

Tamil Nadu

Poverty Profile

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Team : Tara Vishwanath (Coordinator), Peter F. Lanjouw (Poverty Analysis) Raji Jayaraman (Village Studies) Sector Manager : Ijaz Nabi, SASPR
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**TAMIL NADU
POVERTY PROFILE**

EXECUTIVE SUMMARY

Poverty Levels and Recent Evolution

1. Poverty remains an enormous challenge confronting policymakers in Tamil Nadu. Analysis of the National Sample Survey Organization data for 1993/94 and 1999/00 indicate that at the time of the 1993/04 survey, 35.4 percent of the population was poor, based on official Planning Commission poverty lines. Adjusted poverty lines, that capture better spatial and temporal price variation, suggest that a more realistic estimate of the incidence of poverty for 1993/94 is 30.3 percent.
2. The estimates of the incidence of poverty in Tamil Nadu in 1993/94 suggest that it was slightly higher than the all-India average incidence of poverty. Relative to neighboring states, Tamil Nadu was generally poorer than Andhra Pradesh and Kerala in 1993/94, but its position relative to Karnataka depends on the poverty line that is used.
3. Answering the question of how poverty in Tamil Nadu evolved between 1993/94 and 1999/00 is not straightforward due to concerns that have been expressed regarding the comparability of the consumption data that have been collected in the 1993/94 and 1999/00 surveys. Unadjusted estimates that make no attempt to correct for comparability problems, and that employ the official Planning Commission poverty lines suggest that poverty declined markedly between the two time periods from 35.4 percent to 21.1. According to these estimates, Tamil Nadu is now less poor than India as a whole.
4. Adjusted estimates that employ the revised poverty lines and that also attempt to correct for comparability problems suggest that poverty declined from 30.3 percent to 20.0 percent during this interval. These adjusted estimates have been produced by Deaton and Drèze (2002) for all states in India. On the basis of these adjusted estimates, poverty in Tamil Nadu is also below that for India as whole.
5. A second, but less obviously reasonable, set of corrections by Kijima and Lanjouw (2003) imply that the incidence of poverty in Tamil Nadu has fallen only slightly, from 30.3 percent to 28.9 percent. According to these estimates Tamil Nadu has lagged behind the all-India level in reducing the incidence of poverty. These estimates are best seen as suggestive of how poverty might have evolved had there been no change over time in the basic underlying relationship between per capita consumption and a host of household, village and district- level characteristics. The more theoretically appealing Deaton and Drèze estimates allow for both changes in levels of such characteristics as well as a changing underlying relationship. On the other hand, the Deaton and Drèze estimates are also predicated on underlying stability assumptions, the plausibility of which has not been conclusively demonstrated. Conclusions as to how poverty has evolved in Tamil Nadu during the 1990s should remain tentative.
6. Depending on the set of poverty estimates that are employed, the number of poor people in Tamil Nadu in 1999/00 varies between 13 and 17.7 million.
7. Sectoral breakdown of poverty between rural and urban areas depend on the poverty measurement procedure that has been followed. Official, unadjusted estimates, suggest urban poverty is markedly higher than rural poverty. Adjusted estimates proposed by Deaton and Drèze (2002) find

the reverse, with the incidence of poverty in urban areas less than half that of rural areas. The second set of adjusted estimates by Kijima and Lanjouw (2003) also find that urban poverty is below rural poverty, albeit by a smaller margin. A major departure in the Kijima and Lanjouw (2003) figures is that urban poverty appears to have possibly even risen between 1993/94 and 1999/00. This is in contrast to the estimates in Deaton and Drèze (2002) which suggest that urban poverty has fallen sharply.

8. Rural poverty varied widely across regions in 1993/94. Over time, as rural poverty has fallen, the sharp regional variation has also attenuated somewhat. Rural poverty is the highest in the Coastal North according to both sets of adjustments.

9. Poverty rates in urban areas tend to be lower than that in rural areas. Between 1993/4 and 1999/00, poverty fell in all NSSO regions with the exception of the Coastal North, where the poverty incidence, is estimated to have fallen from 21 percent to 11 percent according to the Deaton adjustment methodology, but from 21 percent to 29 percent according to the Kijima-Lanjouw adjustment methodology. Since this region accounts for 45 percent of the total urban population of Tamil Nadu, conclusions as to whether urban poverty fell sharply during the 1990s or remained more or less constant, depends on which adjustment methodology is used.

Poverty Profile

10. **Poverty and occupational status.** In urban areas, around two-fifths of households head are employed in salaried jobs, and enjoy mean consumption levels that are much higher than those reported by self-employed and casual labor households. While overall employment in casual wage labor decreased marginally between 1993/94 and 1999/00, there was a sizeable increase of the share of household heads with such employment in the bottom two quintiles of the consumption distribution in 1999/00.

11. About two thirds of the rural working population is active in the agricultural sector: agricultural labor accounts for 44 percent of rural employment, and cultivation for a further 22 percent. Agricultural laborers are disproportionately represented among the bottom income quintiles. By contrast, a worker in the richest quintile is more than twice as likely as the average rural worker to be employed in regular non-farm activities. Self-employment activities in the non-farm sector of Tamil Nadu also occur more frequently among the non-poor than among the poor. This is in contrast with many other states of India, where rural self-employment activities are often associated with distress.

12. **Poverty, land and agriculture.** Agricultural growth has been lackluster in the 1990s, with substantial year-to-year variations in productivity. Seasonality in agriculture can have devastating consequences for the rural poor, particularly in the absence of well-functioning credit and insurance markets. Any effective poverty alleviation strategy will therefore involve increasing not only average incomes of the poor, but also reducing income variation.

13. The rural poor typically own less land than the non-poor and are highly represented among the marginal landowners. Rural poverty is concentrated among those with marginal landholdings, and is lowest among those with relative large landholdings. Such findings are often invoked to justify policy intervention in land markets.

14. Village studies evidence indicates, however, that Tamil Nadu, like many other states in India, has had mixed success with the implementation of land reforms. The evasion of land ceilings, eviction of tenants and bureaucratic corruption are some problems which have been observed to plague otherwise well-intentioned reform.

15. An important observation is that poverty is higher among marginal landholders relative to the landless. This is consistent with a diversified rural economy in which landlessness may be indicative of non-agricultural employment in some instances. The landless thus comprise both the poor and the non-poor.

16. Farming contributes to over 50 percent of rural income. The poorest in Tamil Nadu tend to be reliant on agricultural labor. As one moves from the lowest to highest income quintiles, the contribution of agricultural wage income to total income decreases monotonically, while that of cultivation and non-farm sources increases monotonically.

17. Real average agricultural daily wage rates have risen by about 56 percent between 1995 and 1999, suggesting a tightening of the agricultural labor market and a lower average degree of deprivation among agricultural wage laborers. However, real wages in the North Coastal region are relatively low, at Rs. 37 compared to Rs. 41 for the state as a whole. There is also a striking gender gap, with women earning daily wage rates which are, on average, less than 2/3rds that of men. This may be a result of a combination of factors viz. the gender division of agricultural tasks, lower productivity for the same activities, and lower pay for similar productivity and activities.

18. In terms of rice purchasing power, agricultural wages have risen substantially in all regions with the exception of the Inland region. This is most likely driven by evidence of significant increases in the price of rice in this region.

19. **Poverty and education.** With 83 percent enrolment of children aged 6-14, education outcomes are higher in Tamil Nadu than the national average, and that of all neighboring states, except for Kerala which has a comparable enrolment rate of 95 percent. Rural enrolment rates are lower than in urban areas, as are the enrolment rates of girls relative to boys. Moreover, poor girls tend to have lower education levels than rich girls and the gender gap in education is especially large among poorer households. Scheduled Castes (SCs) and Scheduled Tribes (STs) also have significantly lower educational attainment than non-SC/STs. It is important to rectify gender and caste gaps as well as urban rural disparities. Tamil Nadu's success in improving girls' enrolment rates in particular over the past 15 years is encouraging in this respect.

20. Education is important in its own right and, furthermore, is strongly associated with higher consumption. In both urban and rural areas, the share of household heads with some education rises steadily as one moves from the lowest to the highest consumption quintile. This relationship is much stronger in urban areas, consistent with the notion that higher levels of education facilitate entry into better remunerated jobs in the non-agricultural sector.

21. **Poverty and gender.** Family planning appears to enjoy fairly widespread currency in Tamil Nadu with women increasingly making independent fertility decisions. Moreover, there is some evidence that women perceive that their quality of life has improved with increased education and employment opportunities, as well as the increased representation of women in public office. However, domestic violence, higher prevalence of dowries, and continued restrictions on women's full participation in the labor market continue to be problematic and require redress.

22. **Poverty and caste.** SCs are highly represented among the poor, with average per capita consumption levels of only about 79 percent and 69 percent those of majority households in rural and urban areas respectively. This is due in part to their lower asset ownership: SCs have significantly lower land holdings and educational levels relative to majority households.

23. Regression models estimating returns to household assets in rural areas indicate differential returns for SC households than for majority households. Higher returns to land for scheduled caste households partially offsets their disadvantage in land ownership holdings.

24. Results for education are more nuanced, with SCs enjoying higher returns relative to majority households for some levels (namely, secondary and higher) and lower levels for others (namely, below primary, primary, and secondary school matriculation). Higher education levels are associated with higher consumption levels for both SC and majority households. On the margin, however, the impact of an increase in education levels may widen or narrow the gap between SC and majority households depending on which education level is raised. In urban areas, an increase in education levels would widen the gap between scheduled caste and majority households for all education levels up to the higher education level.

25. Village studies point to some decline over time in levels of caste differentiation and discrimination. Occupations are less closely tied with caste identity, activities such as agricultural labor have become more caste heterogeneous, and the importance ascribed to ritual purity has waned. At the same time, some forms of social discrimination persist and caste connections continue to be important in finding jobs or obtaining credit.

26. There is evidence of growing reluctance on the part of SC/STs, young men in particular, to engage in agricultural work. Too often, however, their enthusiasms for non-agricultural employment as well as their educational levels do not translate into well-remunerated or permanent employment in this sector. This is a major source of frustration.

Rural Non-Farm Economy

27. Non-farm income shares in Tamil Nadu are high compared to neighboring states such as Andhra Pradesh, or even India as a whole. Nearly one half of household income in rural areas comes from activities that are not directly linked to agriculture, and the sector is thus of considerable importance in this state. Moreover, access to non-farm income is an extremely promising source of poverty alleviation. Income from all non-farm sources combined increases monotonically as overall income levels rise with the most wealthy households in rural Tamil Nadu receiving about 50 percent of their income from non-farm sources and the poorest only about one fifth.

28. At the same time, it is important to recognize that the non-farm sector is extremely heterogeneous, and employment in this sector does not necessarily represent a ticket out of poverty. Casual non-farm wage labor is likely to employ the poor in significant numbers but offer only low returns, and thus relatively few prospects for significant upward mobility. Regular, salaried non-farm employment seems to offer a clear route out of poverty for those poor fortunate enough to gain access to these activities. Own-enterprise and self-employment activities typically comprise both residual, last resort activities as well as genuinely productive small scale manufacturing, trading and other service activities. In Tamil Nadu, on balance, self-employment activities tend to be more closely associated with high-returns than in neighboring states. Self-employment and regular, salaried, non-farm employment therefore seem to offer genuine avenues out of poverty, whereas casual non-farm wage labor may not necessarily provide escape from poverty.

29. Village studies notice a decline in traditional caste-based occupations and the pannaiyal system, and have pointed to the expansion of non-farm employment. This has resulted from both “push” factors, such as population pressures and continued mechanization of agricultural production, and “pull” factors in the form of higher, more stable wages as well as the attractions of city life.

Village studies have also noted the impact of an expanding non-farm sector on agricultural wages at the village level.

30. There is strong evidence of the importance of education in determining access to non-farm occupations and non-farm incomes, with secondary and higher education appearing to be particularly important. Two population groups who appear to be disadvantaged are women and scheduled caste households. Not only do these groups typically possess much lower levels of human capital, but controlling for these assets, they face additional constraints on employment and earnings. Anecdotal evidence also suggests that working conditions can be very difficult, particularly in the small-scale, informal sector. The nature of these conditions and constraints requires further investigation in order to formulate appropriate policy responses.

31. The dual challenge facing policy makers in Tamil Nadu is thus to first, consolidate and build on the momentum that has been achieved in the non-farm economy. The goal here is to raise non-farm incomes across the board. However the second, more difficult but centrally important, objective is to improve access of the poor to opportunities in the non-farm economy and to remove the impediments that those of lower social status and wealth appear to face in participating in this sector – particularly in regular, well remunerated occupations.

32. Tamil Nadu accounts for roughly 12 percent of small informal enterprises in India, and about 9 percent of total employment in the country in this sector. Roughly 47 percent of enterprises and 42 percent of employment in this sector occurs in rural areas and small informal non-agricultural enterprises average 2.03 workers per enterprise compared to the Indian average of 1.8.

33. Informal enterprise activity in the non-agricultural sector in Tamil Nadu is noticeably more oriented toward manufacturing than is the case with its neighbors or even Maharashtra and Gujarat. Within manufacturing a quarter of all activities that are carried out by small informal enterprises consists of textile production, with another 16 percent coming from the production of apparel, making these the two key manufacturing sectors in the state.

34. Informal sector firms in Tamil Nadu perceive themselves to face relatively few constraints, certainly compared to their South Indian neighbors. Amongst those firms that do report facing some difficulties, these appear to arise mainly in terms of access to capital, followed by non-availability of inputs, competitive pressure from larger units, and lack of marketing infrastructure. Shortages of power or lack of lighting facilities occur rarely amongst firms' responses to queries regarding their operating environment. In general, therefore, the sector appears to be relatively well placed for growth.

35. GoTN regularly monitors poverty. What is needed is the development of a comprehensive strategy for poverty alleviation. Any poverty alleviation strategy involves four main steps:

- Step 1: Understanding the nature of poverty and identifying the key determinants of poverty.
- Step 2: Formulating goals and targets, and selecting performance indicators.
- Step 3: Designing and implementing the poverty alleviation scheme.
- Step 4: Monitoring outcomes and evaluating impact.

36. Further Bank work with GoTN will focus on the evaluation of ongoing poverty work and explore further work in each of the above four steps.

37. Step 1. From available data, mainly NSS, NCAER and NFHS, we are able to draw important lessons regarding the relationship between poverty in Tamil Nadu and location, asset ownership,

occupation, demographics, education, and agriculture. However, due to lack of data, there are many questions we have been *unable* to answer. For example, NSS data are only disaggregate into four regions. For a state of 62 million population, it is desirable to have block-level data (there are 384 blocks in Tamil Nadu). Important gaps also include urban-rural poverty measures, as well as the types of constraints to upward mobility facing women and SC/STs.

38. Developing a poverty alleviation strategy will involve investment in more comprehensive poverty monitoring. This is a grand undertaking. Nevertheless, the recent Below Poverty Line (BPL) survey by Tamil Nadu, and new techniques developed by researchers at the World Bank each have the potential to paint a more detailed, disaggregated picture of poverty.

39. Steps 2 and 3. The GoTN expends considerable thought and effort in undertaking Steps 2 and 3, as witnessed in its 10th Five-Year Plan. Its Anti-Poverty Policies (APPs) are primarily project oriented, comprising a wide range of interventions from agriculture, health, and education, to schemes targeted to particular social and demographic groups such as SC/STs, women, and children. We can only speculate on ways in which policies may be confronting problems since this is not made explicit. Moreover, details of program design and implementation are scant, and different programmes are not always coordinated, with multiple, overlapping and sometimes conflicting objectives. Encouragingly, however, many schemes appear to be, or have the potential to be, broadly focused on issues which data suggest are important to the poor.

40. For instance, the Member of Legislative Assembly Constituency Development Scheme (MLACD) and Member of Parliament Local Area Development Programme (MPLADP) are two major programmes which could be utilized to target disadvantaged regions. The Public Distribution System (PDS) plays an important role in providing basic food security for agricultural laborers, and the Sampoorna Grameen Rozgar Yojana (SGRY) has the potential to raise and smooth their incomes. The Swarnjayanthi Grama Swarozgar Yojana (SGSY), The Prime Minister's Rozgar Yojana (PMRY), Tribal Development, and Mahalir Thittam are each intended to generate self-employment among women and SC/STs. The General Integrated Child Development Scheme (ICDS), the World-Bank Assisted ICDS III, and the Noon Meal Programme (NMP) appear to be important contributors to maternal and child health and nutrition, as well as an important incentive for school attendance. The rationale for large budgetary outlays towards housing is less obvious.

41. Step 4. Although these programs are intended to help the poor, it is not easy to draw conclusions regarding their effectiveness, since step 4 is almost absent. Fortunately, GoTN is particularly well suited to undertake monitoring and evaluation given its commitment to poverty reduction and its rich human capital resources. Three candidates for monitoring and evaluation could be the MLACD, the MPLADP, and the NMP.

TAMIL NADU POVERTY PROFILE¹

CHAPTER 1: INTRODUCTION

1.1 Tamil Nadu is one of India's larger states. With an estimated population of more than 62 million in 2001, divided into some 30 districts, and a per capita income well above the all-India level, the state is clearly one of the power houses underpinning India's current economic momentum. Like its neighbors in southern India, Tamil Nadu exhibits levels of both economic and social development that compare favorably with the north and central Indian states that are traditionally singled out as particularly poverty-stricken. Nonetheless the state faces breathtaking challenges on the poverty front. The most recent large-sample National Sample Survey Organization data from 1999/00 indicate that somewhere between 12 and 17 million people are below the poverty line in Tamil Nadu. Debates around the rate of poverty reduction during the 1990s continue to rage, but there is little dispute that even on the most optimistic trends the state faces an enormous task that would test the vision and determination of even the most experienced and well-funded policymaker.

1.2 This note presents a basic diagnosis of the poverty situation in the state. The note has three main objectives. First, we provide an overview of the state of the debate around the question of the extent and recent evolution of poverty in Tamil Nadu. We describe how comparability of the data available to analyze poverty levels and trends during the 1990s has been compromised by changes in questionnaire design and how this has prompted a variety of adjustment efforts. We present estimates of the extent of poverty, and its reduction over time, in Tamil Nadu. Second, we present a basic profile of poverty aimed at helping to answer the question of who the poor are. The intention here is to point to some of the broader patterns in the data and to stimulate further work on this front. Third, we provide a somewhat more detailed analysis of two themes that have an important association with poverty in Tamil Nadu. We start with a study of the poverty status of scheduled castes and scheduled tribes in Tamil Nadu, asking to what extent the relatively poor position of this social group can be attributed to lower levels of asset ownership (productive as well as human capital and so on) as opposed to differences in returns to those assets. We next turn to a fairly detailed investigation of the non-farm economy in rural areas. We compare poverty status and income shares from non-farm activities, and investigate the factors that are associated with access to non-farm employment. We also look at firm-level data from informal sector enterprises in rural areas to ask to what extent the impressive degree of rural diversification in Tamil Nadu can be expected to grow further in coming years.

1.3 These objectives result in a study that is far from comprehensive or complete. In particular, the two themes of caste and non-farm diversification that are being studied here, have been selected somewhat opportunistically (based on data availability) from among a large set of issues that merit closer investigation in Tamil Nadu. Nonetheless discussions with Government officials, academics, NGOs, and other observers of the Tamil Nadu scene confirm that the two issues are of considerable importance and relevance.

¹ This note has been prepared by Peter Lanjouw (DECRC), Rajshri Jayaraman (Consultant) and Yoko Kijima (consultant). The note has been produced at the instigation of Lili Liu (SASPR) and Tara Vishwanath (SASPR). We are grateful to them for guidance and advice. We are particularly indebted to K. Monica Arogymary for her contribution to this report and to Dr. S. Kulandhaisamy of the Gandhi Peace Foundation for advice and guidance. We would also like to thank numerous government officials, NGOs and academics in Chennai for invaluable insights.

1.4 Methodologically the note is anchored to the traditional economic view of poverty; defining poverty in terms of low consumption levels. It intensively exploits household survey data from the NSSO and NCAER (National Council for Applied Economic Research) for this purpose. The recently published Human Development Report for Tamil Nadu provides an alternative perspective on many of the arguments made here, and serves as a useful complement to the present study, particularly with respect to the way in which it takes a broader, multidimensional, view of well-being than the consumption-based perspective taken here.

1.5 One innovation we do attempt in this study is to confront results from the survey-based data analysis with perspectives that come out of the large literature of village studies in Tamil Nadu. India as a whole, but Tamil Nadu in particular, has a long tradition of such village studies. These can provide valuable contextual perspectives on the aggregate patterns that come out of analysis of large-scale survey data, and can help with interpretation of such patterns. While they cannot readily be used to generalize about economic conditions in the state as a whole, when used in conjunction with representative survey data they can provide valuable insights. Appendix Table A5.1 provides a brief listing and description of the village studies that have been consulted and drawn on in the present paper.

1.6 We end this note with a brief summary of our results and a description of four key steps in the formulation of a poverty reduction strategy. We present a cursory inventory of the anti-poverty policies that are currently in place in Tamil Nadu. Our goal is to obtain a preliminary assessment of where efforts should be focused in the development and execution of a comprehensive poverty reduction strategy.

CHAPTER 2: POVERTY LEVELS AND TRENDS

POVERTY LEVELS

2.1 There has been much debate and controversy in India around the poverty estimates recently released by GOI based on the most recent 55th round NSSO Consumer Expenditure Survey. Much of the discussion has centered around changes in survey methodology with regard to recall periods used to solicit data on consumption in the 50th round and 55th rounds, as well as on how this may have affected comparability of consumption aggregates derived from the two surveys. In particular, the question of whether data from these two surveys can legitimately be used to analyze trends in poverty over time remains an open one. The basic, raw, estimates of poverty from unadjusted NSSO data for the 50th and 55th rounds presented in Table 1 should therefore be interpreted with the appropriate degree of care and caution.

Table 1: Estimates of the Poverty Incidence: 1993-94 and 1999-2000 NSSO

	1993-94 (50 th Round)			1999-2000 (55 th Round)		
	Urban	Rural	Overall	Urban	Rural	Overall
Mean per-capita monthly consumption (Rs.):						
<i>Tamil Nadu</i>	438	294	345	972	514	667
Andhra Pradesh	409	289	320	774	454	551
Karnataka	423	269	313	911	500	635
Kerala	494	390	416	933	766	817
<i>All-India</i>	458	281	325	855	486	591
Head-Count Estimates (%) using the Expert Group Poverty Lines:						
<i>Tamil Nadu</i>	39.9	32.9	35.4	22.1	20.6	21.1
Andhra Pradesh	38.8	15.9	21.9	26.6	11.1	15.8
Karnataka	39.9	30.1	32.9	25.3	17.4	20.0
Kerala	24.3	25.4	25.1	20.3	9.4	12.7
<i>All-India</i>	33.2	37.1	36.1	23.6	27.1	26.1

2.2 Official poverty estimates from the Planning Commission, GOI, derived using data from the NSSO 50th and 55th round surveys show the incidence of poverty in Tamil Nadu to have been roughly equal to the all-India average in 1993/94 but to have fallen well below the incidence of poverty at the all-India level by 1999/00 (35% vs. 36% in 1993-94, 21% vs. 26% in 1999-2000). Although these estimates suggest that the incidence of poverty in the state is today below the national average, they indicate that it remains higher than in the neighboring states of Andhra Pradesh, Karnataka, and Kerala. This latter finding is at odds with the fact that data from the same surveys suggest that mean monthly per capita consumption in Tamil Nadu is higher than it is in all neighboring states other than Kerala (Table 1). In a similar vein, within Tamil Nadu, average consumption in rural areas is about two thirds that that observed in urban areas in 1993/94, and has fallen to only half urban per capita average consumption in 1999/2000, yet the head count rate in Table 1 suggests that poverty in rural areas is lower than in urban areas throughout the 1990s. How can we explain the relatively high poverty rates for Tamil Nadu relative to neighboring states, and the low rural poverty relative to that in urban areas within the state?

2.3 Annex 1 of this note describes a number of proposed adjustments to the 1993/4 and 1999/0 poverty estimates, aimed at improving on the official poverty estimates in two important respects. First, new spatial, sectoral and temporal price indices are applied, based on detailed analysis of unit record NSS data by Angus Deaton and colleagues.² The effect of this refinement is to reveal that the cost of living in rural areas of Tamil Nadu is only slightly lower than in urban areas and consequently rural poverty is a good deal higher relative to urban poverty than what the uncorrected figures suggest. The second set of adjustments attempts to correct for the impact of changes in the design of the consumption questionnaire between the 1993/4 and 1999/0 NSS rounds³. These adjustments are predicated on a set of underlying stability assumptions. The most reasonable of these are embodied in the revised poverty estimates proposed by Tarozzi (2001), Deaton (2003a), and Deaton and Drèze (2002). Table 2 presents state-level estimates based on the combination of the two sets of adjustments mentioned above (and described in greater detail in Annex 1).

