the dry regions, since it was the moneylenders who dictated production decisions to indebted tenant cultivators. The shift to cash cropping which created markets for cotton, paddy and groundnuts led to the increased vulnerability to famine in the dry regions. On the other hand, pre-British centres of economic importance such as Tanjore tended to fall into decline by the end of the 19th century with the eclipse of the traditional elites who had controlled their social economy.

A similar contrast seems to have marked three ecological regions in the Punjab. These included the dry, arid South-East; Central Punjab which received moderate rain and was irrigated by wells; and finally the canal colonies where two crops every year was normal because of the assured water supply.⁴⁰

The South-east districts of Rohtak, Hissar, Gurgaon, Karnal and to some extent, Jullunder and Ambala, cultivated crops such as jowar and paddy. Holdings were large and wages of agricultural labourers tended to be marginally higher than in central

40. See Bhattacharya, N., (1985a).

Punjab. Yet employment was not assumed for the entire year due to the insecurity of the harvest. The canal colonies came to be hold-up as the example of successful capitalist farming as a result of British rule. Yet, Ali (1989) opines that productivity was not fully realized in the Punjab because most of the allotments were made as rewards to defence personnel for services rendered in war; many of these grantees sublet their plots to tenants or did not fully utilize their productive potential. Eventually, the dry, sparsely populated districts which were vulnerable to famine in the 19th century went on to become the heartland of independent India's Green Revolution in the 1960's and 1970's. That the 'dry' districts in both regions supported a social structures that allowed for cash cropping and capitalist farming in later decades points to the need to look at ecological differences as creating different kinds of balances between demographic, economic and cultural factors. It is also interesting to note that the sex ratios in some of the dry districts of Madras Presidency (Nellore, Kurnool, Bellary, Cuddapah, Anantapur, Chingleput, and Chittoor)⁴¹ showed a tendency contrary to the rest of the presidency in the 1911 census of Madras. In these districts, the sex ratio favoured males. This would imply on first glance that Bardhan's thesis as regards the low demand for female labour in dry regions and correspondingly low worth holds good. Yet, as we have seen, the structure and conditions of the labour market are determined by a complex interaction of factors. We have just looked at the kind of influences within the colonial experience that conditioned the economy of these regions. The dry, sparsely populated areas of each region created the conditions for the

41. The list also includes Banganapalle, Guntur and the Nilgris.

penetration of capitalist social relations and the adoption of commercial farming methods and new technologies.⁴²

A study of the social effects of the introduction of HYV seeds in three rice growing states Andhra Pradesh, Tamil Nadu and Assam-indicates that while HYV technology raises the demanded for hired labour of both sexes the increased prosperity of households which adopted HYV seeds led to a withdrawal of female family labour from cultivation.⁴³ Similarly, Atchi Reddy (1983) documents a fall in the number of 'Maletas' (who were female farm servants employed on a seasonal basis in 19th century Nellore) from 1940 onwards with technological advancements. Reddy also notes that females agricultural labours were paid higher wages than male labourers in transplanting but lower wages for male dominated tasks like ploughing.

Yet, the demand for female labour or changes in women's employment under capitalist agricultural cannot explain all of the variations in relative female survival. For example, among the Jats of Punjab, female labour participation in cultivation of the family farm is a common feature.⁴⁴ Yet sex ratios among the Jats are very low and

42. In Madras, Baker (1984) looks at the introduction of new varieties of cotton groundnut and rice that led to a commercial boom in the mid nineteenth century. (See Baker Ch.3 and 4.).

43. See Agarwal, B., (1984).

44. M.L. Darling's much - quoted statements regarding the Jat wife are reproduced here "...The Jatni is an economic treasure... she does not plough, dig or drive a cart, but there is no other form of agricultural labour which she does not practise... the Jat's wife not only brought her husband his food in the fields but helped him to sow and to weed, to pick the cotton and feed the cattle." Darling (1925), p. 35.

this is especially pronounced in case of the Sikh Jats.⁴⁵ Further the Jats were one of the groups suspected of female infanticide.⁴⁶ Thus even if we do take into account the "economic" factors structuring female worth in the dry regions, we do not account for differences in caste structure and status in determining the entitlements of women of different class and caste groups.

A similar problem crops up with regard to Dyson and Moore's theory that difference between North and South India with regard to kinship structure and relative female autonomy account for gender differentials in survival.⁴⁷ According to the authors, there exist two demographic regimes corresponding to two different socio cultural patterns characterizing North and South India. The North and North-west regions are characterized by higher rates of marital fertility, high child mortality and a sex differential in mortality that favours males. While Punjab corresponds to the broad Northern pattern, it is marked by a later age at marriage and lower overall mortality than other states like Rajasthan and Haryana. On the other hand, south and east India are characterized by low fertility, late marriage, higher rates of non-marriage, lower child mortality and a mortality pattern that does not mitigate against female survival.

Secondly with regard to gender relations, North India is characterized by the prevalence of exogamous marriages, extended degrees of prohibited marriages and the

45. The following figures are taken from Chapter IV of the Census of Punjab 1901, p.205:

Religion(Jats)	Total Population (000's)	Females per thousand males
Hindu	1505	793
Sikh	1398	751
Mohanmedan	2030	852

46. Census of India (1891), A General Report, p.246.

47. See Dyson, T. and M. Moore (1983).

inheritance of property through the male line. Males tend to co-operate with and receive help from other males to whom they are related by blood. Thirdly, women do not inherit property for their own use and nor do they act as links through which major property rights are transferred through offspring. Finally there is a ritual hierarchy between wife givers and wife takers. This means that

- (a) Women are married into distant families because the principle of exogamy prevails.
- (b) The young wife is viewed as a threat by her natal family due to the inheritance through agnatic males.
- (c) Because women are out-marriers and because of the ritual inferiority of wife givers, parents can expect little help from married daughters who indeed are a drain on family resources.
- (d) Finally, the control of female sexuality and chastity is central to the stability of patrilineal groups. Under this system, women have far less ability to control their fertility. In contrast, South India manifests a pattern of endogamous marriages with preferred marriages being between close kin. Women may inherit property. They are far more likely to be married to known persons in familiar households near their natal homes. Further, daughters are more likely to be on hand to render support to parents, in later years. Thus, the 'Southern' kinship system gives women far more autonomy than the 'Northern' system where women are unable to act to control their own health through the control of their fertility and they are unable to act in favour of their female children to alter existing patterns of son preference. Dyson and Moore's theory is flawed in two crucial aspects. Firstly, it generalizes the 'Northern' or 'Southern'

patterns across all caste and class groups, implicitly taking the patterns manifest in landowning groups like Rajputs to represent the 'Northern' pattern; and ignoring the existence of groups which paid bridewealth in the nineteenth century (such as Jats). By no means does the 'Southern' pattern hold good for all groups either. Secondly, Dyson and Moore see the differing degrees of personal autonomy of women as determining female survival. However 'personal autonomy' seems to be defined solely in terms relating to a woman's control of her fertility. Thus, Northern Indian women have less autonomy because early marriage and decisions relating to a woman's sexuality are made solely by males in authority. By implication, Dyson and Moore link female survival merely to the avoidance of childbirth and marriage; or to a woman's ability to avoid neglecting her daughters in favour of her sons. In doing so, they restrict the range of activities that condition survival among women. Also, the implicit assumption is that given more 'autonomy' women would make personal decisions not to discriminate against their daughters. We have already seen the case of the Jats. By the end of the 19th century, they had become the dominant caste in the Punjab.⁴⁸ Among the Jats, while a certain degree of laxity with regard to sexual mores was allowed to women, the range of extra-marital relationships or remarriages among widows was restricted to males within the extended patrilineage.⁴⁹ Moreover, it is difficult to concede that high levels of fertility result solely from a desire for sons. Also, we do not have evidence that such a desire for sons is characteristic only of *males* within the

48. See Banerjee, H.,(1982).

49. Hershman, P., (1981).

family. Finally, Chakravarti (1993) analyses the political economy of social constructions of widowhood in North and South India. She presents far more evidence that caste, rather than a unitary kinship system, condition controls over female sexuality. Moreover, there are more commonalities with regard to 'marriage and controls on female sexuality between the ritually high castes in different parts of India; and between untouchable and agricultural labour castes in North and South India, than castes within a region. Chakravarti analyses the contrasting construction of widowhood between the Rajputs and Chuhras in North India, on the one hand. On the other, she contrasts the constructions of widowhood of the Havik Brahmins of Malnad with those of the agricultural labourers who work for them. More severe restrictions on women in general, and especially widows, among the ritually high castes, is seen by Chakravarti as reflecting not just different patriarchies between high and low castes, but part of an overarching structure of dominance where female fertility and sexuality are central both to symbolic and material bases of dominance. Underlying the restrictions on female sexuality and paid work among both Rajputs and the Havik Brahmins was the singular importance of land as a means both of wealth and power. Control over the symbolic and material resources in an agrarian society necessitated both the availability of a large supply of wage labour as well as restricting the fragmentation of landholdings among landholding high caste groups. This latter objective was achieved through restrictions on female fertility through the control of female sexuality. On the other hand, the dependence on wage labour among the untouchable and agricultural labour castes meant that control of fertility was not crucial to their subsistence. In fact,

the greater 'autonomy' among women with regard to their fertility as manifested by less severe prohibitions on widow remarriage and neolocal post-marital residence provided an ideological basis for their low ranking while also providing a continuous labour supply for the high caste groups.