Table 2: Adjusted Head-Count Estimates: 1993-94 and 1999-2000 NSS

	1993-94 (50 th Round)			1999-2000 (55 th Round)		
	Urban	Rural	Overall	Urban	Rural	Overall
Adjusted Head-Count Estimates (Deaton and Drèze):						
<i>Tamil Nadu</i>	20.8	38.5	30.3	11.3	24.3	20.0
Andhra Pradesh	17.8	29.2	26.2	10.8	26.2	21.6
Karnataka	21.4	37.9	33.2	10.8	30.7	24.1
Kerala	13.9	19.5	17.8	9.6	10.0	9.9
<i>All-India</i>	17.8	33.0	29.1	12.0	26.3	22.2

Source: Deaton and Drèze (2002). Estimates apply price adjustments proposed by Deaton and Tarozzi (2001a) and Deaton (2003b) and the poverty estimation procedure described in Tarozzi (2001) and Deaton 2003a)

2.4 Comparing Table 2 with Table 1 we can see that the adjusted head-count estimates presented in Deaton and Drèze (2002) yield an overall estimate of the incidence of poverty in 1999/00 that is actually slightly lower than what has been reported by the Planning Commission (20.0% versus 21.1% - see Table 1). However, the estimates in Table 2 suggest that the rate of poverty decline in Tamil Nadu during the 1990s has been less rapid than that suggested by the official figures: a decline from 30.3% to 20.0% over this period, rather than the decline of 35.4% to 21.1% indicated in Table 1. This mirrors the assessment of a somewhat less rapid decline in poverty during the 1990s at the all-India level (Table 2). Moreover, the estimates in Table 2 provide a markedly different picture of the incidence of poverty in rural versus urban areas. The adjusted poverty estimates reported in Table 2 suggest that in 1999/00 the incidence of rural poverty in Tamil Nadu was more than twice that in urban areas (24.3% versus 11.3%). Between 1993/94 and 1999/00 these estimates suggest that rural poverty fell from 38.5% to 24.3% and that urban poverty fell from 20.8% to 11.3%. According to these estimates poverty has fallen sharply in both rural and urban areas during the 1990s, with the pace of poverty reduction most rapid in urban areas (a nearly halving of poverty during this 6 year period). Finally, the adjusted estimates of poverty in Table 2 indicate that the incidence of poverty in Tamil Nadu, while higher than in Kerala, is lower than that estimated for Andhra Pradesh and Karnataka in 1999/0.

2.5 Alternative stability assumptions, such as those embodied in the adjusted estimates proposed by Kijima and Lanjouw (2003) point to a less rapid rate of poverty decline in Tamil Nadu (see Annex

² See Deaton and Tarozzi, 2000, Deaton, 2003b.

³ See Tarozzi, 2001, Deaton 2003a, 2003c, Deaton and Drèze, 2002, Kijima and Lanjouw, 2003.

1). These estimates are based on an assumption that changes in poverty are driven only by changes in household characteristics such as education, age, occupation and so on. The estimates do not allow for changes over time in the relationship between household characteristics and consumption levels (such as changing returns to education), and as such are not as intuitively appealing as the estimates in Table 2. Nevertheless, the estimates are of interest in that comparing them alongside those produced with the Deaton method offers some clues as to the breakdown in the evolution of poverty between changes in levels of characteristics and changes in returns to those characteristics.⁴

2.6 Table 3 presents estimates of poverty in Tamil Nadu at the region-level, based in turn on the Deaton method and the approach taken by Kijima and Lanjouw (2003).

Table 3: Region-Level Estimates of Poverty: Adjusted Figures

	1993-94 (50 th Round)		1999-2000 (55 th Round)	
	Urban	Rural	Urban	Rural
Adjusted Head-Count Estimates: (Deaton, 2003c)				
(standard errors)				
Coastal North	20.9 (1.9)	49.5 (2.6)	11.1	38.0
Coast	22.8 (3.0)	24.8 (2.6)	12.4	16.7
South	27.5 (2.4)	42.1 (2.9)	12.3	19.7
Inland	12.7 (1.8)	29.8 (2.5)	7.5	17.2
<i>Tamil Nadu</i>	<u>20.9</u>	<u>38.5</u>	<u>10.8</u>	<u>24.1</u>
Adjusted Head-Count Estimates: (Kijima and Lanjouw, 2003)				
(standard errors)				
Coastal North	20.9 (1.9)	49.5 (2.6)	29.0 (2.2)	37.3 (2.8)
Coast	22.8 (3.0)	24.8 (2.6)	18.4 (3.0)	25.7 (2.4)
South	27.5 (2.4)	42.1 (2.9)	20.8 (2.1)	37.3 (2.6)
Inland	12.7 (1.8)	29.8 (2.5)	10.3 (1.4)	24.1 (2.5)
<i>Tamil Nadu</i>	<u>20.9</u>	<u>38.5</u>	<u>22.0</u>	<u>31.8</u>

Source: Estimates apply price adjustments proposed by Deaton and Tarozzi (2001a) and Deaton (2003b) and the poverty estimation procedures described in Deaton (2003c) and in Annex 2 and in Kijima and Lanjouw (2003). State-level poverty estimates are population-weighted averages of the region-level estimates.

RURAL POVERTY

2.7 The Deaton estimates of region-level poverty in Table 3 suggest that rural poverty in Tamil Nadu has declined markedly during the 1990s. At the state level the incidence of poverty is estimated to have declined from 38.5% to 24.1% during this period. This state-average masks considerable variation across regions. Poverty reduction was most rapid in the Southern region of Tamil Nadu

⁴ To the extent that the assumptions underpinning the Deaton adjustment methodology are suspected to not hold, perhaps in some places, the Kijima and Lanjouw (2003) estimates can be regarded as presenting an alternative assessment of the evolution of poverty in Tamil Nadu. Of course, the assumptions underpinning this method also need to be critically assessed.

where poverty is estimated to have fallen by more than 22 percentage points from 42.1% to 19.7%. While the rate of poverty reduction in the rural Coastal North region was a respectable 11.5 percentage points, poverty in this region remains high in absolute terms (nearly two in five people in this region are estimated to be poor in 1999/00) and also markedly higher than in the other three NSS regions.

2.8 The Kijima and Lanjouw estimates for rural Tamil Nadu suggest a more modest decline in poverty during the 1990s, from 38.5 to 31.8 percent. The two estimation methods are in close agreement with respect to the Coastal North region, indicating that in this region most of the decline in poverty has been associated with changes in household characteristics as opposed to returns to these characteristics. In the other three regions, the Deaton method reports a more rapid decline in poverty than the Kijima and Lanjouw method. If the underlying assumptions of the Deaton methodology hold, this comparison suggests that not only have household characteristics such as education levels and the like, improved in these other three regions, but general equilibrium factors have also resulted in improved returns to those household characteristics.

URBAN POVERTY

2.9 The Deaton estimates in Table 3 indicate that urban poverty has approximately halved between 1993/4 and 1999/0, from 21 percent to 11 percent, respectively. According to this set of estimates, poverty has fallen steadily in the urban areas of all four regions and poverty rates in the four regions vary relatively little, from 7.5% in 1999/0 in the Inland region to 12.4 in the Coastal region. Similarly to Deaton, Kijima and Lanjouw estimate that in the three urban regions other than Coastal North poverty has fallen (albeit less rapidly than predicted by Deaton, 2003c). However, the Kijima and Lanjouw estimates differ markedly with respect to the Coastal North region. The latter adjustment approach suggests that in the urban Coastal North region poverty has risen from 20 percent to around 29 percent between 1993/4 and 1999/0. How can these contrasting findings for urban Coastal North be reconciled? One possibility is that the Kijima and Lanjouw estimates are capturing a general deterioration in household characteristics in the urban Coastal North region such that if returns to those characteristics had remained unchanged during the 1990s, poverty would have risen. The Deaton estimates, on the other hand, capture both changes in levels as well as returns, and imply that although household characteristics may have deteriorated over time returns to these characteristics have risen dramatically during the same time period, to such an extent that the net effect of changing characteristics and returns is a marked decline of poverty. The plausibility of such dramatic improvements in returns merits further investigation.

2.10 Without additional data to probe the underlying assumptions it is difficult to establish conclusively to what extent poverty in Tamil Nadu has declined over time. But the evidence does suggest that poverty has fallen substantially. Moreover, the improvements in price adjustments confirm that poverty in rural Tamil Nadu is considerably higher than in urban areas, and is concentrated in particular in the rural Coastal North region.

CHAPTER 3: POVERTY PROFILE

3.1 The poverty profile is the natural first place to look to for guidance in the design of policy aimed at alleviating poverty. The profile provides a picture of who the poor are, and where poverty is concentrated. Initial ideas regarding the possible causes of poverty can also often be prompted by patterns observed in the poverty profile, especially so when it is possible to track the poverty profile over time. In general a poverty profile is more valuable the more detailed the “snap-shot” of poverty that it provides. We are not in a position in this note, for reasons of data availability, to provide such a comprehensive profile of poverty. For example, in our profile of the geographic distribution of poverty we are able to provide estimates of poverty at the NSSO region-level at best. Ideally one would like to have reliable and comparable estimates of poverty (based on the same definition of well-being and poverty that we employ here) at the district, or even block, level. In the medium term it may be possible to develop such a “map” of poverty, but it is currently not available. Our intention here is to look for some basic patterns in the data, and to provide an initial baseline around which a more detailed picture of poverty can gradually be developed.

POVERTY AND OCCUPATIONAL STATUS

3.2 Urban Occupations. In urban areas, two-fifths of households head reported salaried jobs as their main occupation in 1993/94 - a pattern that changed only negligibly in 1999/00 (Table 4). This employment category is associated with mean consumption levels that are much higher than those reported by self-employed and casual labor households. While overall employment in casual wage labor decreased marginally between 1993/94 and 1999/00, there was a sizeable increase of the share of household heads with such employment in the bottom two quintiles of the consumption distribution in 1999/00.⁵

**Table 4: Distribution of Population in Urban Tamil Nadu
by Consumption Quintile and Occupation of Household Head**

Urban	50 th				55 th			
	self NF	regular	casual labor	Other	self NF	regular	casual labor	other
bottom	30	23	38	9	32	23	41	4
quintile2	30	33	32	4	37	33	26	4
quintile3	35	41	20	4	32	47	16	6
quintile4	35	51	10	4	35	48	10	7
Top	32	57	3	8	27	62	3	8
overall	32	41	21	6	33	43	19	6
mean pc exp	448	501	280	493	850	1022	554	1101

Note: Consumption quintiles have been constructed separately for urban areas.

The occupation categories are taken from the NSSO survey and refer to self-employment activities; salaried employment; casual wage labor; and other non-labor income sources, respectively.

⁵ Quintiles used throughout this section have been derived using unadjusted NSS monthly per capita consumption data for 1993/4 and 1999/0 respectively.

3.3 Rural Occupations. NSSO data show that employment in agricultural labor occupied nearly 46 percent of the rural workforce in Tamil Nadu in 1999/00 – making it the dominant occupation in rural areas of the state. This represents a small increase compared to a share of 44 percent 1993/94. Cultivation, as a primary occupation, declined somewhat between the two survey years, from 22 percent to 18 percent.

Table 5: Distribution of rural working age population of Tamil Nadu by per capita consumption quintile and principal economic activity

	Agricultural Labor	Cultivation	Regular non-farm	Casual non-farm	Self non-farm	Other	Total
1993							
Bottom	62.7	14.7	3.4	8.4	10.1	0.8	100
2	53.0	20.0	4.8	9.6	12.4	0.3	100
3	47.5	20.6	5.5	11.9	14.0	0.5	100
4	37.0	25.8	9.6	12.0	15.3	0.4	100
Top	23.7	26.3	22.6	8.5	18.4	0.6	100
All	44.2	21.6	9.4	10.1	14.1	0.5	100
1999							
Bottom	60.7	15.3	5.8	9.4	8.8	0.0	100
2	54.0	18.1	5.5	9.6	12.8	0.0	100
3	48.3	18.1	8.7	12.2	12.7	0.1	100
4	42.6	18.8	12.0	10.1	16.4	0.1	100
Top	26.0	20.6	26.8	7.2	19.4	0.1	100
All	45.8	18.2	12.0	9.7	14.2	0.1	100

3.4 Together agricultural labor and cultivation account for around two thirds of rural employment--a slight decrease from the 1993 level, indicating that there has some continued diversification out of agriculture in Tamil Nadu. This can be further seen in an increase in regular non-farm employment between 1993/94 and 1999/00 from 9.4 percent of the workforce to 12.0 percent. This is partially offset by a small decline in employment in casual non-farm wage employment, from 10.1 to 9.7 percent.

3.5 There is a sharp contrast in occupational distribution between the poor and non-poor in rural Tamil Nadu (Table 5). In 1999, an individual in the poorest quintile was almost three times as likely to be engaged in agricultural labor as an individual in the top quintile. A sharp contrast can also be observed in the case of regular non-farm employment in rural areas. At the state level only about 12 percent of the economically active population has such employment. A worker in the richest quintile is more than twice more likely to be employed in a regular non-farm job than the average worker in rural Tamil Nadu.

3.6 There is also a contrast between distribution of poor and non-poor across self-employed non-farm occupations. At the state level, about 14 percent of the economically active population has such employment. For the richest quintile, however, that share is more than twice that for the poorest quintile. Self-employment activities tend to comprise both last-resort, residual activities as well as high productivity ones, so that the both poor and rich are involved in self-employment, albeit in very different activities. In Tamil Nadu (unlike many other states in India) it appears that self-employment activities are more commonly associated with high productivity than with last-resort activities. We will return to these issues, in a more detailed examination, in Section IV.

3.7 Occupational Diversification by Region in Rural Areas. During the 1990s, there has been no major sign of employment diversification in the Coastal North region of Tamil Nadu (Table 6). A small decline in cultivation and regular non-farm employment as a primary occupation is matched by small increases in agricultural labor and casual non-farm employment. In the Coast region, employment in agricultural labor has increase by about 10 percentage points, while cultivation has declined by a similar magnitude. In the South both agricultural labor and cultivation have declined in importance and there has been a marked increase in employment in regular, casual and self-employment in the non-farm sector. Finally in the Inland region, small declines in cultivation and in casual and self-employment in the non-farm sector have been matched by increases in agricultural labor and, in particular, regular employment in non-farm activities.

Table 6: Distribution of rural working age population in Tamil Nadu by state region and principal economic activity

	Agricultural Labor	Cultivation	Regular non-farm	Casual non-farm	Self non-farm	Other	Total
1993							
North Coast	43.6	23.3	12.0	7.4	13.3	0.5	100
Coast	45.1	25.7	8.9	8.4	11.5	0.4	100
South	48.2	19.1	5.5	10.2	16.3	0.6	100
Inland	40.3	19.2	10.6	14.6	14.9	0.5	100
All	44.2	21.6	9.4	10.1	14.1	0.5	100
1999							
North Coast	45.7	20.4	11.2	9.5	13.2	0.0	100
Coast	56.6	17.4	9.1	6.8	10.0	0.1	100
South	40.1	17.3	10.7	12.4	19.5	0.1	100
Inland	43.8	17.6	15.9	9.5	13.2	0.0	100
All	45.8	18.2	12.0	9.7	14.2	0.1	100

POVERTY, LAND AND AGRICULTURE

3.8 For rural areas, the connection between poverty, agricultural production and access to land is widely viewed as central in terms of both understanding the causes of poverty, and designing policy to address poverty.

3.9 Agricultural Production. Agricultural growth in Tamil Nadu has been fairly lackluster during the 1990s (Table 7). Aggregate data provide a mixed picture on productivity, indicating rises from one year to the next for some crops, and decreases for others. There is evidence of considerable year-to-year variability. This unspectacular performance can probably be attributed, at least in part, to the fact that Tamil Nadu comprises 61% dry land regions, and increasing productivity on dry-land continues to be a major challenge (Metha and Shah, 2003, p. 499-500.) Moreover, Tamil Nadu has always been susceptible to droughts – a situation aggravated by the on going disputes with neighboring states regarding water sharing agreements. Micro-level studies as well as anecdotal accounts also indicate, however, that declining water tables may also be attributed at least partly to the uncoordinated energisation of open wells and deepening of borewells (Harriss-White et al., Sainath, 1996).

Table 7: Tamil Nadu: Agricultural Production and Productivity

Year	PADDY		CHOLAM		CUMBU		RAGI	
	Kg./Hec.	'000' Tonnes	Kg./Hec.	'000' Tonnes	Kg./Hec.	'000' Tonnes	Kg./Hec.	'000' Tonnes
88-89	3032	5704	991	557	1125	304	1754	286
89-90	3088	6063	1184	695	1112	291	1995	343
90-91	3116	5782	1014	549	1081	296	1863	316
91-92	3115	6596	1080	553	1104	272	1961	311
92-93	3116	6806	1004	486	1144	251	1933	291
93-94	2927	6750	960	486	1121	238	2095	331
94-95	3392	7559	1134	490	1203	231	1970	285
95-96	2712	5290	860	330	1095	189	1818	221
96-97	2671	5805	916	362	1184	195	1710	191
97-98	3050	6894	993	378	1257	212	2036	218
98-99	3579	8141	1011	369	1339	206	2004	241
99-00	3481	7532	984	346	1531	241	2004	246

Source: Table 4.14, Department of Economics and Statistics, Statistical Handbook 2001

3.10 Despite gains in output reported across several village studies in the 1970s and 1980s (for example, Hazell and Ramasamy, 1991, Arthreya, Djurfeldt and Lindberg, 1990, Ramachandran, 1990, Guhan and Mencher, 1983 and Gough, 1981), there is some evidence that despite widespread adoption of High Yielding Varieties (HYVs), there has been stagnation in rice yields over the last decade. Ramasamy et al. (2003), for instance, report an average annual increase of 0.84 per cent in total food grain yield between 1990-91 and 1999-00, with a corresponding decline of 0.40 per cent in rice.

3.11 Another feature particular to agriculture is seasonality. Those among the poor who are dependent on the agricultural sector for a livelihood suffer not only from low average incomes, but also a large variance in incomes. During the slack season, or during droughts, casual laborer jobs are often simply unavailable. Using a participatory rural assessment (PRA), Balasubramanian et al. (2002), for instance, report that in Puddupatty, a male member of a scheduled caste landless family can expect to get 154 days of employment a year, earning Rs. 8,500 annually and a female member, 156 days with an annual income of Rs. 5,000. Rajuladevi (2001) reports that in her two Kaveri delta villages, landless laborers lacked employment for five months of the year. Moreover, as Kapadia (1993) points out, those who are fortunate enough to find work usually do so, on a day-to-day basis at very low wage rates.

3.12 Although data limitations make it difficult to say anything definitive about the exact relationship between seasonality and poverty in Tamil Nadu, anecdotal evidence suggests that the lack of stable employment it perpetuates can have devastating consequences for the poor, particularly in the absence of well-functioning credit and insurance markets. In her two Kaveri delta villages, Rajuladevi (2001) reports that during the slack period, landless households typically ate one main meal, with a second comprising of leftovers. Moreover, even during the peak season, 61 per cent of wet area landless households in her sample of 100 households from these two villages ate only six days of the week. Similarly, Rajasekhar (2002) notes that poor employment opportunities during the rainy season in the villages of Sabthalipuram and Mottupalayam meant that the poorest households experienced food shortages during the rainy season. Females, in particular, bore the brunt of this as they are typically the last in the household to eat.

3.13 Poverty and Landholdings. Table 8 indicates that in Tamil Nadu, the poor typically own less land than the non-poor and are highly represented among the near landless. Among those with no land at all the incidence of poverty is lower than among those with marginal landholdings. This is consistent with the perception that in a relatively diversified rural economy, the landless comprise a heterogeneous group, some of whom are not necessarily poor. It is also important to note that those with reasonably-sized landholdings are not exempted from poverty either, since hectares of land does not capture potentially important differences in the quality of land. This consideration is likely to be of particular importance in the context of Tamil Nadu where access to irrigation is far from universal.

Table 8: Rural Poverty Incidence and Shares by Land Ownership

	50 th					55 th				
	Extreme Poverty Incidence	Poverty Incidence	% of rural population	% share of extreme poor	% share of the poor	Extreme Poverty incidence	Poverty incidence	% of rural population	% share of extreme poor	% share of the poor
No land	17	35	22	20	20	14	30	16	11	12
>0 & ≤0.4 ha	24	46	46	57	53	23	45	58	67	65
>0.4 & ≤1 ha	20	42	17	17	18	20	41	15	16	15
>1 & ≤2 ha	14	32	9	6	7	17	33	6	5	5
>2 & ≤4 ha	9	23	4	2	2	6	26	3	1	2
>4 ha	5	8	2	0	0	1	20	1	0	1
overall	20	40	100	100	100	20	40	100	100	100

Extreme poverty is defined as per capita consumption rank <20%

Poverty is defined as per capita consumption rank <40%

3.14 Indeed, the importance of access to irrigated land can be clearly observed in Table 9 which documents that for a given landholding category the risk of poverty is considerably more pronounced amongst those whose land is not irrigated. Table 9 also shows that between 1993/94 and 1999/00 the overall percentage of households with access to irrigated land in Tamil Nadu declined slightly.

Table 9: Rural Poverty, Land and Access to Irrigation

land owned (ha)	Poverty		Incidence		Extreme poverty	
	% of population use irrigation	Among population using irrigation	Among population W/o irrigation	Among population using irrigation	Among population W/o irrigation	Among population W/o irrigation
50th						
0	1.9	(34.9)	(34.9)	(17.4)	(17.4)	
0<*<=0.4	15.6	35.3	47.7	19.1	24.9	
0.4<*<=1	62.5	34.9	54.2	15.3	27.2	
1<*<=2	77.7	27.8	45.0	11.2	23.1	
2<*<=4	81.8	21.8	29.5	8.9	7.7	
> 4	91.5	6.3	28.5	2.4	28.5	
Total	29.9	30.3	43.9	13.9	22.5	
55th						
0	2.6	(29.2)	(29.2)	(14.1)	(14.1)	
0<*<=0.4	9.5	39.3	45.4	16.4	23.6	
0.4<*<=1	70.1	37.2	48.9	17.0	28.1	
1<*<=2	68.6	28.5	41.8	12.2	27.2	
2<*<=4	83.0	25.1	30.2	6.5	5.9	
> 4	72.4	13.7	37.6	1.6	0.0	
Total	24.7	33.8	42.1	14.3	21.8	

3.15 Small landholdings are not only associated with current poverty, but they also affect a household's ability to escape from poverty: in the presence of imperfect credit markets, the asset poor are often unable to obtain loans required to acquire either farm assets, or diversify into other areas of employment. This is not a feature unique to the state. In their survey of chronic poverty in India, Mehta and Shah (2003) also note that the bulk of the chronically poor are landlessness or near landless agricultural wage laborers. In an attempt to rectify this (also in common with other states in the union), Tamil Nadu has had a long history of land reforms, predominantly in the form of tenancy reform. (See Besley and Burgess, 2000, p. 400-401, for a summary of these.)

3.16 There is evidence that successful tenancy reform in India has a positive association with poverty reduction (Besley and Burgess, 2000 and the references cited therein.) In Tamil Nadu, however, village studies evidence suggests that land reform has met with, at best mixed success. On the one hand, Athreya, Djurfeldt and Lindberg (1990) conclude that land reform legislation compelled large landlords to sell land and resulted in a more equal distribution of land. They argue that this might reflect the success of the active tenants' movement in the area, combined with a high incidence of absentee landlords. Reports on the experience elsewhere in Tamil Nadu are not so positive. Gough (1987) concludes that land reform in Thanjavur district led to widespread evasion of land ceilings and the eviction of tenants, resulting in a dramatic increase in both the number and proportion of landless agricultural laborers from the 1950s to the 1980s. Kapadia (1993) reports a similar pattern among the Pallars of Poovaloor, where misguided legislation resulted, perversely, in the eviction of tenants. Neelakantan (1997) also remarks on families partitioning their land holdings among children, tenants being evicted, and makes note of the bureaucratic corruption which has accompanied arbitrary enforcement of otherwise well-intentioned land reform.

3.17 NSSO data typically do not follow a given household over time, but here, once more, evidence from village studies offers us some insight into households' vulnerability to landlessness. Although the village studies mentioned here are in not representative of villages in the state as a whole, they do suggest that there is no broad brush tendency of smallholders to fall into landlessness. In Gokilapuram, Swaminathan (1991) notices a high degree of immobility in land ownership at both ends of the landholdings scale—landless households, in particular, tend to remain landless. Among small and medium landowners, however, there is a high degree of both upward and downward mobility (particularly among holders of 2.5 to 5 acres of land). The author concludes that the simple models of pauperization of small cultivators do not hold.

3.18 Similarly, although in both of his Thiruvalluvar district villages, Naidu (1995a, b) notes an increase in the proportion of landlessness, he also remarks on a decline in the concentration of both owned and operated land. The latter was driven primarily in a decline in land ownership and operation by medium-sized farmers. Athreya, Djurfeldt and Lindberg (1990) note that in Tiruchirapalli district, Tamil Nadu, there was an increase in the incidence of smallholder cultivation and a decline in landlessness over the last generation, associated with a decline in inequality in landholdings.

3.19 In North Arcot, Tamil Nadu, Hazell and Ramasamy (1991) find that there was no general tendency of small landholders to slide into landlessness. Moreover, as Harriss-White et al. remark (for villages in the same district), "While 29 per cent of the households in our sample were without land, no landless household was without assets. Being landless in a village is no longer to be associated with the most dire poverty, although the poorest are certainly landless." (p. 21.) As we will see in the next section, expansion of the non-agriculture is at least partially responsible for the weakening association between landlessness and poverty.

3.20 Income Shares from Farming and Agricultural Labor. Farming is the major source of employment in rural Tamil Nadu. We have seen (in Table 6) that in 1999/0, in the state as a whole,

about 18 per cent of the economically active workforce reported cultivation as primary occupation, and another 46 percent of the workforce were employed in agricultural labor. According to data collected by the NCAER in 1993/94, income from cultivation accounted for almost 38% of total rural income in Tamil Nadu and agricultural wage labor accounted for nearly 14% in that year (Table 10). Together, therefore, agriculture contributed over 50% of rural income. Among those households in the lowest income quintile, agricultural wage income contributes almost 52% of total income, whereas the cultivation and non-farm employment contribute roughly 26% and 20% respectively. As one moves up from the lowest to the highest quintiles, the contribution of agricultural wage income decreases monotonically, while that of cultivation and non-farm sources increases monotonically. This confirms the patterns observed earlier on occupation suggesting that the poorest in rural Tamil Nadu tend to be reliant on agricultural labor whereas wealthier households tend to be engaged in cultivation or non-farm employment.