Thus, Chakravarti sees the consolidation of control over land among both the Rajputs and the Havik Brahmins as resulting from restrictions on female sexuality among them which reduced the pressure of numbers on land. At the same time, controlled or repressed female sexuality was an important symbol in defining superiority. Yet Chakravarti's analysis is problematic because of its implicit assumption that biological reproduction is more rapid among groups where female sexuality is not "controlled", and that the supply of labour is achieved primarily through the fertility of poor and low caste groups. This formulation does not look at the other side of the demographic equation - i.e. mortality among groups who subsist on agricultural labour. Mortality differentials would also be crucial in relations of power.⁵⁰ In Clark's analysis, the Kanbi Patidars gradually consolidated the hold of their caste as a whole over the agrarian economy of Gujarat in the 19th century. The practise of female infanticide was central to their strategy of dominance. Female infanticide among the elites within the caste limited the supply of women who were in demand for hypergamous unions with the lower Kanbis. This limitation of supply increased their value and also prevented hypergamous unions outside the caste. In doing so, the Patidars managed to prevent the fragmentation of landholdings outside the caste. Further, through the practise of female infanticide, the Kanbis as a caste heightened their symbolic status within a region as a whole.

50. See Clark, A., (1983).

Clark's analysis combines the role of female fertility and mortality differentials in an analysis of dominance. Sex ratios among the Patidars continued to be low despite marriage reforms instituted by British administrators. Clark attributes this to a combination of reciprocity and partial hypergamy where internal stratification, within the caste created a sharp difference between the high status and low status Patidars. While the lower ranking Patidars began to marry their daughters into families of equal rank, they still aspired to hypergamous unions with the high caste Patidars. Thus, a man could simultaneously pay bride wealth and dowry because of the significance of hypergamy as a strategy of upward mobility. Also, the practise of hypergamy and reciprocity within the caste served to prevent marriages of daughters into families of Kolis - the other major caste of the region - and prevent alienation of land to these castes. An important thread running through the work of Chakravarti and Clark is that female survival is linked intrinsically to the significance of female sexuality and fertility not just within the household but as part of relations of dominance between caste and class groups. This aspect of dominance does not appear in Dyson and Moore's paper. Moreover, the difference between their work and those of Chakravarti and Clark is that Dyson and Moore see high female fertility as a threat to the individual women, but as beneficial to the patrilineage. On the other hand we see that female fertility is a threat to the patrilineage among groups for whom control over landholdings is crucial for dominance. Thus patterns of access and distribution of food within the household must be seen as "reflecting the strategic political calculations of units larger than the household," as Clark (1983) emphasizes. Thus while intra household discrimination with regard to the access and distribution of food are the proximate determinants of differentials in hunger, and therefore of mortality, households are part of a larger set of relations of production and reproduction involving symbolic and material resources.

We noted earlier that there is evidence of a greater degree of gender discrimination with regard to the allocation of food within the household in North and Northwest India. The discussion above implies that we must therefore look to the social context within which greater inequity in the distribution of household hunger takes place in Northwest and North India as compared to South India.

III. *THE SOCIAL CONTEXT OF GENDER DIFFERENTIALS IN CHRONIC HUNGER*

1) **Madras in the Nineteenth Century**

Madras Presidency came under colonial rule much earlier than Punjab (i.e., in 1802 and compared to 1849 for the latter). The literature on the social structure of southern India and the changes effected in land tenure and revenue systems, class structure, commercialization, social relations, etc., is vast, so we shall restrict the following discussion to a few aspects. These include the caste composition of the agricultural labour force and how these condition the gendered distribution of household hunger.

The agricultural labourers formed a significant section of the Presidency. Dharma Kumar estimates that by the end of the 19th century the agricultural labour force constituted 17-25 per cent of the population; as against 15-20 per cent in 1800.⁵¹ To a large extent caste was continuous with occupation in the Presidency; also agrestic serfdom occurred as a hereditary caste characteristic in almost all districts. While these castes were in a position subordinate to the landowning mirasidars and the cultivator-tenants, they nevertheless obtained wages in kind along with other

51. Kumar, D., (1965), pp.171-180.

perquisites. For instance, Dharma Kumar (1965: p.144) notes that "At the beginning of the nineteenth century it is clear that the wages of both attached and casual labourers was generally paid in grain, apart from perquisites in the form of clothes and money." Especially in the wet regions, where the shift from wages in grain to wages in cash took place later, these labourers can be said to have had a minimal level of food security in the early nineteenth century which tended to collapse in times of scarcity.

Dharma Kumar attributes the growth in the number of agricultural labourers between 1800 and 1900 entirely to demographic increase. She substantiates this argument with evidence of the declining land-man ratio and the steady downward trend in wage rates.⁵² While providing unmistakable evidence that the conditions in which these agricultural labourers lived deteriorated at least between 1850 and 1900, one may question whether this decline in living standards was due to demographic increase. The land man ratio does not tell us about pressure on resources. During this period, the commercial production of paddy, sugarcane cotton and groundnuts was increasing both in volume and value. One can infer that at least during this time, productivity had not started declining.⁵³

In Madras province, the rate of population growth began to overtake food production only during the early twentieth century.⁵⁴ Dharma Kumar suggests that for

52. *Ibid.*, (p.164: Table 21). In seven districts, the annual wages of agricultural labour between 1873 and 1900 moved as follows (in seers of common rice): Ganjam : 1081 to 512; Tanjore: 735 to 572; Coimbatore; 826 to 450; Vizagapatam 820 to 383; Tinnevely 993 to 521; Bellary 626 to 472; Salem 506 to 383.

53. See Baker, C.J. (1984). In Chapter 4, Baker describes the increase in the volume and value of paddy, groundnut, sugarcane and cotton production and marketing that took place between 1880 and 1890. Since the expansion in acreage depended on labour and not capital intensive cultivation, the reasons for the wage decline must be sought not in a squeeze on resources but elsewhere.

54. See Mody, A., (1982).

the century as a whole, the change in wages and perquisites may not have been of the pitch that the changes in wage rates indicate, since we have little evidence that indeed the perquisites were given to labourers in all cases. Yet we cannot avoid the conclusion that at least for the last quarter of the century, there was a downward trend in the entitlements of agricultural labourers.

With regard to the relationship between caste and agricultural labour Dharma Kumar points out that most labour connected with cultivation was performed by agrestic serfs or castes with the traditional occupation of wage labour. The relations of production in Madras-unlike Punjab-were governed to a large extent by the distance of the high caste (often Brahman but also equally the substantial trading and castes such as Vellala and Kapu,) proprietor from the physical labour of cultivation.

While the Brahmins controlled production in the rich irrigated wet lands such as Tanjore, the dry districts were controlled by these other castes. The low or untouchable castes such as the Malas, Madigaas, Paraiyans, Holeyas, etc were found in all districts, but their wages and terms of service varied widely.

With regard to the decline in wages over the last quarter of the nineteenth century, we see that the decline in Salem and Bellary was only of the order of 13-20 per cent while in Ganjam and Vishakhapatnam, which escaped the famine of 1876, the decline in wages was 42-48 per cent.⁵⁵ This difference could be spurious. On the other hand it could represent the demand for labour in the dry districts which were experiencing a commercial expansion.

55. Kumar, D., (1965), pp.164-167.

Gender, Caste and Household Hunger

We saw in the work of Chakravarti that the control of female fertility and sexuality were important both for the symbolic and the material dominance of the Havik Brahmans over the agricultural labour castes. However, among the agricultural labour castes, the control of fertility and female labour were not only irrelevant but also possibly less conducive to overall subsistence of the household. Moreover, Chakravarti notes that instead of the extended male headed joint family that characterized the Havik Brahmans, the untouchable labour household was nuclear and often neolocal. In Saradmoni's study of women's role in rice production in Tamil Nadu, the female padiyal often subsidized her husbands work in the household of cultivating peasant or Brahmin.⁵⁶ More equitably distributed hunger within the household of the agricultural labourers in the face of declining wages seems to have resulted from caste and occupational influences on female worth. This is corroborated by sex ratios among most labour castes that were favourable to female.⁵⁷ On the other hand, the Goudas

56. Saradmoni, K. (1987) *Labour, Land and Rice Production: Women's Involvement in Three States EPW XXII, 17, April 25, 1987*. In the article, Saradmoni paraphrases the results of a survey in Tamil Nadu where in many villages, the male padiyal's wife does all the non agricultural work required of him for no additional payments. In one village, the padiyal's wife was expected to do the weeding transplantation and harvesting in the landowner's field as part of the padiyal's contract.

57. The sex ratios of some castes in 1911 were as follows: Holeyas (1105) Malas (1312) Paraiyans (1057) Cherumans (1105) Tamil Brahmin (982) Telugu Brahmin (994) Nambudri Brahmin (966) Canarese Brahmin (1026) Oriya Brahmin (1071). However, when castes are separated out by linguistic region, the difference between the labouring groups, and the dominant landowning or Brahmin castes, narrows down or disappears. Thus among some Tamil castes, the sex ratios are as follows: Brahmins (1012) Paraiyans (1049) Chettis (1048). Among Telugu speaking castes, the ratios are as follows: Boyas (965); Balijas (1023); Besthas (995); Brahmin (1010); Komatis (993), Malas (1021) Madigas (990). Malayali Brahmins have a sex ratio of 835; the Cherumans 1101. Canarese Goudas have a sex ratio of 972 as against 1049 for Brahmins, 1225 for Holeyas and 1075 for Vokkaligas. (Source: Imperial Table IV/IVA, Census of Madras 1911, p.93-94).

and the Komatis had low sex ratios. These were prosperous landowning or trading groups of middle but dominant caste. Low sex ratios occur in far more of the Telugu castes than the Tamil, Oriya or Canarese castes, a factor that could be attributed to the fact the dry regions of Anantapur, Bellary, Cuddapah and Kurnool were Telugu areas. Also among Vellalas who were a fairly large cultivating caste, sex ratios were favourable to women.⁵⁸ This indicates that it is difficult to generalize any one reason for less or more discrimination against girls or women without reference to local and regional histories. Yet, the differences in female survival, and by inferences, the intra-household distribution of hunger, is most clearly marked between the Brahmin groups and the agricultural labour castes on the other hand. But it also appears that the dry districts with their low concentration of Brahmins and preponderance of successful trading groups were the most adverse to female life. This would contradict the theory that gender discrimination stems entirely from Brahmanical patriarchy. Yet, it does not contradict Clark's theory that discrimination against girls, including but not restricted to infanticide is a part of the process of consolidation of caste control and dominance over the political, economic and symbolic resources of a particular economic and historical formation. The limitation of women seems however, to have been restricted to the relatively better of communities in the region. Within the agricultural labour household, hunger seems to have been an equitably shared phenomenon.