Table 10: Farm Income Shares in Rural Tamil Nadu

Quintile	Cultivation	Agriculture wage Labor	Total Nonfarm sources	Other sources	Real Per Capita Income
Lowest	26.3	51.6	19.8	2.3	1093
Q2	27.8	27.5	43.2	1.6	2130
Q3	32.6	21.6	44.4	1.4	3377
Q4	35.7	14.9	45.5	4	5431
Highest	42.8	5.2	50.4	1.6	12292
Total	37.7	13.7	46.4	2.1	4867

Source: NCAER Human Development Survey 1993/4

3.21 Village studies indicate that agricultural labor, and increasingly, non-agricultural employment opportunities, do not always entail a withdrawal from cultivation. For example, Ramachandran (1990) in Gokilapuram and Harriss (1986) in North Arcot note that diversification into these areas often enables cultivators to retain possession of their land.

3.22 Since the bulk of the poor in Tamil Nadu are concentrated in agriculture, it is not surprising that their fortunes are closely tied with the state of this sector, in particular, farm productivity. Farm productivity affects the poor's income in at least three ways. First, landowners or tenants among them may benefit from productivity gains from production on their own or leased farms. Second, agricultural laborers may benefit from higher wages. Third, increased productivity in the agriculture may lead to the expansion of opportunities in the non-agricultural sector. Although the extent to which the poor gain from agricultural growth is a matter of some debate, in a recent paper, Datt and Ravallion (1998) find that in India as a whole, the poor have gained "both absolutely and relatively from both higher agricultural wages and higher average farm yields" (p. 72).

3.23 Agricultural Wages. Given the close correlation between agricultural wage labor and poverty, trends in agricultural wages can provide important clues as to the evolution of rural poverty. Real agricultural wages tend to be highly correlated with poverty headcount ratios and areas with low agricultural wages tend to have higher poverty headcounts.⁶ In addition, Deaton and Dreze (2002) suggest interpreting real wage as a poverty indicator in its own right. In particular, if the labor market is competitive, then the real wage measures the "reservation wage", i.e., the lowest wage at which laborers are prepared to work. This could be interpreted as an indication of the degree of deprivation

⁶ Deaton and Dreze (2002) present evidence that real agricultural wages are highly (0.79) correlated with rural headcount ratios across Indian states. Kijima and Lanjouw (2003) show a similarly strong relationship across regions of India.

(the more desperate people are, the lower the reservation wage), independent of the statistical association between real wages and headcount ratio.

3.24 Thus, wages earned by agricultural laborers represent an important indicator of welfare in Tamil Nadu. In 1999, the all-Tamil Nadu average agricultural wage rate was Rs 41 per day (Table 11). Average wage rates are lowest in the North Coast region (corroborating the relatively high estimated poverty rate in the region). Relative ranking of wages across regions did not change between 1993 and 1999.

Table 11: Tamil Nadu: nominal agricultural daily wage (Rs.)

	1993			1999		
	all	male	female	all	male	female
North Coast	13.8	18.0	10.4	37.4	48.9	25.3
Coast	17.8	22.0	12.8	42.6	52.5	30.35
South	17.4	22.2	12.4	43.7	55.7	30.9
Inland	18.4	22.9	13.8	41.7	50.5	32.9
All Tamil Nadu	16.7	21.2	12.2	41.3	51.7	30.0

3.25 To infer how real agricultural wages evolved over time, two adjustments to nominal agricultural wages were used. First, in Table 12, agricultural wages in 1999 were divided by 1.58, based on the Törnqvist price index for Tamil Nadu calculated by Deaton (2001). Second, in Table 13, average nominal wages per village were divided by the village-specific average price per kilo of rice. Thus, the rice-wage for each village was computed with the view to ascertain whether there has been a significant change in the amount of rice that a day's work can purchase over time.

Table 12: Tamil Nadu real agricultural daily wage (deflated by price index)

	1993			1999		
	all	male	female	all	male	female
North Coast	13.8	18.0	10.4	23.7	31.0	16.1
Coast	17.8	22.0	12.8	27.0	33.3	19.2
South	17.4	22.2	12.4	27.7	35.3	19.6
Inland	18.4	22.9	13.8	26.4	32.0	20.9
All Tamil Nadu	16.7	21.2	12.2	26.1	32.8	19.0

Price Index for 1999 relative to 1993 is 171.4 (Deaton, 2001)

3.26 Table 12 indicates that real average wages have risen sharply between 1993 and 1999 (by about 56%) at the state level for all workers combined. Wage growth has been strong in all regions and for both males and females. However, the geographic rankings have remained broadly stable with real wages in the North Coast remaining well below those in the other regions. The rise of real agricultural wages in rural Tamil Nadu is consistent with a tightening of village agricultural wage labor markets associated with either expansion of non-farm wage employment (for which some evidence was presented above) and/or an expansion of employment opportunities in agriculture (through, for example, application of land-augmenting technological change such as irrigation or a shift into more labor intensive crops). Viewing Table 12 alongside Table 6 on occupational trends,

suggests that a story of tightening labor markets is not implausible: in most regions there has been negligible expansion of agricultural wage employment between 1993/94 and 1999/00. However, in the Coast region we observe the puzzling trend of sharply rising agricultural wages alongside an increase in agricultural labor employment of more than 10 percentage points. It is not obvious what factors could lie behind a simultaneous increase in agricultural wage labor employment and rising agricultural wages. There is little data available pointing to, for example, a strong expansion of labor-intensive agricultural production in the Coast region.

3.27 In Tamil Nadu there are striking differences in agricultural wages received by males relative to females. There is some suggestion that this gap has actually widened over the survey period.

**Table 13: Tamil Nadu: real agricultural daily wage
(kg of rice)**

	Main	1993	1999	1993			1999		
	cereal	Rs/kg	Rs/kg	all	male	female	all	male	female
North Coast	Rice	6.90	10.99	2.00	2.61	1.50	3.40	4.45	2.30
Coast	Rice	6.67	10.61	2.66	3.29	1.91	4.02	4.95	2.86
South	Rice	7.01	10.83	2.48	3.17	1.77	4.03	5.14	2.85
Inland	Rice	7.41	12.44	2.48	4.08	1.87	3.35	4.06	2.64

3.28 The Törnqvist price index proposed by Deaton (2001) has been developed at the all-Tamil Nadu level, and an alternative approach is to ask for each village what a day's work as an agricultural laborer buys in terms of rice, the basic cereal staple consumed in Tamil Nadu. This village-level rice wage can be calculated for each village in each survey year, based on village level average unit-values for rice obtained from Schedule 1.0 of the NSS survey. Region-level averages can then be compared. Table 13 indicates that rice prices in Tamil Nadu did not vary markedly across regions in either 1993/94 or 1999/00. Growth in rice purchasing power of agricultural wages during this time period was substantial in most regions and is generally consistent with the decline in rural poverty observed in Table 3. The glaring exception to this pattern is in the Inland region where the rice purchasing power of a day's work among men has remained virtually unchanged over this time period. This is driven by the evidence of a significant increase in the price of rice in the Inland region during the 1990s.

3.29 Some village studies also comment on agricultural wage trends. In his two Thiruvalluvar district village, Naidu (1995a, b) reports an increase in nominal wage rates for casual agricultural laborers between 1985 and 1994. Over this period, real wages (in terms of rice) increased for female laborers, whereas for male laborers, they increased for some activities, but not others. Although in their North Arcot villages, Harriss-White et al. find that real wages for all tasks have increased over the period 1973-93, they do note that there is no trend towards convergence across different tasks, or across gender and region within the same task.

3.30 Consistent with macro data, village studies have noticed a considerable expansion of female agricultural employment. In rural areas, this has been accompanied by a corresponding increase in women's agricultural wages. In Enathimelpakkam, female real agricultural wages have risen in all three activities in which they were engaged between 1985-6 and 1993-4: transplanting (which is the exclusive domain of women), weeding, and harvesting. By contrast, those for men actually declined in weeding and harvesting. This may, in part, reflect a substitution in labor demand males to females, as the real wages for the both activities continue to be lower for females than for males (Naidu, 1995a).

Rajashekar (2002) goes so far as to say that landlords prefer hiring women to men because they are cheaper. In Verkadu, Naidu (1995b) notices an increase in the number of male agricultural laborers, with a more than proportionate increase in female ones, with a similar pattern of change in gender wage rates.

3.31 In most agricultural activities, women's employment remains restricted to particular activities. For example, in Pudupatty only men engage in ploughing, carrying of heavy loads, and operations involving heavy implements. Women, by contrast are overwhelmingly represented in sowing, transplanting, fertilizer and pesticide application, hybridization, irrigation, harvesting and post-harvesting. Similarly, in horticulture, women are preferred to men; the explanation provided for this is that these operations require dexterity and skill which is a woman's comparative advantage (Balasubramanian et al., 2003.)

3.32 Nevertheless, as in Verakadu and Enathimelpakkam, women often get lower pay for the same activities, something corroborated by Balasubramanian et al. (2002). However, this is not true for all agricultural operations in Pudukatty. In particular, in operations like paddy harvesting, where wages are in kind, and weeding, where women work in groups, their wage rates are the same as those of men. In his North Arcot villages, Srinivasan notices a similar pattern of equal wage rates between men and women in paddy harvesting. He does find, however, that differences in wage rates for similar activities are particularly acute in the cultivation of commercial crops. In sugar cultivation, for example, where women work side to side in the harvesting process, men are paid more than 2 times as much as women. Whereas it is not possible to conclude that these differences are a result of gender discrimination, whether men are actually at least twice as productive as women in this activity may be questionable.

POVERTY AND EDUCATION

3.33 The NSSO 50th and 55th round data show a strong relationship between consumption levels and educational attainment of the household head in Tamil Nadu. In both urban and rural areas, average consumption levels of households where the head had completed secondary education or higher are about twice as high as when the household head was illiterate. Nearly two thirds of household heads in the bottom quintile in rural areas had no education in 1993/94, as compared to roughly one third in urban areas in that year. By 1999/00 this pattern remained largely unchanged, with the percentage of illiterate urban household heads in the bottom quintile actually rising to two-fifths. The share of household heads with some education rises steadily as one moves up the welfare distribution both in urban as well as rural areas, though the relationship appears to be much stronger in urban areas. In particular, by 1999/00 only 4 per cent of urban household heads in the top quintile were illiterate, down from 6 per cent in 1993/94. Urban households where the household head had completed higher education were much more likely to be in the top consumption quintile than in the bottom two groups. In 1993/94, 41 percent of the households in the top consumption quintile in urban areas had completed higher education in contrast to only about 15 percent in the urban population as a whole (Table 14). By 1999/00 this had risen to 53 per cent of household heads in the top quintile with completed higher education relative to under 20% in the urban population as a whole.

Table 14
Distribution of Population by Consumption Quintile and Education Level of Household Head

Rural	50 th Round (1993/94)						55 th Round (1999/00)					
	illiterate	below	primary	middle	Second-dary	higher	illiterate	Below	primary	middle	Secon-dary	Higher
Bottom	62	14	15	6	3	0	65	14	12	6	3	1
Quintile2	53	21	15	7	3	0.5	52	19	12	10	5	3
Quintile3	46	22	18	8	3	2	43	20	19	12	6	2
Quintile4	35	23	18	14	5	3	38	20	18	13	8	3
Top	22	16	19	15	16	10	27	13	19	15	17	11
Overall	44	19	17	10	6	3	45	14	16	11	8	4
Mean pc exp	235	291	292	363	472	544	437	483	533	582	648	785
Urban	illiterate	below	primary	middle	secon	higher	illiterate	Below	primary	middle	secon	Higher
Bottom	33	19	23	17	5	2	41	15	20	14	8	2
quintile2	30	19	23	14	11	3	24	18	22	17	15	5
quintile3	16	17	22	21	16	6	15	11	25	17	19	13
quintile4	15	14	15	19	19	18	10	8	14	17	29	23
top	6	7	12	10	25	41	4	3	5	10	26	53
overall	20	15	19	16	15	14	19	11	17	15	19	19
mean pc exp	306	350	377	384	558	749	580	638	680	774	1039	1437

Source: 1993/94 50th round NSSO survey and 1999/00 55th round NSSO survey.

3.34 The relationship between education and poverty is far more complex than what is conveyed in a simple table linking consumption rankings to the education of the household head. Indeed, education is not only an important determinant of economic wellbeing (as captured by consumption or income) but is a key dimension of wellbeing itself. A very important set of questions thus pertains to the factors which determine education outcomes, and in the context of this note, the particular role that poverty might be playing in constraining access to education. Recent research by Filmer and Pritchett (1999) based on National Family Health Surveys (NFHS) carried out in the major Indian states in 1992-3 describes the considerable variation across states in educational outcomes and the strong correlation between enrollment rates of children and their household wealth ranking.

3.35 Education outcomes in Tamil Nadu are higher than in its neighboring states other than Kerala. While 83% of children aged 6-14 in Tamil Nadu are enrolled at school, the percentage in Kerala is as high as 95%, but in Andhra Pradesh and Karnataka the figures are 64% and 71% respectively (Table 15). The figures for Tamil Nadu are also higher than for India as a whole. Looking at educational achievements, such as the proportion of the population aged 15-19 that has completed at least grade 8, indicates that the strong showing in Tamil Nadu is not confined only to enrollment rates. Nearly 52% of 15-19 year olds in Tamil Nadu have completed 8 grades of schooling, compared to 45% in Karnataka and 42% in Andhra Pradesh. However, once again, Kerala out performs Tamil Nadu with a rate as high as 75%. Again, Tamil Nadu is well above the all India average in this regard.

Table 15: Education Status by Wealth Group in 1992/93

State	Proportion of 6-14 year olds "in school"				Proportion of 15-19 year olds who have completed Grade 8			
	Average	Bottom 40 percent	Top 20 percent	Wealth Gap (top-bottom)	All	Bottom 40 Percent	Top 20 percent	Wealth Gap (top bottom)
Tamil Nadu	0.825	0.717	0.950	0.232	0.518	0.269	0.838	0.570
Andhra Pradesh	0.639	0.457	0.917	0.460	0.419	0.160	0.859	0.698
Kerala	0.949	0.887	0.975	0.088	0.749	0.531	0.923	0.392
Karnataka	0.708	0.507	0.943	0.437	0.447	0.205	0.816	0.611
All India	0.677	0.500	0.942	0.442	0.447	0.204	0.824	0.620

Source: Filmer and Pritchett (1999)

3.36 Table 15 also indicates that enrollment rates and grade-completion levels in Tamil Nadu vary across wealth rankings. In Tamil Nadu about 72% of 6-14 year olds in the bottom 40% of the population are enrolled at school, compared to about 95% in the top 20%. The gap between this richest group and the poorest 40% is thus 23%, a gap, which though large, is smaller than that in Andhra Pradesh and Karnataka, and is also smaller than the all-India figure. This general pattern is also observed when we consider education outcomes instead of enrollments.

3.37 The analysis by Filmer and Pritchett (1999) also documents an important gender gap in enrollments and in school attainment in Tamil Nadu, and illustrates that this gap is also greater among the less wealthy. The evidence shows that in 1992-3 poor girls were still markedly less likely to be enrolled in school and had achieved sharply lower education levels than rich girls, and the gap between boys and girls was particularly high among the poorer households in the population. One encouraging sign is that some additional recent evidence (Deaton 2000) indicates that between 1986-87 and 1995-96, enrollment rates of girls in India as a whole, and certainly also in Tamil Nadu, rose markedly. While there is still a considerable distance to go, it is encouraging to note that progress is being made in removing gender imbalances (Table 16).

Table 16: Enrolment Rates of Children Aged 7-12 by Gender

Rural	Males		Females	
	1986-87	1995-96	1986-87	1995-96
Tamil Nadu	82.7	90.1	63.5	80.6
Andhra Pradesh	66.1	70.6	39.1	62.5
Kerala	95.5	98.5	95.3	98.4
Karnataka	69.0	79.2	50.7	60.6
All-India	64.5	76.2	43.4	61.7

Urban	Males		Females	
	1986-87	1995-96	1986-87	1995-96
Tamil Nadu	88.8	92.0	80.2	89.6
Andhra Pradesh	78.3	88.7	76.2	85.0
Kerala	98.1	96.8	98.1	97.9
Karnataka	77.8	88.6	76.5	88.4
All-India	81.1	88.9	75.2	85.4

Source: Deaton (2000)

3.38 **Poverty and Social Institutions: Gender and Caste** Social structures like gender and caste shape and condition poverty in a wide variety of ways. These institutions are cross-cutting; defining and delineating the opportunities faced by the poor, and the extent to which they can mobilize and press for attention; influencing the operation of markets; determining the pace at which reforms can be implemented. We have already noted above several instances where gender differences in Tamil Nadu appear to be pronounced. In the case of enrollment rates there is some evidence of declining imbalances, while in the case of agricultural wages there seems to be evidence of widening disparities. Section IV below, on the non-farm economy, suggests that here too, there are important differences between men and women in terms of access to, and earnings from, non-farm activities. The issue of gender inequalities and their connection to poverty is a theme that has received fairly widespread attention in village studies. In this sub-section, we will take a brief excursion from aggregate data, focusing instead on evidence from village studies regarding the dynamics of gender relations in the state. In the subsequent sub-section we turn to an examination of the links between the Scheduled Castes and poverty in Tamil Nadu.

POVERTY AND GENDER: PERSPECTIVES FROM VILLAGE STUDIES

3.39 **Fertility.** As has been well-documented elsewhere (see for instance, Egeroe and Hammarskjöld, 1994) family planning has enjoyed wide-scale adoption in the state. Among the Bandagas in the Nilgiri Hills, Hockings (1999) notices a marked improvement in women's living standards, related inter alia to the spread of female education, which has resulted in lower fertility rates; this, in turn, has led to a reduction in both mortality and morbidity rates among women. An old Bandaga proverb he cites reads "If a girl is born she's useless; if a boy is born he's an asset". Attitudes such as these, Hockings claims, are now a relic of the past.

3.40 Neelakantan (1996) also makes note of a widespread awareness and more accepting use of family planning, and in her villages Ravindran (1999) reports that sterilisation was not only common, but that in most incidence, women had taken the decision themselves. Ravindran (1999) writes, "The women express a clear sense of entitlement to birth control...as their prerogative as mothers interested in the well-being of their children."

3.41 **Dowries** Anthropologists and sociologists in India have long noticed a phenomenon called "Sanskritization". This is a term coined by Srinivas (1966) to describe how "when a caste or section of a caste achieved secular power it usually also tried to acquire the traditional symbols of high status, namely the customs, ritual, ideas, beliefs, and life-style of the locally highest castes". A common feature of Sanskritization is the shift from bride-price to dowry, something which has been noticed among a number of village studies in Tamil Nadu.

3.42 In a study of the rural propertied elite in a village northeast of Coimbatore in Tamil Nadu, Heyer (1992) notes a movement from bride-prices to dowries from the 1930s to 1950s, and a doubling in the real dowries paid between the 1950s and 1970s. A similar switch from bride price to dowry took place among scheduled castes in Ravindran's (1999) villages. As Heyer (1992) explains, the growing importance of dowries has led to a redistribution of capital from households with higher daughter/son ratios to those with lower ratios. The preservation of wealth from generation to generation is therefore contingent on keeping the number of surviving daughters relatively small. Similarly, Neelakantan (1996) reports all communities now practice dowry and that increased educational attainment among girls has not muted the pressure to give dowries.

3.43 **Violence.** Anecdotal evidence suggests that wife beating is not uncommon. Almost all the women in Ravindran's (1999) 15 villages claim to have been beaten at one point or another, 1/3rd of

them regularly and systematically. Moreover, the pattern was common across all socio-economic groups. As Balasubramanian et al. (2002) notes, the phenomenon seriously impairs the quality of life of numerous women. Encouragingly, however, the incidence of domestic violence does appear to have fallen in this generation compared to the last, and women tend to oppose it in numerous ways, sometimes by leaving the marriage if necessary (Ravindran, 1999.)

3.44 Women's Perceptions. What are women's own perceptions regarding their welfare? Ravindran (1999) reports the impressions from focus group discussions complemented with some in-depth discussions with men and women from 15 villages in 6 districts (Chidambarar, Tiruchy, Periyar, Tirunelveli, North Arcot and Tiruvannamalai.)

3.45 There was general agreement among both men and women that women were both better off in 1994-5 than earlier: more were employed, they were better educated, better dressed, and more confident. There was a perception that the poor were not necessarily better off whereas the rich were. Nevertheless, even among those who felt they that their lot had not improved were heartened by the fact that women were reaching positions of power on par with men, as police officers, collectors, judges and ministers. Ravindran (1999) notes that "There were powerful accounts from women of incidents where they challenged their exclusion from the public space."

3.46 Employment among women was not discouraged, and some women's group emphasized the importance of the financial independence that came with "having five rupees in one's hand." (Ravindran, 1999). This was not the case in all village studies. During a PRA, Balasubramanian et al. (2002) found that despite their growing contribution to household income, women in Pudukatty have little say in how that income is spent or in decision making in the family more generally, or even at the community level. This is true even for more skilled female workers. (Balasubramanian et al., 2002).

3.47 Ravindran (1999) reports that women's expectations of their potential husbands were not extravagant. The most common were "he should not drink, not beat me, and support me and the family." (Men, by contrast required one thing of a wife: obedience.) Yet, in Pudukatty, for instance, women complained that nearly 20 per cent of annual family income tends to be spent by men on alcohol or other recreational activities (Balasubramanian et al., 2002). Similarly, in his journalistic accounts from Puddukottai, Sainath (1996) recounts the difficulty women face with alcoholic husbands.

3.48 Even as women's earnings opportunities have expanded, it is often difficult for them to work outside their immediate surroundings. Jeyarajan and Swaminathan (1999) report that among their sample of female laborers in the engineering, garment and leather industries of Ambattur, Chennai, there was a great deal of stigma associated with working outside the home. Often these women reported joining the labor force not because they enjoyed their jobs, but because material conditions compelled them to do so: women workers tended to come from relatively poor households.

3.49 In Ravindran's villages (1999), a girl's "coming of age", or menarche, was a turning point in her life, particularly because it placed severe restrictions on her mobility and interaction with males. They were typically restricted to working within the confines of the village, except when need necessitated that they work elsewhere. In this case, they were typically accompanied by older women or brothers. Girls were typically withdrawn from school at this stage, unless there was a middle school or high school in the village.

3.50 Tamil Nadu has an impressive record in making primary school universally accessible. The government's long-standing goal of providing schools within a 1 kilometer distances of population centers of 300 people and above has been 98% achieved, according to the Department of School

Education. However, discussions with both government officials and NGOs revealed that the lack of easily accessible secondary education was one of the most common reasons for girls (as well as scheduled castes) dropping out of school beyond the primary level.

POVERTY AND CASTE

3.51 About one-fifth of the population in Tamil Nadu belongs to scheduled castes or tribes whose average standard of living is considerably below the rest of the population. Although the mean per capita consumption of the SC/ST population in Tamil Nadu increased in absolute terms between 1993-94 and 1999-00 (Table 17), it declined relative to the non-SC/ST population. In 1993-94, SC/ST mean per capita consumption was less than three-fourths that of the non-SC/ST population, and fell in this had declined to just over two thirds by 1999-00.

Table 17: Mean Consumption by Social Group

	50 th			55 th		
	Urban	Rural	all	urban	rural	all
SC/ST	338	239	273	623	425	493
Non SC/ST	456	314	363	923	543	673
Overall	438	294	343	882	505	634

3.52 Scheduled caste and scheduled tribe population groups are highly represented in agricultural wage labor activities and are particularly under-represented among cultivators and in regular non-farm employment. (Table 18).

Table 18: Distribution of rural working age population in Tamil Nadu by social group and principal economic activity

	Agricultural Labor	Cultivation	Regular non-farm	Casual non-farm	Self non-farm	Other	Total
1993							
Scheduled Caste/ Scheduled Tribe	69.1	9.8	6.3	9.9	4.4	0.5	100
Majority	34.2	26.4	10.6	10.2	18.1	0.6	100
All	44.2	21.6	9.4	10.1	14.1	0.5	100
1999							
Scheduled Caste/ Scheduled Tribe	66.8	7.3	8.6	6.4	6.4	0.1	100
Majority	35.2	23.8	13.7	9.1	18.2	0.0	100
All	45.8	18.2	12.0	9.7	14.2	0.1	100

3.53 In terms of landholding, Scheduled caste and scheduled tribe population groups are also clearly disadvantaged relative to the majority population (Table 19). In Table 19 we can see that 84 per cent of the rural SC/ST population had less than 0.4 hectares of land in 1993/94 and 88 percent owned less than 0.4 hectares in 1999/00. For the rural population as a whole the comparable figures were 68 and 74 per cent, respectively (Table 8). The incidence of poverty among the SC/ST population with small landholdings (less than 0.4 hectares) is also markedly higher than for the rural population as a whole.