However, we are not clear about whether this represented lower female mortality, and better survival, or just a smaller gender gap within a larger set of relations of dominance. To the extent that these classes did not enjoy any upward economic mobility over the 19th century that would have allowed for a higher

58. Vellalas had a sex ratio of 1032. (Source: See Footnote 57).

nutritional status, we can assume that the lower gender differential in household hunger represented the latter. While the female component in rice cultivation was fairly high, this also relates to the overarching relations of dominance between castes. Hunger was a widespread phenomenon; yet the brunt of it was shared by the members of a household family equitably. On the other hand, distribution and allocation of food seems to have been for less egalitarian with regard to age differentials, as the famine mortality figures shows (See Chapter II).

Moreover, when we look at the utilization of famine relief, we see consistently greater numbers of women availing of gratuitous relief in poor houses.⁵⁹ Although we do not have figures differentiated by gender for those employed on relief works, Arnold corroborates this evidence and attributes it to the fact that a member of ryots as well as agricultural labourer suffered distress during the famine. Among the ryots, caste consciousness made the males within the cultivator households reluctant to partake of gratuitous relief in mixed camps. Women however were sent to the camps as loss of caste status in their case was seen as not a considerable loss.⁶⁰ Female status thus seems to have followed not quite the same rules as male status. Moreover, the control

59. See *Madras Famine Review*, (1878), p.162.

60. See Arnold, D., (1984),p.108. Arnold remarks that:

"Among low caste and untouchable communities it was common even in normal times for women and children to perform manual work in the fields and on earth works and roads. Since a large proportion of those on relief came from these communities it was not surprising then their women and children were well-represented among those seeking work and food. Among the caste-conscious raiyats however their extreme reluctance to accept state charity or enter relief works appears to have been partially overcome by sending women and children instead. This represents (one way) in which the raiyats transferred part of the burden of famine to subordinate social groups, in this case women and children."

of women is crucial to determining class status as well as ritual superiority. Greater female survival seems to have resulted from a structure of dominance and power which while leading to the downward economic mobility of a large section, did not require the suppression of female fertility through greater female mortality.

Punjab in the Late Nineteenth Century

As noted earlier, one main contrast between Madras and Punjab was the ideology of "khudkasht" or self cultivation that prevailed in the Punjab.⁶¹ Prior to the period of our study, there was a class of non-cultivating zamindars belonging to the Rajput or Gujar castes. By the time of the Annexation of Punjab in 1849, and during the first few years of British rule, the image of the lazy and dissipated Rajput Zamindar was contrasted with that of the industrious Jat on Arain who tilled the soil himself, a distinction that according to Bhattacharya (1985a) was largely based in truth.⁶² The Jats went on to become the dominant landowning caste by the end of the century.

From the time of Sikh rule a large proportion of land was under tenancy cultivation. Prior to the annexation most tenants were the descendents of people who had helped the Zamindars clear the land.⁶³ Attempts by early British administrators to discover who "owned" the land led to many changes in agrarian relations. Many tenants who had enjoyed rights of occupancy became mere tenants at will while at the same time, attempts to settle the land in favour of the cultivation owner led to the decline of rent zamindars families. Towards the end of the century, rising rent rates had impoverished many tenants. The expansion of trade in foodgrains (especially

61. See Bhattacharya, N., (1985a).

62. *Ibid.*

63. Banerjee, H. (1982), p.142.

wheat, cotton, sugarcane and paddy),⁶⁴ the commercialization of agricultural produce and of land;⁶⁵ and the establishment of the canal colonies which raised yields substantially, contributed to a picture of successful capitalist farming and a rise in standards of living that British officials held up as evidence of state-sponsored prosperity.⁶⁶

Yet Mukherjee (1985) points out that the Punjab exhibited features of backward capitalism and forced commercialization inasmuch as cultivators were drawn into the commercial sale of land and produce not by choice but as a result of their indebtedness.

The process of commercialization was different from that exhibited in other provinces, but nevertheless had the same import for those who were economically vulnerable or unable to dominate the new relations of production. Thus, over fifty per cent of the peasants cultivated less than one are of land each;⁶⁷ there was a substantial growth in the number of agricultural labourer⁶⁸, levels of indebtedness and land transfers were of a pitch high enough to attract official concern and most importantly, there was a steady decline in the real wages earned by agricultural labour between 1873 and 1901.⁶⁹ The mode of payment shifted from grain to cash over the same period.

64. Banerjee, H., (1982); Ch.3.

65. Ibid., See also Mukherjee, M. (1985).

66. This view is propounded by Darling, M.L. (1925).

67. See Mukherjee (1985), pp.70-71.

68. Bhattacharya, N., (1985b) p.132, Table 2. The growth of agricultural labourers in relation to the total agricultural work force varied between 34 per cent in Gurgaon and 412 percent in Ferozepur. The central Punjab districts experienced the maximum growth. However the South Eastern districts of Hissar and Karnal also experienced growth rates of over a 100 per cent.

69. Banerjee (1982), Ch.5.

The loss of land by the small cultivator through mortgage and the commercialization of agricultural produce through the underpayment of labour consisting of tenant mortgages were also significant components of this process.⁷⁰ While Banerjee proposes that the increasing concentration of landholdings were not bad for the economy as a whole because the direction of land transfers was from decadent non-improving Rajput landlords to thrifty Jat cultivators, there is no doubt that it meant downward economic mobility for large sections of people.⁷¹ Moreover, in addition to erstwhile zamindars who faced economic decline, the swelling of the ranks of landless agricultural labourers was achieved by the decline of the village sepidars or kamins: the artisans and service castes whose function it had been to provide specialized services to the community. While even in the early part of the century, these castes had to turn to agricultural labour to supplement their income, the decline in demand for their services meant increasing reliance on agricultural labour to support themselves. This was especially pronounced in the case of kumhars (potters) julahas (weavers) and chamars (leather workers). Several of the artisan families migrated to urban centres.⁷² Finally the shift from wages in cash to wages in kind meant increasing insecurity for the lowest classes

70. Bhattacharya, N., (1985b), p.149, Table 6. Wage rates declined for most sepidars between 1890 and 1937. The only exceptions were carpenters, blacksmiths and skilled urban labourers. Banerjee (1982:190-191) shows a similar trend in the real wages of labourers in Amritsar, Delhi, Pesahwar and Ludhiana between 1873 and 1901. According to Banerjee's data, wages rose only in Rawalpindi and Multan during this period.

71. Banerjee (1982: p.184-186). The author mentions that towards the end of the nineteenth century, some kamins had begun to acquire land. The land Alienation Act of 1901 by not classifying them as agricultural tribes automatically debarred them from acquiring land. Banerjee also describes a rapid growth in the number of full time agricultural labourers recruited from these castes during the same period. Between the censuses of 1868 and 1901, the proportion of casual agricultural labourers grew from less than 3 percent to over 8 percent of the total provincial population.

72. Banerjee, H., (1982), p.210.

of agricultural labourers. Thus juxtaposed against improvements in communications, expansions of irrigation, increases in production and consolidation of landholdings by the dominant landholding Jats and Araves was a picture of fragmentation of landholdings, rapid alienation and mortgage to fulfill debt obligation and the decline of the artisan and service caste.

While this process of improvement caused the decline of several castes, it does not seem to have altered their marriage patterns uniformly.

The social relations of production and gender

The social relations of production were organized around the individual form cultivated by the family of the landowner or tenant. A cultivator would either lease in land if his family provided more labour than could be absorbed on his holding; or alternatively hire labour if his holdings were too large to be cultivated by his family. Common forms of labour lease were those of share-cropping and permanent labour, although there was a component of casual labour that grew larger over the nineteenth century. Except in case of Rajput farms, however, the exclusion of female family members from cultivation does not seem to have been common. In the peak season, the sepidars performed various specialized tasks connected with the various operations, and during lean seasons, they turned to agricultural labour on the fields of the jajman.

How did the social relations of production define gender relations and through them, women's survival chances? The picture is not as simple as either Bardhan (1982) or Dyson and Moore (1983) would have us believe. Firstly, unlike the sharp differences in female survival between the Brahmins/landowning castes and the agricultural labour castes in Madras, the differences in Punjab are small. Some extremely poor groups such as the Jogi Rawals, Mahtams Khattris, Dhobies, etc have sex ratios above a

thousand female per thousand males. The sex ratios among some of the sepidar castes is higher than those among Brahmans, Rajputs and Jats, but not substantially so.⁷³ None of the sepidar castes other than the Jogi Rawals, Mahtams Khattris, Dhobies, etc had sex ratios above a thousand, not even the Chuhras. This would indicate that discrimination against females was a family generalized phenomenon.

We have already mentioned that levels, of participation in cultivation among the landowning Jats was high. Among most of the sepidars also, women helped their husbands carry on their work. Thus female worth defined by labour participation was not crucial in survival chances. Chakaravarti's paper makes it clear that marriage and kinship pattern took different forms among the Rajputs, on the one hand, and the Chuhras, on the others. Chakaravarti sees the enforced celibacy among Rajput widows as structurally opposed to the enforced mating among Chuhra widows. In the one case, female fertility was restricted because the class position of Rajput women meant that female fertility posed a threat to the control of land and labour among the dominant group. In the other, the control of female fertility through enforced widow remarriage meant the expansion of the labour resources under the control of dominant landowning castes.⁷⁴ Thus *despite* the presence of different marriage patterns, gender discrimination is prevalent among most northern communities.