Table 19: Rural Poverty Incidence and Shares by Land Ownership among SC/ST's

	Extreme Poverty Incidence	Poverty Incidence	50 th % of rural SC/ST population	% share of extreme poor	% share of the poor	Extreme Poverty incidence	Poverty incidence	55 th % of rural SC/ST population	% share of extreme poor	% share of the poor
No land	24	47	27	23	24	21	40	17	11	12
>0 & ≤0.4 ha	31	57	57	62	61	32	58	71	71	73
>0.4 & ≤1 ha	33	56	10	12	11	53	74	8	13	10
>1 & ≤2 ha	21	45	4	3	3	40	70	3	4	4
>2 & ≤4 ha	0	11	2	0	0	17	50	1	0	1
>4 ha	0	0	0	0	0	0	1	0	0	0
overall	28	53	100	100	100	32	57	100	100	100

Extreme poverty is defined as per capita consumption rank <20% in the total consumption distribution

Poverty is defined as per capita consumption rank <40% in the total consumption distribution

3.54 In Tamil Nadu, as in India more generally, scheduled castes are highly represented among the poor. This is certainly due in part to their owning less land, and of lower quality, as well as other assets (particularly human capital), than households which are not of the scheduled castes. However, the question arises whether, apart from lower asset holdings, the returns to assets of the scheduled castes are the same as the returns to majority households. Or do the scheduled castes also receive lower returns on their assets than non-scheduled castes? Recent research by van de Walle and Gunewardena (2000) in Vietnam demonstrates that ethnic minorities in that country are highly represented among the poor. This is due, in part, to their possessing lower levels of human capital, land and other household and community assets. However, van de Walle and Gunewardena (2000) find that it is also due in no small measure to their receiving lower returns on those assets they do possess, relative to the majority.

3.55 In Annex 3 we look at this issue for Tamil Nadu, following closely the methodology laid out in van de Walle and Gunewardena (2000). We estimate consumption regressions in which the sample population is divided into two groups, scheduled caste and majority households, and the same specification of the determinants of wellbeing is run on each group separately. The analysis is based on the 50th round, 1993/94 NSSO data.⁷ We consider separately, and in turn, rural and urban areas.

3.56 The key message emerging from this exercise is that the nature of the gap between two well defined groups in the population of rural as well as urban Tamil Nadu, namely the scheduled caste and the majority households, is rather complex. It is clear that scheduled caste households are generally worse off than the majority population in terms of levels of education, and other assets. Policies to raise the human capital of scheduled caste households and to strengthen other productive asset holdings of this population group must therefore clearly remain a focus of attention. However, it is not clear that this will suffice to eliminate the gap between these two groups. The analysis in Annex 3 suggests that returns to assets between these groups are also very different, and generally contribute in an important way to the gap between the groups. A detailed specification of the kind of measures that would be most effective in promoting higher returns to assets of scheduled caste households is beyond the scope of this note, but deserves close attention and further research.

⁷ A similar analysis could, in principle, be based conducted using 1999/0, 55th round data. However, given problems of non-comparability of consumption across these two survey years, it would be difficult to track the evolution parameter estimates in these models over time.

THE PERSPECTIVE FROM VILLAGE STUDIES

3.57 Taking a step back from aggregate data, micro studies point to a number of distinct trends in caste relations at the village level. Numerous village studies suggest that occupational change has weakened the forces of caste differentiation and discrimination. Ramachandran (1990) notes that agricultural laborers now represent the most caste-heterogeneous group in the Cumbum valley. In Chettipalayam, in the 1980s, labor “gangs” were caste homogenous. In the 1990s, not only were labor gangs nominally caste heterogeneous, with cobblers and Goundars working together, but the higher caste Goundars worked under the leadership of a cobbler Neelakantan (1996).

3.58 In several villages, the narrowing of caste inequality has been due to the decline of upper castes. Anecdotal evidence suggests that this has much to do with the historic strength of the anti-Brahminical movement in Tamil Nadu. Kapadia (1993) notes that in the Tamil Nadu village of Poovaloor the relative economic power of the Brahmins has declined.. Athreya, Djurfeldt and Lindberg (1990) suggest that in Tiruchirapalli, factionalism among higher castes contributed to reduced caste inequality.

3.59 Migration has also played a role. In Thirunur, a village between Chennai and Mamallapuram, the out migration of Mudaliar landowners to Chennai led them to first rent and then sell their land to Dalits. Anandhi et al (2002) remark that this has resulted in less consistency between production relations and caste hierarchy. Today, there several landless or marginal farmers among Mudaliars, whereas this was not the case earlier. Anandhi et al. (2002) even have the impression that “upper caste youths [are] a dispirited lot. Their caste identity is now a liability. While it is no longer possible to enjoy the privileges of caste, the notion of caste honour inhibits free mobility.” Dalits, by contrast, are reported to have a growing sense of confidence and assertiveness. In Ennakulam, a village near Cuddalore, the Vanniayars report that Dalits now come to Vannaiyar’s temples, shop at their stores, and are not inhibited in touching them, where they did none of these before (Vincentnathan, 1996.)

3.60 Several village studies remark upon the growing reluctance of scheduled castes and scheduled tribes to engage in agricultural work. This is especially true of young Dalit men, who are eager to dissociate themselves with the work which carries the historic stigma associated with their caste. This quest for dignity among scheduled castes cropped up repeatedly in our conversations with both academics and NGOs in Chennai. As Anandhi, et al. (2002) puts it, “Dalit youths keep away from agricultural work. [They] take special pride in stating that they do not know how to till the land. This is so even in the face of poverty. This act of withdrawal from agricultural work and instead looking for non-agricultural work outside the village is a move by the Dalit youths to break away from the history of subordination of their fathers and grandfathers, which is closely tied to agricultural work.” Hockings (1999) notices the same of the Bandaga tribe in the Nilgiris: “[Modern cities] turn the eyes of the youth away from farm-work, which is easily seen today as dirty, tedious, unrewarding and low-status.”

3.61 There have been dramatic examples of upward mobility among middle-ranking castes, such as the Goundars in Tirupur (see Chari, 2000.) However for scheduled castes, the social impetus to leave agricultural work behind is often costly economically, as unskilled work in the non-agriculture tends to be sporadic and badly remunerated. Moreover, anecdotal evidence from NGOs and academics as well as field visits suggest that government programs not always very successful at translating training into jobs, particularly among scheduled castes. Nevertheless, the draw to non-agricultural employment is so strong that individuals are often willing to accept such employment despite obtaining lower earnings (Naidu, 1995a, b, Anandhi et al., 2002).

3.62 Despite growing opportunities and assertiveness on the part of scheduled castes, socially, caste discrimination continues to thrive in some areas. This was certainly true in the 1980 when, as Guhan and Mencher (1983) note that in Iruvelpattu village in Tamil Nadu, "the combined effects of economic inequality, social discrimination, and physical segregation on the Harijans are vividly visible" and have "persisted to a remarkable degree" over time. In Thirunur, despite improved economic entitlements, Dalits, are still not permitted to enter upper caste households and the temple car does not enter their quarters during festivals (Anandhi et al., 2002.)

3.63 In Karur, Neelankantan (1996) reports two opposing trends in the importance of caste identity. On the one hand, the importance of ritual purity has weakened with the expansion of trade: touchability, entry into houses and temples, and commensality, though not universal, are now much more common than they once were. On the other hand, caste connections are clearly important in business, particularly with respect to obtaining credit. It is possible that this was always the case, but the importance of caste identity clearly becomes more palpable as the marginal returns to credit access grow.

3.64 The importance of social networks in obtaining economic opportunities goes some way in explaining why, in the aggregate data, scheduled castes tend to get lower returns to primary, middle and higher secondary education. Field visits indicated that the wedge between educational attainment and job opportunities for lower castes is a major source of frustration. This is certainly the case when it comes to obtaining non-agricultural employment. As Harriss-White et al. note, "Scheduled caste workers tend to be screened out of the [non-agricultural] activities with the highest returns and are thus restricted to agriculture, to mud and construction work..."

3.65 Even in agriculture, however, obtaining a job often relies on kinship networks. In the village of Pudupatty, farmers prefer to employ their kin as laborers. Since these employment contracts are often repeated, the farmer and the laborer often develop a relationship based on reciprocity, whereby the farmer serves as a source of insurance and credit in return for a the assurance of a regular supply of labor. Presumably, since Dalits typically do not own land, Dalit landless laborers (as well as non-Dalit laborers who do not have a kinship network) are left to negotiate labor contracts through a middleman called "kothu" (Balasubramanian et al, 2002.) This may imply that they can not avail themselves to the benefit of market inter-linkages the way upper castes, typically landowners, can. Nevertheless, Balasubramanian et al. (2002) do report that kinship networks among Dalit landless laborers do offer mutual insurance during times of extreme difficulty. In his North Arcot villages, Srinivasan attributes the tendency of landowners to hire only their kith and kin to caste tensions between Vanniyars and Yadavas.

3.66 Conversations with numerous government officials as well as NGOs and academics indicated that public policy is often confounded by caste tensions at the village level. Two features in particular stand out on this count. First, different castes tend to live in village neighbourhoods which are typically caste-homogeneous. This "ghettoization", common even between different scheduled castes and different upper castes, sometimes makes consumption of common public goods, and cooperation very problematic. For instance, in another of Ravindran's (1999) village's scheduled caste hamlets, residents were not permitted to fetch water from the upper caste section of the village and had no water facilities in their own. In one of her study villages, scheduled castes children were unable to attend the local middle school because they were not allowed to do so by the Moopanar community.

3.67 Second, there is a great deal of caste heterogeneity. When social interaction is intra-caste, this has at least two implications. First, there is some evidence that it impedes cooperative outcomes. For instance, Bardhan (2000) finds when at least 75% of the sample of his farmers within a village belongs to the same caste group, they are significantly more likely to cooperate in the management of village

irrigation. Moreover, when caste identity matters a great deal, the effectiveness with which public officials belonging to one caste can or do deliver services to members of another is sometimes compromised. Second, as pointed out to us by one government official, the fact that there is enormous diversity even among scheduled castes means that targeting simply on the basis of scheduled caste affiliation can be rather problematic. Moreover, targeting on the basis of caste in and of itself often breeds inter-caste tensions as different caste groups vie for government favors (see for example, the account of caste politics and violence in Vincetnathan (1996) or that in de Wit (1996).)

CHAPTER 4: THE RURAL NON-FARM ECONOMY IN TAMIL NADU

4.1 Debates about rural development attach increasing importance to the rural non-farm sector. Traditionally, rural households in developing countries have been viewed as though they were exclusively engaged in agriculture. There is mounting evidence, however, that rural households can, and do, have highly varied (and often multiple) sources of incomes, such as wage and self-employment in commerce, manufacturing and services, alongside the traditional rural activities of farming and agricultural labor. Such non-farm incomes can contribute significantly to total incomes of farm households in developing countries.

4.2 There is a fear in many parts of the world that rapid growth in agriculture during the next few decades may remain elusive, and that in the absence of other sources of rural growth it will be difficult to maintain, much less raise, rural per capita living standards. The result could be a rise in rural poverty, and an acceleration of migration to urban areas. Amongst policymakers there is considerable interest in better understanding how the non-farm sector contributes to economic growth and what, if any, specific role it plays in alleviating rural poverty. In a recent paper, Ravallion and Datt (2002), for instance, find that growth in per capita non-farm output has a strong negative impact on poverty in Tamil Nadu. Moreover, for India as a whole, non-farm growth on poverty was “more pro-poor in states with higher initial farm yields, higher female literacy rates, lower infant mortality, lower urban-rural disparities in consumption levels and lower initial landlessness.”

4.3 In this section we examine the rural non-farm economy in Tamil Nadu in some detail. Our analysis takes two directions. First, we draw on data from the 1994 rural household survey collected by the NCAER (National Council for Applied Economic Research). Our focus here is on the contribution of the non-farm sector to poverty alleviation in Tamil Nadu.⁸ Our second strand of analysis is at the firm level. We analyze data collected by the NSSO in 1999/00 from a sample of informal enterprises in rural areas to provide a basic description of the non-farm economy at the firm level. Our particular interest is to establish how dynamic the non-farm sector is in Tamil Nadu (in comparison with neighboring states) and to ascertain the degree to which informal enterprises in rural areas of Tamil Nadu perceive themselves to be facing major constraints in their efforts to expand.

NON-FARM INCOME SHARES

4.4 According to the NCAER data, non-farm income in rural Tamil Nadu contributed, on average, just under half (46%) of total household income in 1993/94 (Table 20). It is clear that the sector is of great importance as a source of income in rural areas. Examining the contribution of non-farm sources to total income across different per capita income quintiles indicates that income from all non-farm sources increases monotonically as overall income levels rise. Thus, the most wealthy households in rural Tamil Nadu receive about 50% of their income from non-farm sources while the poorest obtain only one fifth (19.8%) from such sources.

⁸ See Lanjouw and Sharriff, 2000, for further details on the data and results from the NCAER survey.

Table 20: Household Income Shares by Source in Rural Tamil Nadu

Quintile	Cultivation	Agriculture wage Labor	Nonfarm wage Labor	Nonfarm Self employment	Nonfarm Regular Employment	Total Nonfarm sources	Other sources	Real Per Capita Income
Lowest	26.3	51.6	11.4	7.3	1.1	19.8	2.3	1093
Q2	27.8	27.5	18.2	14.1	10.9	43.2	1.6	2130
Q3	32.6	21.6	15.5	18	10.9	44.4	1.4	3377
Q4	35.7	14.9	14.2	7.8	23.4	45.5	4	5431
Highest	42.8	5.2	7	9.7	33.7	50.4	1.6	12292
Total	37.7	13.7	11	10.7	24.8	46.4	2.1	4867

Note: i) Income from farm sources refers to cultivation income
ii) Agriculture wage labor income refers to income from wage labor on another agricultural production unit (farm, plantation, etc.)
iii) Nonfarm wage labor income corresponds to income from casual, usually daily wage, employment in non-farm activities.
iv) Nonfarm self employment income corresponds to income from home enterprises and entrepreneurial activities.
v) Nonfarm regular employment income refers to income from regular, medium to long-term, salaried employment in non-farm activities.
vi) Incomes are expressed in annual, 1993, terms (adjusted for spatial price variation using the price indices proposed by Deaton and Tarozzi, 2000).

4.5 With the exception of Andhra Pradesh, this pattern of the lowest quintiles receiving a lower share of income from non-farm sources is also observed in the other states of southern India (Table 21). In states other than Tamil Nadu and Karnataka, the subsequent pattern shows a tapering off of income shares beyond the second quintile. Only in Tamil Nadu do non-farm income shares rise monotonically all the way up to the top quintile, which receives more than 50% of income from non-farm income shares.

Table 21: Non-Farm Income Shares in Tamil Nadu and Neighboring States

Quintile	Tamil Nadu	Andhra Pradesh	Karnataka	Kerala	Madhya Pradesh	All-India
Lowest	19.8	38.2	16.5	43.6	27.3	31.6
Q2	43.2	35.4	21.7	47.2	29.2	38.5
Q3	44.4	29.8	24.8	42.5	27.3	38.1
Q4	45.5	21.8	27.7	38.1	23.8	39.3
Highest	50.4	18.5	16.6	27.4	16.5	30.9
Total	46.4	23.4	20.1	34.7	21.4	34.4

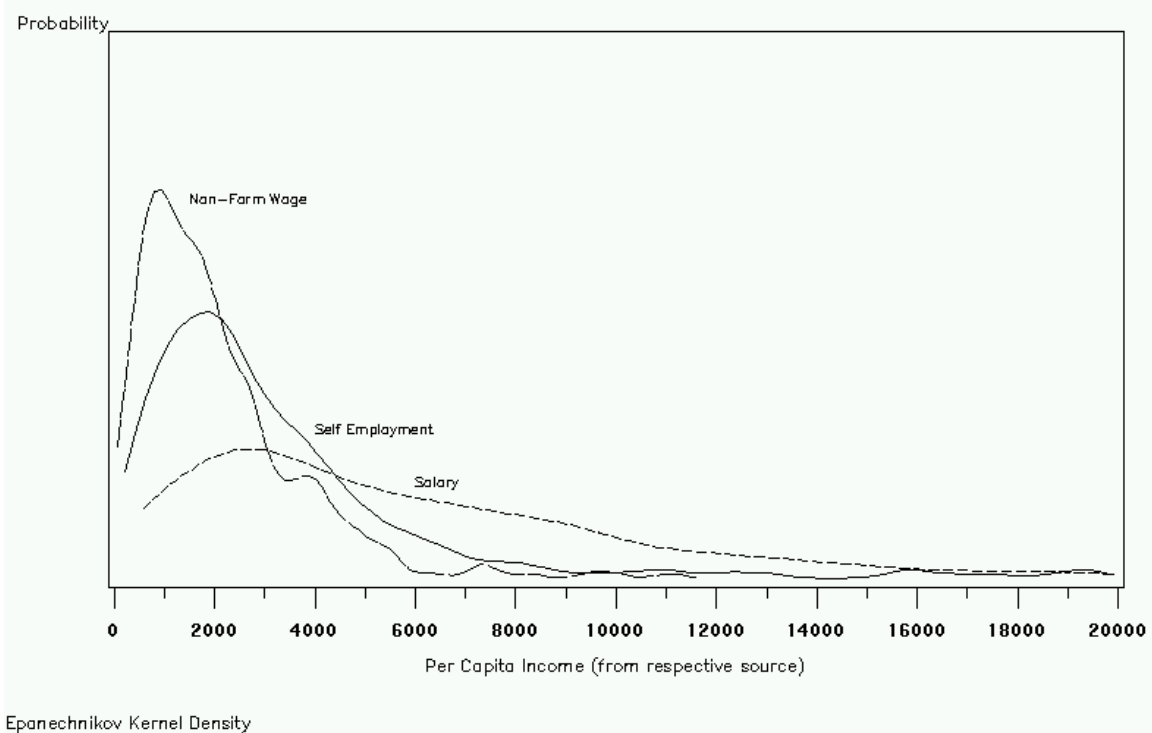
4.6 These contrasting patterns suggest that in states like Tamil Nadu (less strongly so in Kerala, Karnataka and Madhya Pradesh) non-farm activities are associated with a lower risk of poverty, at least of the most extreme form. In a state like Andhra Pradesh, on the other hand, non-farm incomes would appear to be strongly correlated with poverty, in a similar way that agricultural wage labor is associated with poverty. In this state involvement in non-farm activities can be viewed, at least to some extent, as a *symptom* of poverty.

4.7 One can better understand these diverging patterns upon scrutiny of three alternative sources of non-farm income: casual non-farm wage income; regular non-farm wage income; and self-employment/own-enterprise income. For the poorest quintile in Tamil Nadu, casual non-farm wage income accounts for about 11% of total income (Table 20). This rises to as high as 18% for the next quintile and remains at around 14-15% in the third and fourth quintile. It then falls sharply, to about

5%, for the top quintile. In contrast, the share of income from regular non-farm employment rises with income quintiles – from 1.1% for the poorest quintile to around 10% for the next two quintiles and then rising sharply for the fourth quintile (23%) and again for the top quintile (to 34%). Overall, casual wage income and regular wage income account for about 36% of total income. Own enterprise (or self-employment) income shares do not rise or fall monotonically by quintile. The highest shares occur in the second and third quintiles, and are around 7-10% for the lowest and the two top quintiles. On the whole, own-enterprise income contributes about 11% to total income. These contrasting distributions of the various non-farm income sources can be viewed on the basis of non-parametric density functions which depict the relative frequency of various incomes accruing from the three possible non-farm sources (Figure 1).

Figure 1

Probability Density Function of Non–Farm Incomes: Tamil Nadu



Epanechnikov Kernel Density

4.8 These patterns are consistent with the view that the non-farm sector is a heterogeneous collection of activities which includes both productive and non-productive occupations. The former contribute to growth, raise living standards, and in general are associated with a dynamic process of intersectoral transfer out of agriculture into manufacturing and services, with specialization, and with technological change. The latter are more in the nature of residual activities into which people are *pushed* when other sources of income (cultivation income, agricultural employment, rents, transfers, etc.) are not sufficient to make ends meet. For the poor, these activities may contribute significantly to total incomes, but they do not actually generate significant returns. In the labor market, it appears that the low-productivity and high-productivity activities can often be neatly delineated by distinguishing between *casual* and *regular* employment. Among the own-enterprise activities, one can less readily distinguish between high and low-productivity activities in the absence of detailed sub-sectoral information.

4.9 This pattern is well captured in the non-parametric density functions of non-farm incomes in Tamil Nadu, where it can be seen that a large proportion of salaried employment is high paying, casual employment tends to cluster around low-income activities, and self-employment activities include both low income as well as reasonably high income activities. The main contrast with Andhra Pradesh lies in the distribution of self-employment incomes which tend to mirror much more closely the casual non-farm employment incomes than the self employment incomes in Tamil Nadu (compare Figure 1 and Figure 2 , and see also Figure 3).

Figure 2

Probability Density Function of Non-Farm Incomes: Andhra Pradesh

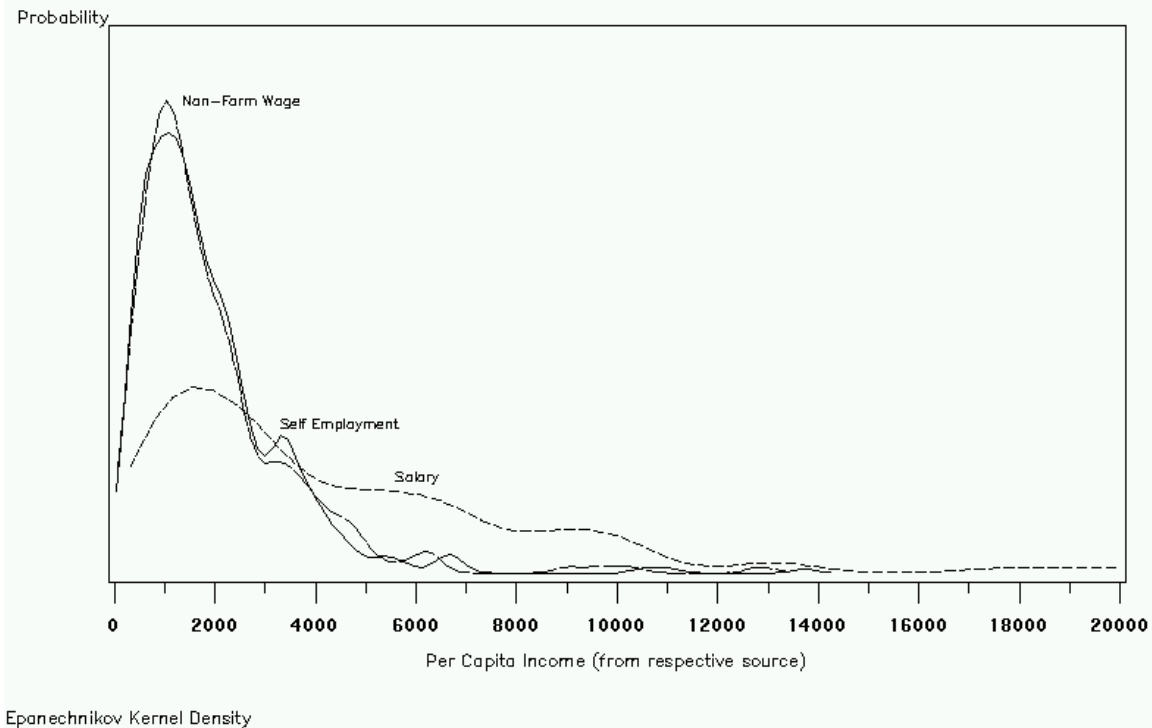
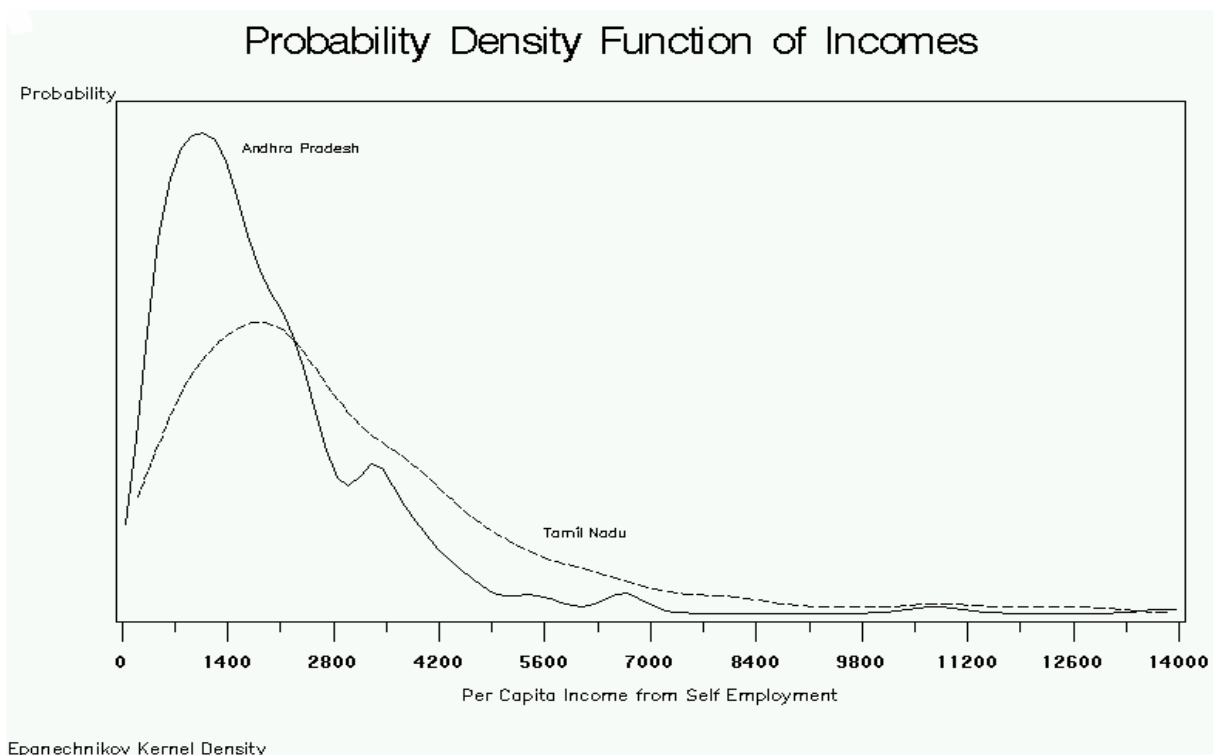


Figure 3



4.10 The important implication of these observations is that it is not obvious how non-farm income shares are likely to evolve in the face of broad economic development. While one would expect productive non-farm activities to become relatively more important with economic progress, the less productive activities would be expected to wither away. As a result, overall non-farm income shares might not rise (although, of course, both total, and non-farm, income *levels* would be expected to rise). Andhra Pradesh and Tamil Nadu appear to provide good examples of two states located at opposite extremes along this development path. In Tamil Nadu, on the one hand, the non-farm sector has developed to such an extent that it offers a genuine alternative to agriculture as a source of upward mobility. In Andhra Pradesh, on the other hand, the non-farm sector seems to be centered to a large extent around residual activities that the poor, who are perhaps unable to gain access to sufficient land for cultivation (or of sufficient quality) are compelled to turn to in order to make ends meet.