73. Castes which had sex ratios above a thousand included Khattris (1022); Jogi Rawals (1005); Dhobi, (1015); Mahtam (1067). Among them, the acceptance of bridewealth was common. However the sex ratios in other castes was as follows: Jat (764); Chuhra (812); Chamar (839); Brahman (811); Julaha (839); Lohar (836); Kumhar (837). (This is the average for all religions. In most castes, the sex ratio among Muslims was highest, followed by Hindus and then by Sikhs).

74. See Chakaravarti, U., (1995): *Gender, Caste and Labour: The Ideological and Material Structure of Widowhood*, Economic and Political Weekly, vol.30, no.36, Sep. 9, pp.2248-2255.

Dyson and Moore's theory is useful in explaining the lower rates of female survival in North India, among the dominant castes. Kinship patterns such as hypergamy did lead to household level gender discrimination among them. At the same time it may have led to a gender differential in mortality not through lack of female 'autonomy' but because the limitation of female life chances was politically and economically expedient for the dominant castes.

Chakaravarti's model also does not explain patterns of discrimination and mortality in North India completely. For one, she does not consider the relationship between the Jats, the Rajputs and Chuhras. We have already noted that sex ratios among the landowning Jats were low and that female infanticide was known to be practiced among them. This was also the case among the Rajputs. Among the Chuhras, female infanticide was unknown. Marriage and kinship patterns were less restrictive of female sexuality and fertility than among the Rajputs. Yet the Chuhra women was not completely equal to the Chuhra male, and the marriage of a widow was considered less auspicious than that of a virgin. While widow remarriage was common and even expected, the choice of a mate was restricted within a relatively small circle of the woman's first husband's male kin. This pattern of levirate remarriage was also common among the Jats, a phenomenon which Chakarvarti attributes to the need to keep land structures intact and within the patrilineage. In view of the fact that control over land was central to Jat economic and political dominance, this may hold good. Yet it does not explain the similarity of the Jat and Chuhra patterns since the latter were an untouchable scavenger caste. They did not seem to have acquired land on a large scale during the nineteenth century. The low sex ratios among the Jats despite the high female labour participation, the existence of levirate marriages and relative laxity

concerning what Hershman calls 'polykoity' may be explained by the prevalence of hypergamy among them. The Census reports mention the practise of hypergamy as the cause of infanticide and low sex ratios among many Jat clans.⁷⁵ We also know that over the nineteenth century, the Jats as a whole consolidated their control over agricultural production and over land. We also know that there were internal stratifications of wealth and influence between Jat clans in the region. While one must be cautious about direct comparisons, one is led to suspect that the Jats engaged in a similar strategy of consolidation of resources as the Kanbi Patidars of Gujarat. The prevalence of bridewealth exchanges among the lower rungs of the caste might have coexisted with hypergamy and female infanticide. However, in the absence of a detailed historical study of Jat marriage and kinship patterns, this remains mere conjecture.

The discrimination against girls in Chuhra communities is difficult to explain. Yet it is evident that it did exist if we go by the sex ratio for the community which is not very high. If Chakarvarti's analysis is to hold, less stringent controls on fertility and sexuality among untouchable castes were part of an upper caste strategy to ensure a labour supply. Since both Chuhra men and women were engaged in wage labour, there is no explanation for a limitation of female life chances among the Chuhras within this model except due to the unequal sharing of household hunger. Moreover, the supply of labour is determined as we noted earlier, not only by rates of biological reproduction, but also by mortality differentials among groups with differential entitlement to food over the long term.

75. *Census of Punjab 1911: Appendix to Chapter VI, Note on Female Infanticide* pp.243-260.

One possibility could be that access to food was determined not merely by intra-household dynamics but also by the gender differentiated effect of processes like the shift from payment of wages in kind to monetary payments, which would render women labourers of the untouchable or low caste groups more vulnerable than men. It seems that prevailing explanations relating differentials in female survival to caste dominance in ritual and/or political terms, cannot completely account for the generalized nature of the sex bias in Punjab. Also, the processes creating hunger to seem to have been different for women of different classes. The unequal distribution of household hunger due to impoverishment was responsible among the sepidars for adverse female survival chances.

The very generalized nature of the sex bias provides a picture of a pronounced gender differential in chronic hunger. There is a clear difference not only between the Brahmins/landholding groups and the agricultural castes in Madras but also between the two regions. The larger component of agricultural labour castes in the population of Madras as compared to Punjab perhaps accounts for the difference in gender bias. In Punjab, as we have noted, the ideology of khudkasht meant that tenants who earned most of living through agricultural labour would report themselves as cultivators. Among them, gender bias would be almost as pronounced as among the dominant castes. Thus in the Punjab, the consolidation of resources by dominant castes accompanied by the process of impoverishment among the artisans and smaller cultivators seems to lead to a uniform gender inequity in the sharing of resources as well as hunger.