4.11 In Annex 4 we carry out an econometric analysis of NCAER data to study the individual, household and community characteristics that are associated with non-farm activities and incomes. We employ a multiple regression approach here which allows us to scrutinize, in turn, the statistical association between non-farm activities or incomes and specific characteristics, holding the influence of other characteristics constant. We find strong evidence of the importance of education in determining access to non-farm occupations and non-farm incomes, with secondary and higher education appearing to be particularly important. Two population groups who appear to be disadvantaged are women and scheduled caste households. Not only do these groups typically possess much lower levels of human capital, but controlling for these assets, they face additional constraints on employment and earnings. The nature of these constraints requires further investigation. It is important to know, for example, to what extent labor regulations in Tamil Nadu impinge on the ability of women to take up employment in the non-farm sector.

VILLAGE STUDY PERSPECTIVES ON THE NON-FARM ECONOMY

4.12 Village Studies have noticed two broad changes in employment patterns over the last few decades: a decline in traditional caste-based as well as permanent farm servants, and an expansion of non-agricultural employment. The decline of traditional caste-based occupations and use of permanent farm servants (pannaiyal) has long been observed in the villages of rural Tamil Nadu (see, for example, Baker, 1984, Gough, 1987).

4.13 In Chettipalayam, a hamlet in Appipalayam revenue village near Karur, Neelakantan (1996) attributes the decreased use of pannaiyals to at least three phenomena. The first is an increase in rural wages, which made it more attractive for pannaiyals to seek work as agricultural laborers. Second, there have been subtle occupational changes induced by the green revolution. Since irrigation depended on electricity and this was only supplied at night, the pannaiyals were compelled to work nocturnally; increased use of fertilizers led to more weeds, whose removal was extremely labor intensive. Moreover, the introduction of tractors made pannaiyals' skill with bullocks redundant and this led to a loss of pride in their work. Third, working in return for food became perceived as being undignified.

4.14 Perhaps surprisingly, given its association with unfree labor, the decline of the pannaiyal system has not been welcomed everywhere. Rajuladevi (2001), for instance reports landless villagers looking back to the system with nostalgia. They lament that the system had at least provided them with regular employment for at least half the year – something which was no longer guaranteed. Moreover, they had received gifts from their landlords at the start of the agricultural season as well as at village festivals.

4.15 At the same time, decline is not the same as demise. In Enathimelpakkam between 1985-86 and 1993-94, permanent servants have been replaced by semi-permanent servants who were paid an advance in return for a commitment to work for landlords during the peak agricultural season (Naidu, 1995a). Similarly, in Gokilapuram, the traditional farm servant arrangement has been replaced by the so-called "right of first call", whereby the workers first check in at their patron's house to see if their services are required there before seeking employment elsewhere (Ramachandran, 1990).

4.16 Village studies from the last decade or so, however, do make special note of the expansion of non-agricultural employment, which includes such activities as household manufacturing, construction, trade, transport, storage and other such service. As Harriss-White et al note, "The non-agricultural rural economy is no longer marginal, it is of central importance to the reproduction of rural society." This development is particularly intriguing given our earlier observation that productivity as well as agricultural growth – which often drives investment in the non-agricultural sector – appears to have declined in recent years.

4.17 The expansion of non-farm employment opportunities is the outcome of both "push" and "pull" factors. On the "push" side, several village studies have remarked upon population pressures, as well as decline in labor input on farms, attributed at least in part to the continued mechanization of ploughing, irrigation and threshing (for example, Harriss-White et al, Naidu, 1995a b.) Moreover, numerous village studies have noticed an increased reliance on the use of migrant labor, often workings in "gangs" – a contract whereby a team of laborers execute an agricultural operation within a particular time frame, at a pre-specified rate – which has substituted for locally hired or family labor (Neelakantan, 1996, Naidu, 1995a, b.)

4.18 At the same time, the increases average real wages in the agricultural sector that we saw in the previous section does suggest that there has been some contraction in the supply of agricultural labor

driven by “pull” factors. The prospect of higher or more stable wages is clearly one draw of the non-agricultural sector, particularly among men (Rajasekhar, 2001). Village studies do, however, point out two important caveats. First, non-agricultural employment tends to favor men, better educated individuals, and upper castes (Harriss-White et al, Naidu 1995 a, b, Hockings, 1999). We explore this observation in greater detail using NCAER data below. Second, young men in scheduled castes are often drawn to employment in the non-agricultural sector because they view it as a means to break with the traditional notion of agricultural employment being associated with low social status.

4.19 Often, non-agricultural employment is accompanied by the migration of one or more family members to urban areas. It is not surprising, therefore, that some of the village studies which notice rather dramatic increases in the incidence of non-farm employment are those located in close distance to urban areas and are, in some instances, gradually become peri-urban themselves (see, for example, Anandhi et al., 2002, Naidu., 1995a, b) and Neelakantan, 1996).

4.20 *Gender differences.* Several village studies maintain that the non-agricultural labor market is highly segmented and discriminates against not only scheduled castes, but also women (Srinivasan, Harriss-White et al., forthcoming). In Enathimelpakkam, non-farm employment in 1993-4 was restricted almost exclusively to males, despite a dramatic rise in the aggregate number of individuals employed in this sector. Those few women who were engaged in non-agricultural employment worked almost exclusively in low-paying jobs as cooks in noon meal centres and ayahs in Balwadis (Naidu, 1995a). Naidu (1995b) notices a similar pattern in Verkadu.

4.21 At the same time, liberalization has led to a boom in certain export industries in Tamil Nadu, which favour female employment, particularly in the garment and leather industries (Jeyaranjan and Swaminathan, 1999 and Nihila, 1999.) Indeed, it is possible that aggregate statistics underestimate the extent of the expansion of female employment since some of this work is outsourced (especially by small-scale industries) to women who then work at home. On the one hand, the expansion of female employment has undoubtedly opened up important income earning opportunities for women. On the other, women often earn less than men even in these export-oriented sectors. In the now legendary case of Tiruppur, for example, Cawthorne (1995) notes that this was certainly the case, although she argues that this was probably the result of their concentration in low-skilled jobs, as well as the fact that they worked for fewer hours at the same piece rate as men.

4.22 Importantly, however, much of the recent job creation is based in the informal sector, or illegally in the formal sector. As a result, working conditions are often difficult. In Tiruppur, women (and children) are reported to have worked 12 hours a day, six days a week. However, Cawthorne (1995) also notes that the conditions in the power loom industry were not nearly as bad as that in the match and leather industries.

4.23 This is exemplified in Nihila’s (1999) survey of leather tannery workers in Dindigul. Leather tanning is classified as a hazardous industry under the 1948 Factories Act. Prolonged contact with chemicals used in the process leads to numerous diseases ranging from itching skin to death. Yet, in her survey, Nihila (1999) finds that women are not provided with any type of personal protection. “They use discarded car tires as boots; plastic sheets are used to cover waist; gloves discarded by male tannery workers are passed on to women after being over-used...”

4.24 Ironically, the ban on women working in hazardous industries under the 1948 Factories Act seems to have hurt rather than helped women. Since the Factories Act does not forbid the hiring of men, they are more often legally hired, and this gives them more bargaining power than women. For example, they are unionized and so, in collusion with employers, monopolize machine work which is relatively well paid. Women, by contrast, are generally assigned relatively arduous tasks, working

under the direct heat of the sun, often with no separate toilet. As Box 1 demonstrates, work conditions such as those describe by Nihila (1992) are also prevalent elsewhere in the state.

Box 1: Work at a Stainless Steel firm in Chennai

Washermentpet is a low-income neighborhood in North Chennai. As the name suggests, it was predominantly inhabited by washermen about 30 to 35 years back. Washing and pressing, the traditional family occupation has since vanished along with the area's ponds. Today, the production of stainless steel and plastic are the two major small-scale industries in the locality.

In July 2002, The Gandhi Peace Foundation, Madras organized an Exposure Visit for its volunteers' wing. I was one of the volunteers and as part of this programme we visited the small-scale industries of Old Washermentpet. Although we had heard about the existence of such industries, when we actually visited the place we were taken aback the working conditions and hardships involved. I decided to experience such work at least for a short period. I started work in the stainless steel factory in August, 2002.

The firm purchases raw materials, makes stainless steel vessels, and then sells them to wholesalers at the nearby market. Sundays are holidays and Mondays are payday. We work from 9 a.m. to 7.p.m. There is a lunch break from 1:00 – 2:00 p.m. At around 11.30 a.m. and 4 p.m. tea is provided as we work. I work with four girls- Sathya, Devi, Gaja and Kumari- all between the ages of 12 and 16 years. They are residents of Old Washermentpet. Their houses are at walking distance from the firm. They go home for lunch.

Kumari works on the first floor operating a machine whereas we are on the ground floor. Our job is to polish newly made vessels using a cloth dipped in chalk. The workplace is very small and congested, filled with raw materials, vessels and machinery. In addition to polishing, welding, heating and all other technical work takes place here. There is a room for administration and another small room for keeping the belongings of the workers. We work just outside the men's toilet.

I only have to wipe vessels. The other girls sometimes have more demanding tasks such as operating the machines, and carrying vessels from one unit to the other. At 3 p.m. everyday, a vehicle comes to take the finished vessels to the market. We have to work at a furious pace to meet the deadline.

The hours are long and the wages, low. The boss claims that he pays Rs.50/- per day as wages but the girls are paid only Rs.30/- plus Rs.2/- per day. If the girls talk to each other during work or are absent from or late for work, they suffer verbal abuse. I am shocked by the language used. Even simple instructions are delivered in a derogatory manner. The girls tolerate it for fear of losing their jobs.

The girls usually come to the work site dressed in neat clothes and change into old ones, as the work would spoil their good clothes. There is no changing room. The men gawk and tease. There is no separate ladies women's toilet. The only toilet is located inside the plant where the men work. The girls cannot go there without being subject to indecent comments. It makes them reluctant visit the toilet.

The chalk power causes health problems and complaints of stomach pains are common. Still, doctors are rarely consulted: the girls don't have the time, money or energy. To make matters worse, the heat is often unbearable working under an asbestos room for long hours amidst furnaces and dust. There is no safe drinking water and no clean water to wash ones hands. The girls have no legal recourse since they work in the informal sector.

Today, only one of the four girls still works at the firm. One quit following an unpleasant encounter with one of the male co-workers. Another left because she moved. The third left as she had attained puberty. I left after one month because I could.

- K. Monica Arogyamary

4.25 Summary. Non-farm income shares in Tamil Nadu are high, compared to neighboring states such as Andhra Pradesh, or even India as a whole. Nearly half of household income in rural areas comes from activities that are not directly linked to agriculture, and the sector is thus of considerable

importance in this state. We have indicated that a helpful three-way classification of non-farm activities distinguishes between casual non-farm wage labor, own-enterprise activities and regular, salaried non-farm employment. The first of these sub-sectors is likely to employ the poor in significant numbers but offer only low returns, and thus relatively few prospects for significant upward mobility. The last of the sub-sectors would seem to offer a clear route out of poverty for those poor fortunate enough to gain access to these activities. In most settings, own-enterprise and self-employment activities typically comprise both residual last resort activities as well as genuinely productive small scale manufacturing, trading and other service activities. In Tamil Nadu, however, we have seen that on balance self-employment activities tend to be more closely associated with high-returns than in neighboring states, and thus also appear to offer some prospects of escape from poverty. Overall, therefore, casual non-farm wage labor, in part, the symptoms of poverty in rural areas, and do not necessarily point an escape from poverty. This is in some contrast with self-employment, and strongly so with non-farm regular employment, both of which are correlated with overall economic welfare levels and thereby seems to be offering genuine avenues out of poverty.

4.26 Evidence presented in Annex 4 documents the importance of education in determining access to non-farm occupations and non-farm incomes, with secondary and higher education appearing to be particularly important. The analysis also suggests that women and scheduled caste households are disadvantaged in this “sector”. Not only do these groups typically possess much lower levels of human capital, but controlling for these assets, they face additional constraints on employment and earnings. The nature of these constraints requires further investigation. It is important to know, for example, to what extent labor regulations in Tamil Nadu impinge on the ability of women to take up employment in the non-farm sector.

4.27 The dual challenge facing policy makers in Tamil Nadu is thus to first, consolidate and build on the momentum that has been achieved in the non-farm economy. The goal here is to raise non-farm incomes across the board. However the second, more difficult but centrally important, objective is to improve access of the poor to opportunities in the non-farm economy and to remove the impediments that those of lower social status and wealth appear to face in participating in this sector – particularly in regular, well remunerated occupations.

4.28 In order to shed some further light on the first set of questions, namely how to promote the expansion of the non-farm sector in rural Tamil Nadu, we turn now to an examination of the NSSO 1999/00 special module on Informal Non-Agricultural Enterprises.

INFORMAL SMALL SCALE ENTERPRISES IN TAMIL NADU

4.29 Table 22 indicates there were a total of just under 3.5 million small informal enterprises in Tamil Nadu employing some 7 million workers in 1999/00 (Table 22). Tamil Nadu accounts for roughly 12% of small informal enterprises in India, and about 9% of total employment in the country in this sector. Tamil Nadu comprises about as many enterprises and workers as does neighbouring Andhra Pradesh, and considerably more than do Karnataka and Kerala, respectively.

Table 22: Small Informal Non-Agricultural Enterprises in Selected States

State	No of enterprises ('000)			No of workers ('000)		
	Rural (%)	Urban (%)	Total (%)	Rural (%)	Urban (%)	Total (%)
Tamil Nadu	1,638 (47)	1,851 (53)	3,489 (100)	2,983 (42)	4,107 (58)	7,090 (100)
Andhra Pradesh	2,146 (57)	1,650 (43)	3,796 (100)	3,740 (52)	3,425 (48)	7,164 (100)
Karnataka	1,142 (51)	1,110 (49)	2,252 (100)	2,092 (45)	2,574 (55)	4,666 (100)
Kerala	1,011 (64)	581 (36)	1,592 (100)	1,790 (61)	1,167 (39)	2,957 (100)
Gujarat	769 (37)	1,321 (63)	2,091 (100)	1,240 (29)	3,057 (71)	4,321 (100)
Maharashtra	1,491 (38)	2,405 (62)	3,896 (100)	2,385 (29)	5,775 (71)	8,160 (100)
All India	25,068 (56)	19,344 (43)	44,412 (100)	39,808 (50)	39,975 (50)	79,783 (100)

Source: NSSO 55th Round (Schedule 2.0)

4.30 In Tamil Nadu roughly 47 percent of enterprises and 42 percent of employment in this sector occurs in rural areas. This is a significantly lower percentage than in the neighbouring states of AP, Karnataka and Kerala, and is also lower than the all-India average. However, it is still higher than in states such as Gujarat and Maharashtra with their large dynamic urban manufacturing sectors.

4.31 Firms in this sector are truly small. At the all-India level, small informal non-agricultural enterprises average 1.8 workers per enterprise (Table 23). In Tamil Nadu the figure is somewhat higher at 2.03 workers. In fact, informal non-agricultural enterprises in all of the states of Southern India tend to have somewhat larger workforces than the all-India average, with Karnataka having the highest ratio. The size of firms in our other two reference states of Gujarat and Maharashtra is somewhat higher than in the South Indian firms. Rural enterprises in all states tend to be smaller than in urban areas. Within the southern states firms in Tamil Nadu and Karnataka tend to employ more workers, in both rural and urban areas, than do firms in Andhra Pradesh and Karnataka.

Table 23: Average Number of Workers per Small Informal Non-Agricultural Enterprise: Selected States

State	Workers per Enterprise		
	Rural	Urban	Total
Tamil Nadu	1.82	2.22	2.03
Andhra Pradesh	1.74	2.08	1.88
Karnataka	1.83	2.32	2.07
Kerala	1.77	2.00	1.86
Gujarat	1.61	2.31	2.07
Maharashtra	1.60	2.40	2.09
All India	1.59	2.07	1.80

Source: NSSO 55th Round (Schedule 2.0)

4.32 Informal enterprise activity in the non-agricultural sector in Tamil Nadu is noticeably more oriented toward manufacturing than is the case with its neighbours or even Maharashtra and Gujarat

(Table 24). Nearly 50 percent of small enterprises in the state are engaged in manufacturing activities. In other industrial sectors, Tamil Nadu does not stand out as markedly from the other states.

Table 24: Distribution of Small Informal Non-Agricultural Enterprises by Broad Industry Codes

State	Manufacturing	Construction	Trade Repair service	Hotels restaurant	Transport storage communication	other service
Tamil Nadu	47.19	2.49	27.56	6.35	4.40	12.00
Andhra Pradesh	43.08	0.93	28.14	4.45	5.14	18.26
Karnataka	41.88	1.55	36.94	7.01	3.82	8.80
Kerala	31.35	4.82	38.33	7.17	8.11	10.22
Gujarat	39.68	2.51	40.38	2.31	8.60	6.52
Maharashtra	38.46	2.21	38.58	4.97	5.15	10.62

Source: NSSO 55th Round (Schedule 2.0)

4.33 A closer look within the manufacturing sector shows that the key manufacturing sectors in Tamil Nadu are textile and apparel production (Table 25). In Tamil Nadu a quarter of all manufacturing activities carried out by small informal enterprises consist of textile production, with another 16 percent coming from the production of apparel. In terms of producing textiles and chemical (probably dyeing) products, Tamil Nadu stands out in some contrast from the other states in the South of India, and also from Gujarat and Maharashtra. It seems clear that the production of these two goods is what accounts for the relatively higher share of manufacturing in total small enterprise activity in Tamil Nadu. Interestingly, the production of clothing (apparel) is relatively less common in Tamil Nadu than in the other reference states.

Table 25: Distribution of Small Informal Manufacturing by 2-Digit NIC Code: Selected States

NIC2	Tamil Nadu	Andhra Pradesh	Karnataka	Kerala	Gujarat	Maharashtra
Manufacturing	47.19	43.08	41.88	31.35	39.68	38.46
Food & beverages	9.75	11.88	12.80	16.96	16.78	22.00
Tobacco	9.43	3.40	14.40	6.82	1.11	2.52
Textiles	25.08	13.95	13.33	14.30	7.77	1.53
Apparel	16.48	23.14	22.14	27.40	23.78	27.86
Leather	0.05	0.69	0.59	0.22	0.95	1.70
Wood products	14.81	33.20	23.81	7.30	13.72	28.17
Paper	0.06	0.07	0.14	0.07	0.00	0.00
Publishing	0.57	0.07	0.35	3.38	0.15	0.61
Coke, refined petroleum	0.19	0.02	0.00	0.00	0.23	0.00
Chemical	12.95	0.05	0.92	0.84	0.25	0.51
Rubber, plastic	0.33	0.04	0.35	1.49	2.56	0.11
Other non-metallic mineral	3.68	5.67	2.82	3.83	6.43	4.01
Basic metals	0.47	0.10	0.26	0.17	0.00	0.16
Fabricated metal	1.75	2.85	3.63	4.95	7.62	3.05
Machinery	0.73	0.55	1.45	1.10	3.49	2.33
Electrical machinery	0.04	0.27	0.44	0.54	1.94	0.00
Radio, TV	0.00	0.00	0.00	0.00	0.00	0.00
Medical, optical, watches	0.00	0.00	0.00	0.00	0.00	0.02
Motor vehicles, trailers	0.00	0.00	0.00	0.00	0.00	0.00
Other transport equipment	0.21	0.00	0.02	0.07	0.00	0.45
Furniture	3.15	3.54	2.53	10.20	13.08	4.50
Recycling	0.27	0.49	0.02	0.35	0.00	0.45
	100	100	100	100	100	100

Source: NSSO 55th Round (Schedule 2.0)

4.34 How are small informal sector enterprises faring in Tamil Nadu? Tables 226a-26d suggest that firms Tamil Nadu perceive themselves to face relatively few constraints, certainly in comparison to their neighbors in the South of India. In Tamil Nadu, more than 50 percent of firms report themselves to face no major problems in their operating environment (Table 26a). This percentage is somewhat lower within the hotel sector, and is nearly as high as 60 percent in the construction sector. Amongst those firms that do report facing some difficulties, these appear to arise mainly in terms of access to capital, followed by non-availability of inputs, competitive pressure from larger units, and lack of marketing infrastructure. In neighboring states, particularly Karnataka, firms are generally less satisfied. In Andhra Pradesh and Karnataka, access to capital appears to be more difficult than in Tamil Nadu, while in Kerala, competitive pressure from larger firms is felt to be particularly strong (Table 26b-26d). Interestingly, in Tamil Nadu shortages of power or lack of lighting facilities hardly occur amongst firms' responses to queries regarding their operating environment. In neighboring states these concerns also do not feature highly amongst firms' reported concerns, but they do seem somewhat more preoccupied by such issues than are the small informal sector firms in Tamil Nadu.

Table 26a: Perceptions on Problems Faced: Tamil Nadu

	manufacturing	Construction	trade	hotels	Transport	other service	all
no problems	50.75	59.63	48.46	40.60	50.06	57.99	50.53
Shortage of capital	18.14	22.00	27.45	35.68	16.64	16.16	21.61
lack of lighting facilities	0.39	0.00	0.26	0.32	0.00	0.20	0.30
problem of power cut	0.79	0.00	0.48	0.00	0.00	0.33	0.54
lack of marketing/ infrastructural facilities	4.76	2.70	3.49	1.72	4.33	3.36	3.98
local problems	3.60	2.55	6.72	5.53	2.93	7.28	4.97
competition from larger units	5.24	4.12	7.92	8.28	11.24	5.58	6.45
non-availability of labor	0.48	0.93	0.11	0.00	0.14	0.38	0.33
labor problems	1.11	2.04	0.13	0.40	1.84	0.42	0.77
raw materials/fuel not available/expensive	10.46	1.29	0.60	0.12	1.29	0.14	5.22
non recovery of svc charges/fees/credit	2.17	2.51	3.83	6.94	9.61	6.48	3.78
others	2.13	2.23	0.56	0.41	1.92	1.69	1.53

Source: NSSO 55th Round (Schedule 2.0)

Table 26b: Perceptions on Problems Faced: Andhra Pradesh

	manufacturing	Construction	Trade	hotels	transport	other service	all
no problems	40.30	49.21	44.87	37.77	55.85	63.21	46.55
shortage of capital	27.31	15.48	33.65	43.36	15.56	17.70	27.34
lack of lighting facilities	0.06	0.00	0.03	0.07	0.00	0.28	0.09
problem of power cut	2.33	2.11	0.49	3.29	0.29	0.49	1.41
lack of marketing/ infrastructural facilities	10.79	5.46	7.30	2.15	8.61	3.77	7.98
local problems	1.65	2.28	1.83	0.85	2.39	3.63	2.07
competition from larger units	6.41	9.63	6.16	9.20	5.69	3.20	5.87
non-availability of labor	0.53	5.36	0.04	0.02	0.13	0.24	0.34
labor problems	0.50	1.45	0.00	0.02	0.11	0.00	0.24
raw materials/fuel not available/expensive	4.23	0.00	0.47	0.08	1.45	0.06	2.04
non recovery of svc charges/fees/credit	1.13	0.00	3.66	3.19	1.78	4.28	2.54
others	4.75	9.03	1.48	0.00	8.12	3.15	3.54

Source: NSSO 55th Round (Schedule 2.0)

Table 26c: Perceptions on Problems Faced: Karnataka

	manufacturing	Construction	trade	hotels	Transport	other service	all
no problems	33.54	23.61	40.60	37.97	36.47	46.78	37.58
shortage of capital	23.73	37.19	34.32	28.80	14.25	22.17	27.71
lack of lighting facilities	2.52	0.00	0.24	0.25	0.00	0.14	1.17
problem of power cut	4.27	0.00	0.41	0.10	0.85	2.44	2.20
lack of marketing/ infrastructural facilities	7.83	0.00	6.70	7.55	12.45	9.40	7.59
local problems	15.69	16.56	7.47	11.44	17.82	12.54	12.17
competition from larger units	2.71	15.87	5.09	7.36	7.42	3.69	4.38
non-availability of labor	0.37	3.22	0.27	0.00	0.00	0.00	0.30
labor problems	0.88	3.55	0.18	0.08	0.00	0.03	0.50
raw materials/fuel not available/expensive	5.85	0.00	0.56	0.00	4.19	0.00	2.82
non recovery of svc charges/fees/credit	2.11	0.00	3.65	5.89	0.75	2.19	2.87
others	0.49	0.00	0.51	0.55	5.80	0.63	0.71

Source: NSSO 55th Round (Schedule 2.0)

Table 26d: Perceptions on Problems Faced: Kerala

	Manufacturing	Construction	trade	hotels	transport	other service	All
no problems	42.34	45.37	39.60	37.20	39.98	50.50	41.71
Shortage of capital	19.08	9.48	25.09	29.93	11.54	8.41	20.00
lack of lighting facilities	0.58	0.00	0.21	0.00	0.04	0.98	0.37
Problem of power cut	3.93	0.12	0.61	0.27	0.00	1.31	1.62
lack of marketing/ infrastructural facilities	8.43	8.46	7.86	6.74	9.85	6.93	8.05
local problems	4.00	12.71	6.33	8.79	11.38	6.56	6.52
Competition from larger units	10.60	7.51	13.25	10.32	11.04	20.99	12.54
non-availability of labor	1.75	7.31	0.61	0.27	2.08	0.14	1.34
labor problems	0.67	0.99	0.20	0.25	0.99	0.09	0.44
raw materials/fuel not available/expensive	2.89	0.14	0.21	0.18	4.59	0.11	1.39
non recovery of svc charges/fees/credit	0.56	3.23	2.94	1.85	1.35	1.30	1.83
Others	5.17	4.67	3.11	4.19	7.15	2.67	4.19

Source: NSSO 55th Round (Schedule 2.0)

4.35 The small-scale informal enterprise sector appears also to be more vibrant in Tamil Nadu than in neighboring states (Tables 27a-27d). More than 25 percent of firms in Tamil Nadu report that they have been expanding during the past three years.⁹ This expansion has been most common in the manufacturing, construction, and “other” service sectors. Compared to its neighboring states expansion in the manufacturing sector of Tamil Nadu is most substantial.

⁹ Schedule 2 of the NSS 55th round does not specify whether expansion is in terms of employment, sales, or some other criterion.

Table 27a: Status of the enterprise over the last 3 years: Tamil Nadu

	manufacturing	Construction	trade	hotels	transport	other service	all
Expanding	25.78	30.20	27.11	24.27	22.04	29.52	26.44
Stagnant	60.32	62.90	52.93	55.10	55.04	54.61	57.10
Contracting	5.97	2.45	4.52	5.58	7.08	5.41	5.44
not applicable	7.93	4.45	15.44	15.05	15.84	10.46	11.02

Source: NSSO 55th Round (Schedule 2.0)

Table 27b: Status of the enterprise over the last 3 years: Andhra Pradesh

	manufacturing	Construction	trade	hotels	transport	other service	all
expanding	15.60	26.85	18.86	17.92	13.17	12.22	15.98
stagnant	70.90	68.31	65.74	63.74	61.14	79.44	70.16
contracting	6.77	4.14	5.56	4.62	10.07	3.76	5.93
not applicable	6.74	0.70	9.84	13.72	15.63	4.58	7.93

Source: NSSO 55th Round (Schedule 2.0)

Table 27c: Status of the enterprise over the last 3 years: Karnataka

	manufacturing	Construction	trade	hotels	transport	other service	All
Expanding	21.36	27.05	29.09	25.34	31.83	26.25	25.42
Stagnant	65.70	71.13	61.46	65.72	59.29	63.89	63.81
Contracting	11.79	1.82	6.61	6.46	6.58	7.39	8.76
not applicable	1.15	0.00	2.84	2.47	2.30	2.47	2.01

Source: NSSO 55th Round (Schedule 2.0)

Table 27d: Status of the enterprise over the last 3 years: Kerala

	manufacturing	construction	trade	hotels	transport	other service	All
expanding	18.94	18.80	19.15	15.19	18.62	22.74	19.11
stagnant	57.11	62.94	52.44	55.41	57.35	54.17	55.20
contracting	13.27	9.20	14.50	14.45	10.66	9.37	13.02
not applicable	10.68	9.05	13.91	14.95	13.36	13.72	12.67

Source: NSSO 55th Round (Schedule 2.0)

4.36 *Summary*. From the enterprise survey fielded by the NSSO in 1999/00 the general impression gained is of a small-scale informal enterprise sector in Tamil Nadu which is fairly large in size and which is concentrated in a relatively small set of manufacturing activities, especially textile production. The sector seems to be relatively well placed with respect to the general operating climate and the survey suggests that there has been greater expansion during recent years in Tamil Nadu than in neighboring states.

4.37 These findings with respect to the small-scale informal sector stand in some contrast to the general impression one obtains from interviews and discussions with the large-scale enterprises. These latter respondents commonly point to a general investment climate which is less conducive to growth and investment. One explanation for these divergent views might simply lie in different expectations across enterprises. Large firms are possibly more likely to compare their situation against that of counterparts in other parts of India, or even abroad, while small firms may simply compare their current situation against one which they faced in the past. Another possibility is that

small firms are better placed to escape the purview of government administration (regulation, taxation, etc.) while large firms are more commonly the target of intrusive intervention.

CHAPTER 5: POLICY DISCUSSION

5.1 Any poverty reduction strategy involves four main steps:

1. Understanding the nature of poverty and identifying the key determinants of poverty
2. Formulating goals, selecting indicators which can measure progress to the goal, and identifying targets.
3. Designing and implementing the poverty alleviation scheme
4. Monitoring outcomes and evaluating impact

5.2 From available data – mainly NSS, NCAER and NFHS – we have been able to make some progress towards tackling step 1. In particular, we are able to draw important lessons regarding the relationship between poverty in Tamil Nadu and geography, asset ownership, occupation, demographics, health and education, and agriculture.

5.3 These messages yield a number of broad implications regarding anti-poverty strategies. In terms of targeting, there appears to be a case for paying special attention to the rural areas in the Coastal North and the South, and possibly to the urban areas in the Coastal North. Scheduled Castes and Scheduled Tribes also appear to face particular barriers to upward mobility, and the data suggest that these stem at least in part from three sources: access to land, education, and regular non-farm employment. Indeed these three barriers, although especially acute for SC/STs, tend to be characteristic of the poor more broadly. Addressing them will therefore be a vital part of any poverty alleviation strategy pursued by the state.

5.4 Messages regarding the nature and determinants of poverty for which we are *able* to glean from available data are important. However, it is glaringly obvious that there are a great many questions regarding poverty in Tamil Nadu that we have been *unable* to answer for lack of data. The list of questions which remain unanswered is extremely long, but a couple of examples may serve to illustrate the consequences of data limitations facing poverty analysis.

5.5 First, since NSS data are only representative at the NSSO regional level, we are unable to construct more disaggregated regional poverty measures. From the point of view of policymakers, and in particular against a background of de-centralization, there is real interest in knowing more about the geography of poverty at the level of districts or even blocks. Methods have been developed in recent years to combine survey with census data so as to produce such detailed geographic profiles of poverty, but such methods have not yet been implemented in India. Such information is thus unlikely to become available in the short run.

5.6 Similarly, although we can glean some insights from NFHS data, we cannot paint a very detailed picture of urban poverty. This is clearly unsatisfactory since urban poverty promises to be a growing challenge with the rapid urbanization of the state.

5.7 Second, although data such as the NFHS do provide us a rich picture of women's quality of life, it has little data regarding income or consumption. This makes it difficult to map these indicators into an understanding of poverty. Given that the Tamil Nadu government has been laying increasing emphasis on assisting women, it would no doubt be useful to systematically identify the challenges facing poor women. Although constraints on employment and earnings appear to be an important deterrent to upward mobility amongst women, as well as other disadvantaged demographic groups,

especially SC/STs, we are not in the position to elaborate on the nature of these constraints, particularly in urban areas.

5.8 Developing a comprehensive poverty reduction strategy will involve more investment in poverty monitoring. This is obviously a grand undertaking, but the recent BPL survey is an important step in this direction. It asks a number of important questions regarding household characteristics, including income, asset ownership, and a few occupational and demographic characteristics. Since it is a census, the BPL is amenable to the addition of modules, which could be used to acquire data representative at least at the district level. Such an undertaking would be considerably facilitated by virtue of the fact that much of the necessary survey infrastructure is already in place. The BPL therefore offers a valuable opportunity to fill gaps in our knowledge regarding the nature and determinants of poverty in Tamil Nadu and perhaps even beyond, in the impact evaluation of extant APPs. Much remains to be learnt, however, about the quality and reliability of the BPL data that are currently being collected.

5.9 The GoTN expends considerable thought and effort in undertaking step 2, the formulation of goals and identification of targets. The 10th Five Year Plan, for instance, has a section in Chapter 2 devoted entirely to the definition of such objectives.¹⁰ These are further articulated in later chapters as well as the annual Policy Notes produced by the state's various departments.

5.10 Step 3 involves the design and implementation of poverty alleviation schemes. It is beyond the scope of this note to provide a complete list of all the APPs provided in Tamil Nadu: the list is simply too large. The main comprehensive source of anti-poverty policies (APPs) in the state is Tamil Nadu's 10th Five Year Plan. An examination of Tamil Nadu's 10th plan, concentrating on those policies which constitute a high proportion of individual departments' budgets, sheds some light on the state's main APPs. The APPs are primarily project oriented, comprising a wide range of interventions from agriculture, health, and education, to schemes targeted to particular social and demographic groups such as SC/STs, women, and children.

5.11 We can only speculate on ways in which policies may be confronting problems since this is not made explicit. Moreover, details of program design and implementation are scant, and different programmes are not always coordinated, with multiple, overlapping and sometimes conflicting objectives. Encouragingly, however, many schemes appear to be, or have the potential to be, broadly focused on issues which data suggest are important to the poor.

5.12 As we have seen, poverty tends to be concentrated in the North Coastal area, and in rural areas in the South. Two major regionally oriented programmes which could be utilized to target these disadvantaged regions are the Member of Legislative Assembly Constituency Development Scheme (MLACD) and Member of Parliament Local Area Development Programme (MPLADP). Under these schemes, MLAs and MPs respectively, are allocated budgets which they can devote to projects of their choice, targeted at particular districts or constituencies. Another programme which may be in the position to tackle rural regional poverty is the Village Self-Sufficiency Scheme. Aimed at the creation of community assets, this scheme has the potential to address the particular needs of various rural communities since it involves Grama Sabha participation and public contributions.

5.13 With respect to occupation, the poorest in the state are concentrated in agricultural labour, where they earn low average wages with a high variance in incomes due to seasonality. Since the livelihoods of agricultural labourer households are precarious, particularly in the non-agricultural season, the Public Distribution System (PDS) plays an important role in providing them with basic

¹⁰ Ch. 2.1, p. 31-44

food security. One of the reasons the PDS has been relatively effective in reaching the poor in Tamil Nadu is that the state has had a universal (as opposed to a targeted) system, allotting rice at Rs. 3.5 per kg for the first 10 kgs. and Rs. 6 per kg for another 10 kgs. to all ration card holders. This has, of course, resulted in considerable fiscal strain: the GoTN topped up the GoI budgetary allocation with an additional subsidy of nearly Rs. 1,500 Cr. in 2000/1. During the course of reforms moving PDS from a universal to a self-targeting system it will be extremely important to ascertain that the reform does not lead to the exclusion of the poor.

5.14 Low incomes with high variance among agricultural labourers should be mitigated in part by the Sampoorna Grameen Rozgar Yojana (SGRY). Introduced in 2002 as a merger of the Employment Assurance Scheme (EAS) and Jawahar Gram Samridhi Yojana (JGSY), this centrally sponsored scheme is the state's main food for work programme. The primary objective of the scheme is to provide additional wage employment in rural areas, thereby providing food security and improving nutritional levels. The secondary objective is the creation of durable community, social and economic assets and infrastructural development in rural areas. Evidence suggests that rural public works programmes tend to be relatively effective at reaching the poor, particularly when wages are no higher than the prevailing market wage, and willingness to work at this wage rate is the only eligibility criterion.

5.15 Income from non-farm sources increases monotonically as overall income rises, with *regular*, rather than *casual*, non-farm employment being an important source of income for the non-poor. At the same time, it appears to be difficult for at least two demographic groups obtain regular employment in the non-farm sector: women and SC/STs. Although it is unclear to what extent these generate a source of regular employment, the GoTN does have a number of programmes which are aimed at generating self-employment, particularly among women and SC/STs. Major programmes include the Swarnjayanthi Grama Swarozgar Yojana (SGSY), The Prime Minister's Rozgar Yojana (PMRY), Tribal Development, and Mahalir Thittam.

5.16 SGSY is a centrally sponsored scheme, introduced in April, 1999 as a merger of the Integrated Rural Development Programme (IRDP), Training of Rural Youth for Self-Employment (TRYSEM), Development of Women and Children in Rural Areas (DWCRA), Supply of Improved Toolkits to Rural Artisans (SITRA), Ganga Kalyan Yojana (GKY), and Million Wells Scheme (MWS). Aimed at generating self-employment through micro-enterprise development primarily among BPL families, it is mediated through 10-20 member self-help groups (SHGs) who are given access to revolving funds, culminating in a project subsidy.

5.17 The centrally sponsored PMRY was instituted in 1993, and is intended to provide self-employment to educated unemployed youth through the promotion of micro-enterprises. It has a 22.5% reservation for SC/STs and a further 27% for other Backward Castes (BCs). The GoI sponsored Tribal Development programme is geared towards sustainable employment generation for tribal populations, while maintaining an environmental focus. Run under the auspices of the forestry sector, the programme is targeted at tribal pockets in 9 districts, covering roughly 33% of the state's tribal population.

5.18 Mahalir Thittam grew out of an IFAD-assisted Tamil Nadu Women's Development Project, and is the major project of the Social Welfare component of the Social Welfare and Nutritious Meal Programme Department. It promotes vocational training, entrepreneurial development and micro-credit through women's SHGs. There is an indication that these SHGs are to become the main forum through which poverty-alleviation measures in the state will be channelled in the future. It would therefore be useful to evaluate their efficacy in providing viable self-employment.

5.19 The poorest in the state have the lowest levels of education. Moreover, there exists a gender gap (albeit diminishing) and a caste gap, with girls and SC/STs having lower educational attainment than boys and non-SC/STs respectively. Lower education levels as well as landholdings among SC/STs go some way in explaining why this group tends to be highly represented among the poor. Education is clearly a priority for the GoTN. Schooling is provided free of charge until +2, as are textbooks in elementary and middle school; uniforms are free, and slates are free in Standard I. Moreover, Tamil Nadu has been an innovator in the Noon Meal Programme (NMP) which, in addition to contributing to improved nutritional outcomes, is a major incentive for school attendance. We will return to details of this important programme later in this note.

5.20 The GoTN also has a number of programmes directed at narrowing gender and caste gaps in education. The Girl Child Protection Scheme is a monetary incentive targeted at parents of girl children, and designed to deter parental male-bias while encouraging school attendance among girls. Similarly, recognizing that gender gaps are especially large among SC/STs, there exist special incentive schemes to promote literacy among SC/ST girls and free bicycles for girls in this group in the 10th and 12th Standards.

5.21 The primary responsibility for SC/ST welfare lies with the Adi Dravidar and Tribal Welfare Department.¹¹ With regard to schooling, the department operates on the premise that a high drop out rate at the middle and high school levels, due to inadequate schools and teachers for SC/STs, is the major obstacle to furthering education among SC/STs. Their main policy response has therefore been to build “welfare schools”, entailing large budgetary allocations towards hostel construction. Loans towards higher education as well as reservation policies are the major policy instruments aimed at promoting higher education among this group.

5.22 Health and nutrition also constitute important priorities for the GoTN, particularly among women and children, [*whom the NFHS indicates are among the most vulnerable segments of the population along these dimensions??*] In accordance with GoI norms, Tamil Nadu has a PHC for every 30,000 and 20,000 individuals in the plains and hills respectively and Health Sub-Centres for every 5, 000 and 3,000 in the hills and plains respectively. In all, the state has 1411 PHCs and 8682 associated Health Sub Centres. They are intended to be the main source of public health care for the poor and are supposed to provide services free of charge, although there has been no systematic study of the effectiveness of service *delivery* in these public facilities.

5.23 The Integrated Child Development Services (General ICDS), World Bank Assisted ICDS III (WB-ICDS III), and Noon Meal Programme are the main programmes aimed at promoting basic nutrition among expectant and lactating mothers, as well as children in the 0-15 age group. The General ICDS is a national policy, conceived in 1975, and launched in Tamil Nadu in 1976. Targeting children aged 0-6 as well as pregnant and nursing women, it provides a package of services including supplementary nutrition, immunization, health check-ups, referral services, pre-school education, and health and nutrition for mothers. It runs 113 projects in as many blocks, operated through Anganwadi centres (AWCs). The WB-ICDS III operates along similar lines, handling those blocks not covered under the General ICDS. Under the 10th Plan, the two schemes are to be merged.

5.24 The main function of the NMP is to provide nutritious meals in feeding centres which include the 30,000 odd centres under General ICDS and WB-ICDS III, as well as all primary schools in the state. It covers pregnant and lactating women, 0-6 year olds who come to AWCs, school-going children up to the age of 15, with expansions to include the aged.

¹¹ The Backward Classes, Most Backward Classes and Minorities Welfare Department runs a variety of analogous programmes targeted at BC/MBCs.

5.25 In addition to the policies mentioned above, a large chunk of resources are expended on the financing of various housing projects. These include (i) the centrally sponsored Indira Awaas Yojana (IAY) – a scheme targeted mainly to rural SC/STs, non-SC/ST BPL households and devoted to the construction of houses in rural areas; (ii) the Valmiki Ambedkar Malin Basti Awaas Yojana (VAMBAY) which, with 50% GoI funding, a 40% loan from the Housing and Urban Development corporation and 10% beneficiary contribution constructs new shelter units for urban slum families; (iii) the Fishermen Free Housing scheme, which builds houses for fishermen living in huts in coastal villages at Rs. 40,000 per house, shared equally between centre and state; and (iv) a major portion of the Adi Dravidar and Tribal Welfare Department, devoted to the construction and upgrading of houses for SCs. The economic rationale for these housing expenditures is unclear.

5.26 Step 4 – monitoring and evaluation – is almost completely absent. This is not a problem particular to Tamil Nadu: it is common to all of the states in India, as it is to most of the developing world. Monitoring of extant anti-poverty policies and social services more generally is, however, important if one is to gauge whether implementation is proceeding according to plan and achieving its stated objectives. This is a continuous process, instrumental in identifying problems to be addressed. Given this objective, it is not surprising that instituting monitoring mechanisms often faces resistance: revealing problems, though valuable, can be inconvenient.

5.27 Impact evaluation involves isolating the effects of a particular policy -- assessing its effect on welfare and living standards. As such, it has more demanding data and methodical requirements than monitoring. Impact evaluation is therefore best concentrated on key interventions under a poverty reduction strategy: those that are most important to the poor, or constitute new and innovative projects.

5.28 The GoTN is an ideal agent for engaging in M&E, given its voluble commitment to combating poverty, openness to receiving feedback, and rich human capital resources. Impact evaluations are most appropriate to programmes which are innovative, replicable, involve substantial resource allocations, and have well-defined interventions. It is also obviously the case that impact evaluations are best conducted on policies which are viewed as important to social welfare. Based on these criteria, there are at least 3 major APPs in Tamil Nadu which would be fertile candidates: the MLACD & MPLADP, the PDS, and the Noon Meal Programme (NMP.)

5.29 Our data indicate that there are considerable regional disparities in poverty. The MLACD & MPLADP were launched precisely to reduce these gaps by means of select infrastructural development. They are innovative in the sense that, being initiated by MLAs and MPs respectively, they lend for a degree of direct political accountability at the state and central levels which is not feasible in other more general programmes. Being state-wide and nation-wide programmes, they are clearly replicable, and at 192.7 Cr. and 98 Cr. respectively in 2002-3, they involve substantial resource allocations. Logistically, M&E of the MLACD and MPLADP promises to be somewhat tractable since, being implemented via District Collector, information on the programmes may be more easily collected.

5.30 The GoTN views the PDS as central to its food policy and food security strategy. With an average annual state government subsidy of 1,500 Cr., the programme constitutes one of the largest single items in the budget. The government has introduced reforms in procurement subsidies and experimented with targeting to reduce this subsidy. One of the GoTN's primary objectives is to reach "disadvantaged, vulnerable" segments of the population. It would be extremely useful to monitor and evaluate PDS reforms to ensure that the PDS when reformed still reaches the neediest. Such an exercise will be considerably facilitated by the computerization of ration cards currently underway.

5.31 The ideal candidate for M&E is arguably the Noon Meal Programme (NMP). The NMP is an extremely innovative programme, introduced in 1982 at the personal initiative of the Chief Minister M.G. Ramachandran.

Box 2: Origin of the Noon Meal Programme

“This scheme is an outcome of my experience of extreme starvation at an age when I knew only to cry when I was hungry. But for the munificence of a woman next door who extended a bowl of rice gruel to us and saved us from the cruel hand of death, we would have departed this world long ago. Such merciful women folk, having great faith in me, elected me as Chief Minister of Tamil Nadu. To wipe the tears of these women I have taken up this project... To picture lakhs and lakhs of poor children who gather to partake of nutritious meals in the thousands of hamlets and villages all over Tamil Nadu, and blessing in their childish prattle, will be a glorious event.”

-MGR, June 30, 1982

Source: Cited in Harriss (1991), p. 10

5.32 The programme itself began as mid-day feeding programme for children between the ages of 2 and 5, but expanded almost immediately to urban pre-schoolers, then rural and urban primary school children, and then rural school children up to the age of 15 (i.e. Class X). In 1983, old age pensioners were brought into the fold and the following year, urban school children up to the age of 15 were covered as well. December 1995 saw the provision of a noon meal for a 4 month period during pregnancy. Recognizing that there exist synergies between nutrition and health, the NMP has been integrated with the General ICDS and the WB-ICDS III in its coverage of pregnant and lactating women and pre-schoolers.¹²

5.33 Today, the NMP is administered in 10,446 centres under the General ICDS covering 2.94 lakhs children and 1.28 lakhs adults; 19,500 centres under WB-ICDS III covering 5.47 lakhs children and 0.58 lakhs adults; 718 “pure” NMP centres covering 0.3 lakhs children; and 41,057 school NMP centres covering 64.6 lakhs children.¹³

5.34 Anecdotal evidence suggests that it has been extremely successful on numerous different dimensions. As Drèze and Goyal (2003) note in a recent paper, “Tamil Nadu’s experience suggests that well-devised school meals have much to contribute to the advancement of elementary education, child nutrition and social equity.”(p. 1) They go on to say, “There is much scope for learning from Tamil Nadu’s achievements at reasonable cost.” Systematically documenting Tamil Nadu’s NMP through M&E would be a wonderful opportunity to accomplish just that. Such an undertaking would be invaluable for other Indian states (especially given the Supreme Court’s 2001 directive instructing all states to introduce cooked mid-day meals in primary schools) and other developing countries currently considering implementing mid-day meals.

5.35 Not only is Tamil Nadu’s NMP innovative and replicable, it is in the unique position of having undergone a number of modifications in the form of expanded coverage and integration with the various ICDS programmes. This has meant that, in addition to affecting nutritional outcomes, providing an important incentive for school attendance, encouraging commensality among different

¹² Harriss (1991) and Rajivan (2001)

¹³ World Bank ICDS-III Project, Table 2.1 “10th Five Year Plan, Paper on Nutrition”. Mimeo.

castes, and providing a source of employment for women, the NMP in combination with the General ICDS and WB ICDS-III has important consequences for maternal and child health. These diverse objectives are all thought to be important for social and economic development, so it would be extremely useful to evaluate the pitfalls and benefits of the NMP in conjunction with ICDS programmes. Since there are, doubtless, large benefits to be had in coordinating and consolidating various APPs in the state, a study of the broader efficacy of the NMP would lend insight into whether and how to go about accomplishing this.

Annex 1: Poverty Levels and Trends during the 1990s

There has been much debate and controversy in India around the poverty estimates recently released by GOI based on the most recent 55th round NSSO Consumer Expenditure Survey. Much of the discussion has centered around changes in survey methodology with regard to recall periods used to solicit data on consumption in the 50th round and 55th rounds, as well as on how this may have affected comparability of consumption aggregates derived from the two surveys. In particular, the question of whether data from these two surveys can legitimately be used to analyze trends in poverty *over time* remains an open one. The basic, raw, estimates of poverty from unadjusted NSSO data for the 50th and 55th rounds presented in Table A1.1 should therefore be interpreted with the appropriate degree of care and caution.

Table A1.1: Estimates of the Poverty Incidence: 1993-94 and 1999-2000 NSSO

	1993-94 (50 th Round)			1999-2000 (55 th Round)		
	Urban	Rural	Overall	Urban	Rural	Overall
Mean per-capita monthly consumption (Rs.):						
<i>Tamil Nadu</i>	438	294	345	972	514	667
Andhra Pradesh	409	289	320	774	454	551
Karnataka	423	269	313	911	500	635
Kerala	494	390	416	933	766	817
<i>All-India</i>	458	281	325	855	486	591
Head-Count Estimates (%) using the Expert Group Poverty Lines:						
<i>Tamil Nadu</i>	39.9	32.9	35.4	22.1	20.6	21.1
Andhra Pradesh	38.8	15.9	21.9	26.6	11.1	15.8
Karnataka	39.9	30.1	32.9	25.3	17.4	20.0
Kerala	24.3	25.4	25.1	20.3	9.4	12.7
<i>All-India</i>	33.2	37.1	36.1	23.6	27.1	26.1

Official poverty estimates from the Planning Commission, GOI, derived using data from the NSSO 50th and 55th round surveys show the incidence of poverty in Tamil Nadu to have been roughly equal to the all-India average in 1993/94 but to have fallen well below the incidence of poverty at the all-India level by 1999/00 (35% vs. 36% in 1993-94, 21% vs. 26% in 1999-2000). Although these estimates suggest that the incidence of poverty in the state is today below the national average, they indicate that it remains higher than in the neighboring states of Andhra Pradesh, Karnataka, and Kerala. This latter finding is at odds with the fact that data from the same surveys suggest that mean monthly per capita consumption in Tamil Nadu is higher than it is in all neighboring states other than Kerala (Table A1.1). In a similar vein, *within* Tamil Nadu, average consumption in rural areas is about two thirds that observed in urban areas in 1993/94, and has fallen to only half urban per capita average consumption in 1999/2000, yet the head count rate in Table A1.1 suggests that poverty in rural areas is lower than in urban areas throughout the 1990s. How can we explain the relatively high poverty rates for Tamil Nadu relative to neighboring states, and the low rural poverty relative to that in urban areas within the state?