Thus even among the well-off communities in Madras, the life chances of women are on the whole better than those in Punjab.⁷⁶ Moreover, this study relied on the sex ratios by caste only of one particular Census year i.e., 1911. A diachronic study in far greater detail would be required to analyse the reasons for the regional variation in survival chances.

An area that has been particularly under researched and that could possibly provide clues is the gender differentiated experience of the socio-economic changes wrought during the colonial period. We find that there are intra-regional variations in the degree and nature of commercialization, cropping pattern and organization of the social relations of production, corresponding to variations in sex ratios to some extent. An enquiry into the validity of these correlations and their possible causes might be helpful in understanding the relationship between dominance, household hunger and relative female survival within the context of nineteenth century colonial India.

76. This is however qualified by the sex ratios of the castes mentioned in footnote 73 such as Khatri, Jogi Rawals, etc.

CONCLUSION

This dissertation has sought to explore in a very broad sense the factors contributing to relative female survival or death during crisis. It examines two historical instances of famine when the movement of food prices, mortality and fertility contributed to the occurrence of a demographic, epidemiological economic and social crisis in two regions of the Indian subcontinent during the nineteenth century. An important thread running through this work is the continuity that exist between famine as crisis, and the 'normal' or non-crisis patterns of mortality, disease and the socio-economic basis of victimization. Within this broad framework there occur two distinct and different regional patterns with regard to gender differentials in famine mortality. Although qualified by age-specific death ratios, there was a female survival advantage during the 1876-78 famine in Madras. On the other hand, almost all age groups in the Punjab famine of 1896-97 experienced a female mortality disadvantage. This poses the need for a detailed enquiry into the influences on relative female survival during a particular historical period and between two regions with differing ecological and social structures.

Most studies have focused on the event of famine and on acute starvation or starvation-induced disease as structuring famine mortality patterns. Yet the fact that a continuity exists between non-crisis and crisis disease patterns indicates that there must be a common thread underlying the famine event and the 'normal' processes that surround it.

The impoverishment of large sections of people of both regions during the non-crisis periods of the nineteenth century meant a dramatic decline in the entitlement to food among those who were most vulnerable. The effects of chronic hunger which

resulted from this impoverishment led to the enfeeblement of large numbers of the poor. The enfeeblement caused by chronic hunger underlay class patterns of famine mortality. The pattern of access to food over the long-term rather than merely the effects of starvation during or just preceding the mortality peak were reflected in the pattern of famine mortality.

An analysis of the regional variation in gender- differentiated mortality patterns would need therefore to take into account a gender differential in chronic hunger, if it existed. The sex ratios of the two regions show that indeed there was a pattern of chronic hunger and non-crisis mortality that corresponded to the regional variation in the gender differential in famine mortality. Moreover there is evidence of greater household discrimination with regard to food among girls and women in Punjab. Interestingly, this discrimination existed among almost all castes, including those who experienced upward mobility and prosperity during the period, such as the Jats. The hunger that must have existed among these women thus was related to upward mobility and shifts in status. Among the poorer artisan and menial castes, the unequal sharing of household hunger resulted in a mortality disadvantage among women. Thus the burden of impoverishment fell unequally on these women. On the other hand, among the landowning and high status castes, gender discrimination primarily with regard to food, but also possibly with regard to other entitlements, led to an overall limitation of female life chances. In their case, the enfeeblement of women must be sought in processes of upward mobility and status considerations among the well to do.

In Madras, on the other hand, the female survival advantage was conditioned by the large proportion of agricultural labour caste among whom gender discrimination in the distribution of household hunger did not seem to have existed.

The links between gender discrimination, status and labour force participation during the colonial period remain to be fully explored, and possibly require the support of detailed ethnographic studies and local and regional histories. Yet the fact that such a marked regional trend existed with regard to non-crisis mortality implies that life chances were far more adverse for women in Punjab anyway. Discrimination at a variety of levels enfeebled girls and women in their ability to withstand a sudden collapse in their entitlement to food during famine.

The findings of this study also underline the tremendous but often overlooked significance of ordinary hunger in history and its implications for women's health and survival. Sources such as the Census reports tend to focus on dramatic events such as infanticide, epidemic disease and acute hunger or starvation in analysing the causes of mortality patterns. The fact that much of "ordinary" mortality as well as famine mortality is caused by infectious disease tends to blur the picture of acute starvation as a cause of death. At the same time, the theory of "independent" epidemic outbreaks must be critiqued for its neglect of differential severity and lethality of these epidemics among the poor, the labouring classes and the socially marginal. This last category includes poor women as well as women of households which may not have been vulnerable to sudden and dramatic declines in food intake. Gender discrimination with regard to food due to status considerations among the landowning and ritually high castes can be said to have compromised the health status of these women. The unequal sharing of household hunger among Northern labouring and artisan castes impoverished by colonial rule contributed its share to this enfeeblement. While the reasons for unequal gender distribution of hunger remain to be fully explored, this distribution underlay the regional variation in relative female survival during crisis.

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