Closer examination of the methodology used by the Planning Commission to compute poverty estimates for the various states helps shed more light on the apparent discrepancy between poverty rates and mean per capita consumption levels across states. The methodology used is the same as that presented in the Expert Group report “Estimation of Proportion and Number of Poor” (Lakdawala Committee). The state-specific poverty lines that this gives rise to are presented in Table A1.2. As the table shows, the Planning Commission poverty estimates for Tamil Nadu derive from poverty lines

that suggest that the overall cost-of-living for the poor in rural areas in 1999/00 is about 6 per cent lower compared to the All-India level (and about 4.5% higher in urban areas). Similarly, these lines indicate that in 1999/00 the cost of reaching a minimum standard of living in rural Tamil Nadu was about 65% of the cost in urban areas. While it is possible that the cost of living in rural areas is lower than in urban areas, it is surprising that the difference should be so great, particularly in a state that is relatively well served by transport infrastructure – certainly in comparison to other states in India.

Table A1.2: State-Specific Poverty Lines (in Rs. per capita per month)

	1993-94 (50 th Round)		1999-2000 (55 th Round)	
	Urban	Rural	Urban	Rural
<i>Tamil Nadu</i>	296.63	196.53	475.60	307.64
Andhra Pradesh	278.14	163.02	457.40	262.94
Karnataka	302.89	186.63	511.44	309.59
Kerala	280.54	243.84	477.06	374.79
<i>All-India</i>	281.35	205.84	454.11	327.56

Recent work by Angus Deaton and colleagues has attempted to address the two major sources of contention regarding levels and trends in poverty during the 1990s.¹⁴ First, exhaustive analysis of unit-record consumption data in the 43rd, 50th and 55th rounds of the NSSO surveys has yielded a new set of price indexes to correct for spatial, sectoral (urban/rural) and temporal price variation at the state level (Deaton and Tarozzi, 2001, Deaton, 2003b). These price indexes are rather different from the official CPIAL and CPIIW price indexes which underpin the Expert Group poverty estimates. Adjusting the all-India rural poverty line in 1987/88 by these revised price indexes yields a new set of state and sectoral-level poverty lines for 1993/94 and 1999/00 (Table A1.3). The revised poverty lines suggest that the cost of reaching a minimum standard of living in Tamil Nadu is now somewhat higher than the all-India average in both rural and urban areas but more importantly, they suggest that the cost of living in rural areas is now only slightly lower than in urban areas (8 percentage points) This revised rural-urban price differential is now also much closer to that observed in neighboring states and is a bit lower than the 13 percentage point difference in the cost of living between urban and rural areas at the all-India level in 1999/00.

Table A1.3: Revised State-Specific Poverty Lines (in Rs. per capita per month)

	1993-94 (50 th Round)		1999-2000 (55 th Round)	
	Urban	Rural	Urban	Rural
<i>Tamil Nadu</i>	228.37	215.03	366.08	336.52
Andhra Pradesh	209.71	191.62	344.76	309.62
Karnataka	217.42	194.45	367.22	322.60
Kerala	227.06	243.29	386.23	373.94
<i>All-India</i>	216.37	190.77	349.22	303.52

Source: Deaton (2002)

Second, Deaton (2003a) and Tarozzi (2001) apply an innovative adjustment procedure to correct for changes in the questionnaire design between the 50th and 55th rounds of the NSS. Building on the observation that a certain sub-group of consumption items was not rendered non-comparable by changes in questionnaire design between 1993/94 and 1999/00, and that there is a strong correlation between this sub-group of commodities and total expenditure, Deaton (2003a) and Tarozzi (2001) employ non-parametric techniques to estimate rates of poverty in 1999/00 that are comparable to those from the 1993/94 survey. Their technique is based on the observed relationship between total

¹⁴ See for example Deaton and Tarozzi, 2000, Deaton, 2003a, b and c, Deaton and Drèze, 2002, Tarozzi, 2001.

expenditure and the comparable sub-group of commodities in 1993/94. As noted in Deaton and Drèze (2002) this procedure is valid if two assumptions hold. First, reported expenditures on the comparable sub-group of commodities are assumed to have been unaffected by changes elsewhere in the questionnaire. Second, it is assumed that the relationship between intermediate-goods expenditure and total expenditure is much the same in 1999/00 as in 1993/94. Partial support for both of these assumptions can be found in Sundaram and Tendulkar (2003) and Tarozzi (2001), respectively.¹⁵ Based on this adjustment technique and on the revised poverty lines in Table A1.3, adjusted poverty estimates for the 1990s are presented in Table A1.4.

Table A1.4: Adjusted Head-Count Estimates: 1993-94 and 1999-2000 NSS

	1993-94 (50 th Round)			1999-2000 (55 th Round)		
	Urban	Rural	Overall	Urban	Rural	Overall
Adjusted Head-Count Estimates (Deaton and Drèze):						
<i>Tamil Nadu</i>	20.8	38.5	30.3	11.3	24.3	20.0
Andhra Pradesh	17.8	29.2	26.2	10.8	26.2	21.6
Karnataka	21.4	37.9	33.2	10.8	30.7	24.1
Kerala	13.9	19.5	17.8	9.6	10.0	9.9
<i>All-India</i>	17.8	33.0	29.1	12.0	26.3	22.2

Source: Deaton and Drèze (2002). Estimates apply price adjustments proposed by Deaton and Tarozzi (2001a) and Deaton (2003b) and the poverty estimation procedure described in Tarozzi (2001) and Deaton 2003a)

Comparing Table A1.4 with Table A1.1 we can see that the adjusted head-count estimates for Tamil Nadu presented in Deaton and Drèze (2002) yield an overall estimate of the incidence of poverty in 1999/00 which is actually slightly lower than what has been reported by the Planning Commission (20.0% versus 21.1% - see Table A1.1). However, the estimates in Table A1.4 suggest that the rate of poverty decline in Tamil Nadu during the 1990s has been less rapid than that suggested by the official figures: a decline from 30.3% to 20.0% over this period, rather than the decline of 35.4% to 21.1% indicated in Table A1.1. This mirrors the assessment of a somewhat less rapid decline in poverty during the 1990s at the all-India level (Table A1.4). Moreover, the estimates in Table A1.4 provide a markedly different picture of the incidence of poverty in rural versus urban areas. The adjusted poverty estimates reported in Table A1.4 suggest that in 1999/00 the incidence of rural poverty in Tamil Nadu was more than twice that in urban areas (24.3% versus 11.3%). Between 1993/94 and 1999/00 these estimates suggest that rural poverty fell from 38.5% to 24.3% and that urban poverty fell from 20.8% to 11.3%. According to these estimates poverty has fallen sharply in both rural and urban areas during the 1990s, with the pace of poverty reduction most rapid in urban areas (a nearly halving of poverty during this 6 year period)

REGIONAL POVERTY

National Sample Survey Organization data collected during the quinquennial rounds (1987/88, 1993/94, 1999/00) contain large samples which can be broken down to the state and regional, level.¹⁶ The NSSO breaks states down into NSSO regions. The table below describes how Tamil Nadu's districts correspond to its four NSSO regions:

¹⁵ Although Lanjouw and Kijima (2003) and Sen (2003) express some doubts.

¹⁶ "Thin" rounds in the intervening years are not generally thought to yield reliable estimates at the region level.

NSSO Region	Tamil Nadu Districts
Coastal North	Chennai, Thiruvalluvar, Kancheepuram, Thiruvannamalai, Vellore, Villupuram, Cuddalore
Coast	Tiruchirapalli, Parambalur, Ariyalur, Karur, Nagapattinam, Thiruvarur, Thanjavur, Pudukkottai
South	Dindigul, Madurai, Theni, Virudhunagar, Sivaganga, Ramanathapuram, Thoothukkudi, Tirunelveli, Kanniyakumari
Inland	Coimbatore, Nilgiris, Erode, Namakkal, Salem, Dharmapuri

Alongside state-level estimates of poverty levels and trends, we are interested in this note to report, as well, estimates of poverty at the level of NSSO regions. Deaton (2003c) has recently produced estimates of poverty at the regional level, based on a method which is very close to that applied in Deaton and Drèze (2002) and predicated on the same underlying assumptions.

We will compare these region-level estimates to those based on a related adjustment procedure, but predicated on a different set of assumptions, produced by Kijima and Lanjouw (2003). Annex 2 provides a detailed description of the method that underpins these estimates. This K&L set of regional estimates respects the price adjustments proposed by Deaton (2003b) and Deaton and Tarozzi (2001). However, the K&L estimates are based on a parametric regression of per capita consumption procedure rather than the non-parametric approach implemented in Deaton (2003a) and Tarozzi (2001), or the parametric probit model estimated by Deaton (2003c). In addition, the K&L estimates, as those in Deaton (2003c), are produced by parametric regressions at the NSS-region level rather than a single model at the state level. Importantly, the K&L procedure differs significantly from that produced by Deaton and Drèze (2002), Deaton (2003a, 2003c) in that it is based not on the observed relationship between total expenditure and intermediate goods expenditure, but rather on the observed relationship between total expenditure and a set of household characteristics, that include demographic, educational, and occupational characteristics, district dummies, and also household ownership of a variety of consumer durables. The K&L approach requires an assumption that the conditional expectation of consumption based on a set of household characteristics (not including intermediate goods expenditure), has remained constant over time. In other words the “returns” to consumption from these regressors are assumed not to have changed over time, even though the levels of the regressors might. This approach has less theoretical appeal than that implemented by Deaton (2003a, 2003c) and Deaton and Drèze (2002). However, there remains some interest in comparing these estimates with those produced by Deaton (2003c). First, the K&L (2003) approach may become less unattractive if there is reason to think that reported expenditures on intermediate goods have been contaminated by changes elsewhere in the consumption questionnaire, or when there are grounds to doubt the stability assumption underpinning the Deaton (2003a, 2003c) method.¹⁷ Second, because the Kijima and Lanjouw (2003) method effectively captures only changes in poverty associated with changes in household characteristics, and does not capture changes in structural parameters, comparing the K&L estimates with those produced by Deaton (2003c) might provide some clues as to the relative importance of changes in returns as opposed to changes in household characteristics in explaining how region-level poverty has evolved.

Table A1.5 presents the adjusted poverty estimates at the NSSO region level, by urban/rural sector and for 1993/94 and 1999/00.

¹⁷ See Kijima and Lanjouw (2003) and Sen (2003).

Table A1.5: Region-Level Estimates of Poverty: Adjusted Figures

	1993-94 (50 th Round)		1999-2000 (55 th Round)	
	Urban	Rural	Urban	Rural
Adjusted Head-Count Estimates: (Deaton, 2003c) (standard errors)				
Coastal North	20.9 (1.9)	49.5 (2.6)	11.1	38.0
Coast	22.8 (3.0)	24.8 (2.6)	12.4	16.7
South	27.5 (2.4)	42.1 (2.9)	12.3	19.7
Inland	12.7 (1.8)	29.8 (2.5)	7.5	17.2
<i>Tamil Nadu</i>	<u>20.9</u>	<u>38.5</u>	<u>10.8</u>	<u>24.1</u>
Adjusted Head-Count Estimates: (Kijima and Lanjouw, 2003) (standard errors)				
Coastal North	20.9 (1.9)	49.5 (2.6)	29.0 (2.2)	37.3 (2.8)
Coast	22.8 (3.0)	24.8 (2.6)	18.4 (3.0)	25.7 (2.4)
South	27.5 (2.4)	42.1 (2.9)	20.8 (2.1)	37.3 (2.6)
Inland	12.7 (1.8)	29.8 (2.5)	10.3 (1.4)	24.1 (2.5)
<i>Tamil Nadu</i>	<u>20.9</u>	<u>38.5</u>	<u>22.0</u>	<u>31.8</u>

Source: Estimates apply price adjustments proposed by Deaton and Tarozzi (2001a) and Deaton (2003b) and the poverty estimation procedures described in Deaton (2003c) and in Annex 2 and in Kijima and Lanjouw (2003).

Rural Poverty

The Deaton estimates of region-level poverty in Table A1.5 suggest that rural poverty in Tamil Nadu has declined markedly during the 1990s. At the state level the incidence of poverty is estimated to have declined from 38.5% to 24.1% during this period. This state-average masks considerable variation across regions. Poverty reduction was most rapid in the Southern region of Tamil Nadu where poverty is estimated to have fallen by more than 22 percentage points from 42.1% to 19.7%. While the rate of poverty reduction in the rural Coastal North region was a respectable 11.5 percentage points, poverty in this region remains high in absolute terms (nearly two in five people in this region are estimated to be poor in 1999/00) and also markedly higher than in the other three NSS regions.

The Kijima and Lanjouw estimates for rural Tamil Nadu suggest a more modest decline in poverty during the 1990s, from 38.5 to 31.8 percent. The two estimation methods are in close agreement with respect to the Coastal North region, indicating that in this region most of the decline in poverty has been associated with changes household characteristics as opposed to returns to assets. In the other three regions, the Deaton method reports a more rapid decline in poverty than the Kijima and Lanjouw method. If the underlying assumptions of the Deaton methodology hold, this comparison suggests that not only have household characteristics such as education levels and the like, improved in these other three regions, but general equilibrium factors have also resulted in improved returns to those characteristics.

Evidence from village studies in the rural areas of the Coastal North region corroborates the general finding that while there has been a downward trend in rural poverty in the region, poverty in this region remains high relative to that in other regions of rural Tamil Nadu. Harriss-White et al. study 3

villages in the former North Arcot district – Nesal, Vinayapuram and Veerasambanur – over a period of 30 years, between 1973 and 1994. They find that, despite near-universal adoption of HYVs, agricultural productivity was virtually stagnant between 1984 and 1994. Moreover, yields were subject to extreme variability. Increasing yields associated with earlier periods of the “Green Revolution” are closely connected with availability of water (see, for instance, Guhan and Mencher (1983) for Iruvelpattu in Villupuram district), and here, the region’s physical geography has been unfavorable. These three villages lie in the Coromandel plains region, characterized by rainfall dependence and subject to periodic droughts, some of which last for over a year. The expansion of lift irrigation to compensate for this has, however, been accompanied by well fatigue and abandonment, coupled by a collapse of publicly managed tanks and canals.

Despite stagnation, consistent with the trend in our findings Harriss-White et al. note an overall increase in real expenditures across different workers in these rural villages. As we shall see in greater detail below, they attribute this largely to an increase in agricultural wages, accompanied by an expansion of the non-agricultural sector in rural areas. However, Harriss-White et al. notice that there are two groups who have not been able to take full advantage of these developments: scheduled castes and women. A similar pattern of exclusion is noticed by Naidu (1995a, b) for two villages, Enathimelpakkam and Verkadu, in Thiruvalluvar district, and may provide a partial explanation for why poverty has been persistently high in the region. We will return to these questions in the analysis below.

Urban Poverty The Deaton estimates in Table A1.5 indicate that urban poverty has approximately halved between 1993/4 and 1999/0, from 21 percent to 11 percent, respectively. According to this set of estimates, poverty has fallen steadily in the urban areas of all four regions and poverty rates in the four regions vary relatively little, from 7.5% in 1999/0 in the Inland region to 12.4 in the Coastal region. The Kijima and Lanjouw estimates differ markedly with respect, in particular, to the Coastal North region. The latter adjustment approach suggests that in the urban Coastal North region poverty has *risen* from 20 percent to around 29 percent between 1993/4 and 1999/0. Kijima and Lanjouw estimate that in the three other urban regions, poverty has fallen (albeit less rapidly than predicted by Deaton, 2003c). The Kijima and Lanjouw estimates suggest that in the urban Coastal North there has been a general deterioration in household characteristics such that if returns to those characteristics had remained unchanged during the 1990s, poverty would have risen. However, the Deaton estimates, if correct, suggest that, instead, returns to assets such as education have risen dramatically during this time period such that the net effect of changing characteristics and returns has still resulted in a decline of poverty from 20 percent to around 11 percent. As indicated above, the Coastal North region includes the district of Chennai with its large urban population of more than 4 million people. The kind of story that could account for such a process is one where tremendous dynamism in Chennai results in a large influx of unskilled workers from surrounding areas, who, although they are less skilled and educated than the average worker in the city, benefit from strong demand for their labor and receive wages that are markedly higher than those prevailing during the early 1990s.

It is difficult to find strong corroborating evidence of dramatic tightening of the unskilled labor market in Chennai during the 1990s. Indeed, anecdotal evidence from discussions with NGOs and government officials suggests that distress in the city is considerable, with relatively few employment opportunities in formal sector activities and discouraging experience with women’s self-help groups in promoting and sustaining well-remunerated entrepreneurial activities. Discussions have often highlighted as well the extent to which migration from rural to urban areas can be associated with the loss of social networks and sources of support that are often still intact in rural areas. Further analysis and data are required in order to ascertain more clearly what has been happening to urban poverty in the Coastal North region.

Annex 2: Producing Adjusted Poverty Estimates for 1999/00 at the NSS-Region Level

The methodology implemented by Kijima and Lanjouw (2003) has been described in detail in Elbers, Lanjouw and Lanjouw (2002, 2003). The basic idea is straightforward. We estimate poverty based on a household per-capita measure of consumption expenditure, y_h . A model of y_h is estimated using the NSSO survey data from the 50th (1993-4) round, restricting explanatory variables to those that are strictly comparable across the 50th and 55th NSSO rounds. Kijima and Lanjouw (2003) experiment with two different specifications. The first, in the spirit of Tarozzi (2001), Deaton (2003a), and Deaton and Drèze (2002), consists of a model of per capita total expenditure on a single regressor (30-day intermediate goods expenditure which is assumed not to suffer from non-comparability due to changes in questionnaire design). The second applies an expanded set of regressors from the non-consumption sections of the Schedule 1.0 NSSO questionnaire, but excludes 30-day intermediate goods consumption on the grounds that even this supposedly comparable component of consumption might have been contaminated by changes in the questionnaire pertaining to other consumption components. Then, letting W represent an indicator of poverty or inequality, we estimate the expected level of W given the NSSO 55th round-based observable characteristics (30 day intermediate goods expenditure, or a set of alternative variables) of the area of interest using parameter estimates from the ‘first-stage’ model of y estimated on the 50th round data.

A central assumption to this approach, is that the relationship between y and the explanatory variables (whether 30-day intermediate goods expenditure only or a wider set of non-consumption explanatory variables) is stable over time. This assumption is not innocuous against a background of extensive economic change. It is probably particularly controversial in the case where the specification comprises a variety of explanatory variables, such as household demographics, employment status, education levels, and so on, but excludes the 30-day intermediate goods consumption measure. Effectively one needs to argue that all of the changes in consumption are driven by changes in the levels of these regressors, not by changes in the “returns” to these characteristics. To the extent that “returns” are also changing over time, one might view the poverty estimates that derive from this particular model as representing a lower-bound estimate of changes in poverty over time.

The basis of the approach is that per-capita total expenditure, y_h , is related to a set of observable characteristics, \mathbf{x}_h , that can be linked to households in both the 50th and 55th round NSSO surveys. We model the observed log per-capita expenditure for household h as:

$$(1) \quad \ln y_h = \mathbf{x}_h \boldsymbol{\beta} + u_h,$$

where $\boldsymbol{\beta}$ is a vector of k parameters and u_h is a disturbance term satisfying $E[u_h | x_h] = 0$. The vector of disturbances in the population is distributed $\mathbf{u} \sim \mathcal{N}(0, \Sigma)$. The model in (1) is estimated using the 50th round data. We are interested in using these estimates to calculate the welfare of an area or group in the 55th round data, the problem being that we do not have consumption information in that round which is comparable to the 50th round consumption data. We will refer to our target population as a ‘region’. There are M_v households in region v , M_v^s households in the 55th round sample from region v , and household h has m_h family members. While the unit of observation for consumption in these data is the household, we are interested in poverty measures based on individuals. Thus we write $W(\mathbf{m}, \mathbf{X}, \boldsymbol{\beta}, \mathbf{u}_v)$, where \mathbf{m} is a vector of household sizes, \mathbf{X} is a matrix of observable characteristics and \mathbf{u} is a vector of disturbances.

Because the disturbances for households in the target population are always unknown, we consider estimating the expected value of the indicator given the 55th round households’ observable characteristics and the model of expenditure in (1). We denote this expectation as

$$(2) \quad \mu_v^s = E[W | \mathbf{m}_v^s, \mathbf{X}_v^s, \boldsymbol{\xi}],$$

where $\boldsymbol{\xi}$ is the vector of model parameters, including those which describe the distribution of the disturbances, and the superscript ‘s’ indicates that the expectation is conditional on the sample of 55th round households from region v rather than a census of households.

In constructing an estimator of μ_v^s we replace the unknown vector $\boldsymbol{\xi}$ with consistent estimators, $\hat{\boldsymbol{\xi}}$, from the first-stage expenditure regression. This yields $\hat{\mu}_v^s = E[W | \mathbf{m}_v^s, \mathbf{X}_v^s, \hat{\boldsymbol{\xi}}]$. This expectation is generally analytically intractable so we use simulation to obtain our estimator, $\tilde{\mu}_v^s$.

The difference between $\tilde{\mu}_v^s$, our estimator of the expected value of W for the region, and the actual level of welfare for the region reflects four components. The first, denoted idiosyncratic error, is due to the presence of a disturbance term in the first stage model which implies that households’ actual expenditures deviate from their expected values. This component becomes important only if the target population (an NSS-region in our case) is very small.¹⁸ In our application this is never the case, and we can thus ignore this component of the prediction error. The second component is due to the fact that we are imputing into a sample rather than a census of households (*sampling error*). We calculate *sampling errors* on our poverty estimates taking into account the fact that the NSSO surveys are complex samples which involve stratification and multi-stage clustering (see Howes and Lanjouw, 1998, Deaton, 1997). The third component of our prediction error is due to variance in the first-stage estimates of the parameters of the expenditure model (*model error*). We calculate the variance due to model error using the delta method (see Elbers et al 2002, 2003). The fourth component of our prediction error is due to inexact method to compute $\hat{\mu}_v^s$ (*computation error*). This component can be set arbitrarily small by choosing a large enough set of simulation draws.

Implementation

As mentioned above, we experiment with two approaches to modeling consumption in the 50th round survey. We describe below implementation of the approach when the model is estimated at the region level, and when the specification includes a large subset of explanatory variables (but explicitly excludes 30-day consumption).

The first-stage estimation is carried out using the 50th round survey. This survey is stratified at the regional level (multiple regions within each state) and is intended to be representative at that level. Within each region there are further levels of stratification, and also clustering. At the final level, 10 households are randomly selected from a census enumeration area. Such groups we call a ‘cluster’ and denote with a subscript c . Expansion factors, l_{ch} , allow the calculation of regional totals.

Our first concern is to develop an accurate empirical model of household consumption. Consider the following model:

$$(3) \quad \ln y_{ch} = E[\ln y_{ch} | x_{ch}^T] + u_{ch} = x_{ch}^T \boldsymbol{\beta} + \eta_c + \varepsilon_{ch}$$

where η and ε are independent of each other and uncorrelated with observables, x_{ch} . This specification allows for an intra-cluster correlation in the disturbances. One expects location to be related to household income and consumption, and it is certainly plausible that some of the effect of location might remain unexplained even with a rich set of regressors. For any given disturbance variance, σ_{ch}^2 ,

¹⁸ Elbers et al (2002) suggest that the idiosyncratic error is likely to disappear with populations of 10,000 households or more.

the greater the fraction due to the common component η_c the less one enjoys the benefits of aggregating over more households within a region. Welfare estimates become less precise. Further, the greater the part of the disturbance which is common, the lower will be inequality. Thus, failing to take account of spatial correlation in the disturbances would result in underestimated standard errors on welfare estimates, and upward biased estimates of inequality.

Since unexplained location effects reduce the precision of poverty estimates, the first goal is to explain the variation in consumption due to location as far as possible with the choice and construction of x_{ch} variables. We try to tackle this in two ways. First, we estimate different models at the region level in the 50th round. Second, we include in our specification district level dummies aimed at capturing latent district-level effects.

All regressions are estimated with household weights. In principle a Hausman test described in Deaton (1997) can be applied to determine whether each regression should be weighted, but we have found in practice that estimating the model with weights even when tests suggest weighting is unnecessary, does not affect our estimates.

We next model the variance of the idiosyncratic part of the disturbance, $\sigma_{\varepsilon, ch}^2$. Note that the total first-stage residual can be decomposed into uncorrelated components as follows:

$$(4) \quad \hat{u} = \hat{u}_{c.} + (\hat{u}_{ch} - \hat{u}_{c.}) = \hat{\eta}_c + e_{ch}$$

where a subscript ‘.’ indicates an average over that index. To model heteroskedasticity in the household-specific part of the residual, we choose the twenty variables, \mathbf{z}_{ch} , that best explain variation in e_{ch}^2 out of all potential explanatory variables, their squares, and interactions.¹⁹ We estimate a logistic model of the variance of ε_{ch} conditional on \mathbf{z}_{ch} , bounding the prediction between zero and a maximum, A , set equal to $(1.05) \cdot \max(e_{ch}^2)$.

Finally, we check whether η and ε are distributed normally. In many cases normality is rejected, although the standard normal does occasionally appear to be the better approximation even if formally rejected. Elsewhere we use t distributions with varying degrees of freedom (usually 5), as the better approximation.²⁰ Before proceeding to simulation, the estimated variance-covariance matrix, $\hat{\Sigma}$, is used to obtain GLS estimates of the first-stage parameters, $\hat{\beta}_{GLS}$, and their variance, $\text{Var}(\hat{\beta}_{GLS})$.

As mentioned above, to produce region-level estimates of poverty, a separate model is estimated for each region.²¹ Annex Table A2.1 presents an example of the model estimates for Andhra Pradesh as a whole. Adjusted R^2 's on the region-level extended specification models are generally in the 0.3-0.6 range.²²

Although the parameter estimates on the extended model are generally sensible looking, Elbers et al (2002) warn against interpreting such parameters due to possible endogeneity. The explanatory variables employed in this specification all come from Schedule 1.0 of the NSSO survey, but from

¹⁹ We limit the number of explanatory variables to twenty to be cautious about overfitting.

²⁰ Rather than drawing from parametric distributions in our simulations, we can also employ a semi-parametric approach by drawing from observed residuals in the first stage model. Our results were found to be quite robust to the choice of parametric or semi-parametric draws.

²¹ Chow tests reject the null that parameter estimates are the same across regions within a state.

²² For reasons of space we do not reproduce here the parameter estimates and full set of diagnostics for the region-level regression models. These can be furnished upon request.

modules that have changed design. It is not inconceivable that changes in the consumption module have also contaminated responses to the questions in these unchanged modules, thereby biasing our estimates. We assume that this is not the case. The same specification for the extended model was applied in all NSSO regions. This was for reasons of convenience and it is possible that greater explanatory power might have been achieved for at least some regions if the model were more closely tailored to the specific region.

Table A2.1

Tamil Nadu: First Stage Regression Model of log per capita expenditure

	Extended model
Income from cultivation (dummy)	0.0736 (0.0158)
Income from other agricultural enterprise (dummy)	0.0605 (0.0152)
Income from wage/salaried employment (dummy)	-0.0011 (0.0146)
Income from non-agricultural enterprises (dummy)	0.0796 (0.0161)
Income from pension (dummy)	-0.0549 (0.0534)
LPS as primary source of energy for cooking	0.4586 (0.0439)
Electricity as primary source of energy for lighting	0.1813 (0.0136)
Per capita land owned	0.0009 (0.0001)
Proportion of land irrigated over land cultivated	0.0653 (0.0188)
Number of household members (household size)	-0.1408 (0.0092)
Household size squared	0.0055 (0.0008)
Proportion of boys aged less than 6 years old	-0.2727 (0.0531)
Scheduled caste household dummy	-0.1236 (0.0157)
Below primary as highest educational attainment In the household	0.0469 (0.0169)
Primary schooling as highest educational attainment	0.0985 (0.0199)
Middle schooling as highest educational attainment	0.163 (0.0211)
Secondary schooling as highest educational attainment	0.2848 (0.0226)
Tertiary schooling as highest educational attainment	0.4762 (0.0439)
Intercept	10.4121 (0.0249)
Adjusted R squared	0.303
Number of observations	4907

Annex 3: Econometric Analysis of Economic Returns of Scheduled Caste Households

In Tamil Nadu, as in India more generally, scheduled castes are highly represented among the poor. This is certainly due in part to their owning less land, and of lower quality, as well as other assets (particularly human capital), than households which are not of the scheduled castes. However, the question arises whether, apart from lower asset holdings, the returns to assets of the scheduled castes are the same as the returns to majority households. Or do the scheduled castes also receive lower returns on their assets than non-scheduled castes? Recent research by van de Walle and Gunewardena (2000) in Vietnam demonstrates that ethnic minorities in that country are highly represented among the poor. This is due, in part, to their possessing lower levels of human capital, land and other household and community assets. However, van de Walle and Gunewardena (2000) find that it is also due in no small measure to their receiving lower returns on those assets they do possess, relative to the majority.

In this Annex we look at this issue for Tamil Nadu, following closely the methodology laid out in van de Walle and Gunewardena (2000). We estimate consumption regressions in which the sample population is divided into two groups, scheduled caste and majority households, and the same specification of the determinants of wellbeing is run on each group separately. The analysis is based on the 50th round, 1993/94 NSSO data.²³ We consider separately, and in turn, rural and urban areas. The hypothesis that the parameter estimates in these two models are identical is then explicitly tested by means of a Chow test.

As a result of the findings reported in van de Walle and Gunewardena (2000), the models for rural areas estimated here are estimated with village fixed effects included (for urban areas the models locational effects are judged to be of less obvious importance). Van de Walle and Gunewardena (2000) show that in the absence of such a specification, omitted variable bias on parameters of interest, such as education or land, can be pronounced. In an effort to ascertain whether the locational effects are essentially capturing only population density characteristics (which are likely to be related to agro climatic conditions and thus spatially correlated) we include in the specification, alongside the village fixed effects, a constructed village-level variable: village population per acre. This variable is constructed by summing household size across sampled households in a village, and then dividing this by the sum, across sampled households, of land owned. The variable is constructed on a leave-out mean basis, so that a different value is available for each household within a village. As a result it can be estimated alongside the village dummies, and is often statistically significant. The question is whether the village fixed effects remain significant after inclusion of this constructed variable. F tests reject the hypothesis that parameter estimates on the village dummies are jointly zero. Hence, the village dummies are capturing something in addition to inter-village differences in population density.

Differences in Asset Holdings between Scheduled Castes and Majority Households. Table A3.1 presents summary statistics for educational outcomes and landholdings, in turn for majority and scheduled caste households, in Tamil Nadu.

²³ A similar analysis could, in principle, be based conducted using 1999/0, 55th round data. However, given problems of non-comparability of consumption across these two survey years, it would be difficult to track the evolution parameter estimates in these models over time.

Table A3.1: Mean Values of Variables of Interest:

Rural Areas						
Variable	All-India			Tamil Nadu		
	Majority	Schedule Caste	Overall	Majority	Schedule Caste	Overall
Log per capita monthly consumption	5.63	5.43	5.56	5.64	5.40	5.54
Household size	5.1	4.7	4.9	4.1	4.1	4.1
Proportion under 5	10.8	12.0	11.2	8.4	9.5	8.8
Proportion 5-9	10.8	11.1	10.9	8.2	8.2	8.2
Proportion 10-14	10.3	9.6	10.1	9.0	8.9	8.9
Proportion 15-59	58.8	58.9	58.8	61.7	65.1	63.0
Proportion 60+	9.3	8.5	9.0	12.8	8.4	11.1
Per capita land owned (ha)	0.27	0.10	0.21	0.13	0.03	0.09
Population density (pop. / ha of land)	22.6	31.4	31.6	75.6	98.7	84.4
% of adults with no education	54.7	72.6	60.9	47.5	65.2	54.2
% adults with education < primary level	10.4	7.8	9.5	12.8	9.4	11.5
% adults with primary education	11.5	7.8	10.2	16.4	11.5	14.5
% adults with middle school education	11.9	7.0	10.2	11.6	8.1	10.3
% adults with matriculation	6.6	3.1	5.4	6.9	4.0	5.8
% adults with higher secondary or more	3.0	1.2	2.4	2.9	1.5	2.4
Urban Areas						
Variable	All-India			Tamil Nadu		
	Majority	Schedule Caste	Overall	Majority	Schedule Caste	Overall
Log per capita monthly consumption	6.04	5.77	5.97	5.88	5.51	5.77
Household size	4.5	4.5	4.5	3.7	3.6	3.7
Proportion under 5	8.79	10.89	9.38	7.17	7.35	7.22
Proportion 5-9	9.14	10.58	9.55	7.13	7.58	7.26
Proportion 10-14	10.77	10.41	10.67	19.94	18.17	19.42
Proportion 15-59	65.03	62.92	64.43	59.55	60.40	59.80
Proportion 60+	6.27	5.20	5.97	6.21	6.50	6.30
% of adults with no education	27.45	49.10	33.55	21.04	42.23	27.45
% adults with education < primary level	9.45	9.53	9.47	11.37	12.15	11.61
% adults with middle school or matriculation	12.81	11.43	12.42	17.72	12.78	16.22
% adults with higher secondary or more	16.41	13.49	15.59	17.89	14.95	17.00

We find, as expected, that per capita consumption of majority households are higher on average than for scheduled caste households. This is true in both rural as well as urban areas. In rural Tamil, average per capita consumption of scheduled caste households amounts only to about 79% of the average for majority households. In urban areas the ratio is somewhat lower at 69%. In demographic terms, rural scheduled caste households are typically the same size as non-scheduled caste households in Tamil Nadu (4.1 members), but in urban areas they seem to be slightly smaller. There is some

indication that scheduled castes in rural as well as urban areas have more young children, but on the whole the age composition breakdown across the two groups is not widely different.

Landholdings of the majority households in rural areas are significantly higher than of scheduled castes in Tamil Nadu. On average majority households own about .13 hectares per person compared to 0.03 for scheduled castes. Educational outcomes are also markedly different across the two population sub-groups. We measure household level educational outcomes by calculating the proportion of adults aged 15 or higher with, respectively: no education, some but less than primary education; primary education; middle school, matriculation, and higher secondary or more. On average, in rural areas, about 48% of adults in majority households have no education compared to nearly 65% of adult scheduled castes. The comparable figures in urban areas are 21% and 42%, respectively. Although education levels have been increasing among scheduled castes in lower age groups, conversations with the ministry responsible for these castes suggested that high dropout rates continue to be problematic.

13% of the adults in majority households in rural Andhra Pradesh have some, but lower than primary, education, 16% have completed primary; 12% have middle schooling; 7% have matriculation, and only 3% have higher secondary schooling or higher. The comparable figures for the rural scheduled castes are 9%, 12%, 8%, 4%, and 1.5%, respectively, a sizable gap across the board. In urban areas the pattern is similar, although average education levels of majority and scheduled castes households are uniformly higher than in rural areas.

Differential Returns to Household Assets in Rural Areas. Table A3.2 presents results from the regression models estimating the returns from assets and locational variables in rural areas. We repeat the exercise for Tamil Nadu as well as for India as a whole. The same model is estimated in turn on majority and scheduled caste households. A Chow test on both sets of regression models rejects the null that the parameters are the same for the two groups.

Table A3.2: Village-Level Fixed Effects Model: Rural Areas

Dependent Variable: log per capita consumption	All-India				Tamil Nadu			
	Majority		Scheduled Caste		Majority		Scheduled Caste	
	Co-efficient	p-value	Co-efficient	p-value	Co-efficient	p-value	Co-efficient	p-value
Household size	-0.026	0.00	-0.038	0.00	-0.051	0.00	-0.051	0.00
Proportion under 5 years	-0.531	0.00	-0.540	0.00	-0.230	0.00	-0.230	0.04
Proportion 5-9 years	-0.375	0.00	-0.403	0.00	-0.328	0.00	-0.346	0.00
Proportion 10-14 years	-0.269	0.00	-0.278	0.00	-0.227	0.00	-0.240	0.04
Proportion 60+ years	-0.025	0.07	-0.110	0.00	-0.225	0.00	-0.197	0.01
Per capita land owned (ha)	0.177	0.00	0.283	0.00	0.482	0.00	0.695	0.00
Per capita land owned squared	-0.005	0.00	-0.016	0.00	-0.040	0.00	-0.077	0.64
Population density (pop. / ha)	0.011	0.05	0.0001	0.99	0.0001	0.99	-0.009	0.54
Proportion of adults with:								
Education below primary level	0.156	0.00	0.099	0.00	0.248	0.00	0.079	0.34
Primary education	0.258	0.00	0.194	0.00	0.303	0.00	0.257	0.00
Middle school education	0.351	0.00	0.266	0.00	0.495	0.00	0.183	0.04
Secondary education	0.550	0.00	0.512	0.00	0.687	0.00	0.801	0.00
Higher secondary or more	0.716	0.00	0.637	0.00	0.918	0.00	0.386	0.07
Higher	0.916	0.00	0.913	0.00	0.972	0.00	1.503	0.00
Constant	5.725	0.00	5.683	0.00	5.677	0.00	5.595	0.00
Number of observations	26208		11923		1563		827	
F	789.99		224.52		64.31		15.81	
Prob>F	0.00		0.00		0.00		0.00	
Adj. R-Square	0.299		0.214		0.390		0.241	
Fixed Effects F-Test	4.50		3.31		3.12		2.15	
(Prob >F)	0.00		0.00		0.00		0.00	
Chow Test	1.403				1.34			
(equality of parameters)	[F(4043,30045) = 1.00]				[F(257,1876) = 1.00]			

OLS Parameter Estimates. Subtracting the parameter estimate for a particular variable in the scheduled caste regression from the corresponding estimate in the majority regression indicates whether changing a specific household characteristic will lead to greater or less inequality between scheduled castes and majority households. We can see from Table A3.2 that in Tamil Nadu, as in India as a whole, an increase in household size will have no effect on the gap between scheduled castes and majority households.

At the rural all-India level, an increase in the population share of any of the age groups included in the specification (the omitted group comprises the 15-60 year olds), has the effect of widening the gap between scheduled caste and majority households. An increase in a given population share has the effect of reducing per capita incomes for both groups, but the impact is greater for scheduled caste households. In rural Tamil Nadu this is true only for the two population groups between the ages of 5 and 15. An increase in the percentage of family members aged 60 or above would have the effect of reducing the gap between majority and scheduled caste households.

Returns to land are positive and significant for both subgroups. In Tamil Nadu, returns tend to be higher than at the all-India level. In rural Tamil Nadu returns to land ownership are considerably higher for scheduled castes than for majority households.²⁴ An additional hectare per person raises per capita consumption of scheduled castes by 70% percent, while it raises those of majority households by only about 48 percentage points. An increase in land holdings would thus contribute to a reduction in the gap between scheduled caste and majority consumption levels. There is a turning point, at which returns to land become negative. For scheduled castes this occurs at around 4.5 hectares per person, and for majority households it occurs at around 6 hectares per person. While these turning points do occur in the data they are clearly sufficiently high to be of minor practical relevance. Why might returns to land be higher among scheduled castes? From Table A3.1 we saw that landholdings among scheduled castes are on average lower than among majority households. With labor market imperfections, plus a higher propensity among scheduled caste households to involve all family members in own-farm cultivation, it is possible that scheduled caste households simply apply more labor to their land than majority households, and thereby achieve higher yields.

The story that emerges is thus as follows. Land holdings among scheduled castes are lower than among majority households, and this is likely to be an important part of the explanation as to why scheduled caste households are poorer. However, in the case of Tamil Nadu, higher returns to land for scheduled caste households partially offsets their disadvantage in land ownership holdings. With the same returns as majority households, the scheduled castes would be even more poor.

With education the results are less clear-cut. From Table A3.1 we have seen that scheduled castes possess uniformly lower educational outcomes than majority households. At lower levels of education, the returns to scheduled castes are also lower than for majority households. This implies that, on the margin, an increase in lower education levels would widen the gap between scheduled castes and majority households. However, we observe higher returns to education for scheduled caste households in the case of secondary schooling and in the case of higher education. Increasing the proportion of family members with secondary education or with higher education, would have the effect of reducing the gap between majority and scheduled caste households. On the other hand, increasing the percentage with secondary school matriculation would have the effect of widening the welfare gap between these two groups. The source of these differential impacts of changing educational outcomes is likely a combination of various factors. It is possible, for example, that at lower education levels majority households are able to benefit from their better networks of contacts in order to access more desirable occupations, loans, and so on. But then, when we look at the very highest educational categories, it is possible that here scheduled castes benefit on balance more than majority households because they may be beneficiaries from reservation policies in public employment.

Differential Returns to Household Assets in Urban Areas. To what extent do the patterns of differential returns that we observe in Tamil Nadu apply only to rural areas? Is it the case that in the more anonymous setting of the town or city, where patterns of discrimination may be more diluted, the relative poverty of scheduled castes is solely attributable to their lower asset levels rather than a combination of low assets and low returns? The NSSO 50th round data suggest that a systematic difference between majority and scheduled caste households remains in urban areas. A Chow test on both the all-India and the Tamil Nadu sets of regression models rejects the null that the parameters are the same between majority and scheduled caste households. The nature of the difference in returns, however, is not always the same in urban areas as in rural areas.

²⁴ Note that the exogeneity of land owned in such a regression is obviously subject to debate. However, in rural India it is often observed that land purchase markets are very thin. Due to (active) transactions in land rental markets, land owned need not indicate well how much land is being cultivated.

Table A3.3: Urban Areas

Dependent Variable: log per capita consumption	All-India				Tamil Nadu			
	Majority		Scheduled Caste		Majority		Scheduled Caste	
	Co-efficient	p-value	Co-efficient	p-value	Co-efficient	p-value	Co-efficient	p-value
Household size	-0.073	0.00	-0.064	0.00	-0.085	0.00	-0.075	0.00
Proportion under 5 years	-0.560	0.00	-0.556	0.00	-0.507	0.00	-0.199	0.22
Proportion 5-9 years	-0.360	0.00	-0.308	0.00	-0.379	0.00	-0.229	0.22
Proportion 10-14 years	-0.316	0.00	-0.273	0.00	-0.401	0.17	-0.058	0.74
Proportion 60+ years	0.038	0.10	-0.237	0.00	0.037	0.69	-0.074	0.55
Proportion of adults with:								
Primary education or below	0.127	0.00	0.102	0.00	0.168	0.06	0.106	0.30
Primary education	0.222	0.00	0.151	0.00	0.342	0.00	0.222	0.02
Middle school	0.305	0.00	0.201	0.00	0.463	0.00	0.221	0.04
Secondary	0.556	0.00	0.383	0.00	0.748	0.00	0.555	0.00
Higher secondary	0.671	0.00	0.564	0.00	0.989	0.00	0.778	0.00
Higher	1.002	0.00	0.887	0.00	1.188	0.00	1.840	0.00
Constant	6.196	0.00	6.086	0.00	6.074	0.00	5.849	0.00
Number of observations	13472		4860		1002		440	
F	698.75		134.62		43.24		10.68	
Prob>F	0.00		0.00		0.00		0.00	
Adj. R-Square	0.478		0.378		0.453		0.401	
Fixed Effects F-Test	3.60		2.76		2.37		2.31	
(Prob >F)	0.00		0.00		0.00		0.00	
Chow Test	1.258				1.194			
(equality of parameters)	[F(1932,14468) =1.0]				[F(162,1118) =1.0]			

OLS Parameter Estimates. Table A3.3 indicates that in urban areas the impact of household size is to reduce the gap between majority and scheduled caste households. This is true at the all-India level as well as in Tamil Nadu. Age composition effects indicate that the gap between scheduled caste and majority households would decline with increases in the proportion of young children and rise with an increase in the proportion of the elderly.

In terms of education, the data suggest that an increase in education levels would widen the gap between scheduled caste and majority households in urban areas, for all education levels up to the higher education level. Only in the case of this latter education level, would the gap between scheduled caste and majority households narrow.

Summary. The key message emerging from this exercise is that the nature of the gap between two well defined groups in the population of rural as well as urban Tamil Nadu, namely the scheduled caste and the majority households, is rather complex. Policies to raise the human capital of scheduled caste households and to strengthen other productive asset holdings of this population group must clearly remain a focus of attention. However, it is not clear that this will suffice to eliminate the gap between these two groups. We have suggested that returns to assets between these groups are also very different, and generally contribute in an important way to the gap between the groups. A detailed

specification of the kind of measures that would be most effective in promoting higher returns to assets of scheduled caste households deserves close attention and further research.

Annex 4: Non-Farm Employment Probabilities and Incomes.

In this Annex we analyze NCAER data to study the individual, household and community characteristics that are associated with non-farm activities and incomes. We employ a multiple regression approach here which allows us to scrutinize, in turn, the statistical association between non-farm activities or incomes and specific characteristics, holding the influence of other characteristics constant. This approach is preferable to simple bivariate cross tabulations, but care must be taken to avoid misinterpretation. We will be careful to avoid suggesting clear causal relationships between the household characteristics and the particular dependent variable of interest. While in some cases the underlying relationship being explored may well be causal, we are not in the position to establish this rigorously. Further research on these questions is needed.

We employ the multinomial logit model to explore the individual, household and community characteristics that are associated with the probability of non-farm employment in rural Tamil Nadu (see Greene, 1993 for a useful exposition of this model). We consider five broad occupations in rural areas: agricultural labor; non-farm casual wage (daily wage) labor; non-farm own-enterprise activities; non-farm regular, salaried employment; and cultivation plus other remunerated activities.²⁵ Our “explanatory” variables comprise a selection of individual, household and community characteristics. At the individual level we consider the gender, age, educational status, and caste status of each person.

At the household level, we have information on the size of the household to which each person belongs, the household’s per capita landholding, and the percentage of family members engaged in cultivation activities. These variables are intended to tease out some of the possible interactions between agriculture and the non-farm sector at the household level. For example, land ownership might proxy wealth, contacts, and access to credit markets, and thereby provide some indication of the extent to which individuals are better placed to take advantage of *opportunities* in the non-farm sector.²⁶ At the same time, larger per capita landholdings, all things equal, also equip a household better to engage in agriculture. Similarly, the percentage of family members engaged in cultivation might, on the one hand, proxy a latent demand to diversify out of agriculture (and thereby reduce exposure to agriculturally related risk) but on the other hand capture a household’s commitment to, and specialization in, cultivation.

At the community level we have calculated two variables which may influence the probability of an individual’s involvement in non-farm activities. First, total village landholdings divided by the village population, provides some indication of the population density in the village.²⁷ All things equal, a high population density would be expected to push people out of agriculture (as cultivation is increasingly unable to sustain livelihoods) and may well also stimulate non-farm activities (through lower transactions costs, economies of agglomeration, etc.). The second variable is a similarly constructed variable representing the agro-potential of the community. We simply divide the value of gross agricultural output in the village by total land cultivated to construct a measure of agricultural

²⁵ We concentrate in this analysis on reported *principal* occupation, and are unable to consider, as a result, the set of issues associated with combining farm with non-farm activities during the course of, say, an agricultural year (with its associated peak and slack seasons).

²⁶ It is often noted that the market for the purchase and sale of land is rather thin in rural India, as opposed to the market for landuse–tenancy (see Jayaraman and Lanjouw, 1999). Landholdings may therefore be reasonably exogenous in the kind of models estimated here.

²⁷ This variable, like the other community variables, is obtained by calculating “leave-out” aggregates over sampled households, where in turn each individual’s household is left out of the calculation when assigning the aggregate to that individual.

“yield” in the community. The variable can be used to explore the notion that the non-farm economy derives from and is sustained by agricultural productivity.

Table A4.1 provides summary statistics on the variables of interest in this analysis. We also provide comparative figures for Andhra Pradesh, Karnataka, and Kerala. As can be seen in the Table non-farm employment and agricultural labor are the dominant principal occupations of the economically active workforce in Tamil Nadu. In Kerala, non-farm employment is particularly important. Farming is relatively more important in Karnataka while in Andhra Pradesh, agricultural labor and farming are important. Relative to Andhra Pradesh and Karnataka, per capita landholdings in Tamil Nadu and Kerala are quite small. Women represent a relatively high share of the economically active rural labor force in Andhra Pradesh. In Tamil Nadu and Karnataka a relatively large share of the economically active rural labor force is made up of Scheduled Caste and Scheduled Tribe workers. In Tamil Nadu in particular there is a very small Muslim share of the rural workforce. Per capita incomes in rural Tamil Nadu are around the middle of the four southern states, and somewhat higher than for rural India as a whole.

Table A4.1: Rural Employment In Tamil Nadu and Neighbouring States

	Tamil Nadu	Andhra Pradesh	Karnataka	Kerala	All-India
Proportion of Economically Active with Primary Employment in:					
Cultivation and other	0.259	0.354	0.465	0.259	0.439
Agricultural wage labor	0.347	0.375	0.313	0.263	0.234
Non-farm casual daily wage labor	0.160	0.071	0.067	0.181	0.097
Non-farm self employment	0.100	0.143	0.090	0.160	0.233
Non-farm regular salaried labor	0.135	0.056	0.064	0.137	0.107
% of Economically Active in Rural Area:					
Female	0.263	0.336	0.279	0.285	0.194
Non-Educated	0.406	0.602	0.533	0.108	0.481
Primary Schooling	0.099	0.091	0.152	0.236	0.121
Secondary Schooling and Higher	0.299	0.182	0.265	0.482	0.288
Scheduled Caste/Tribe	0.319	0.264	0.318	0.175	0.333
Muslim	0.017	0.052	0.084	0.128	0.084
Per Capita Landholdings	2.17	4.59	6.38	1.63	5.04
Per Capita Income ^a	4867	5046	4767	5768	4468
% of Household Income From Non-Farm Activities	0.464	0.234	0.201	0.347	0.344

Source: NCAER (1993/94)

^a Incomes are annual, in 1993 Rupees, adjusted for spatial price variation using the Tornqvist Index taken from Deaton and Tarozzi (2000).

The multinomial model requires that a particular occupational category be designated as the numeraire against which all results should be compared. We have chosen agricultural wage labor as the comparison group. Agricultural wage labor is a key occupation of the poor in rural Tamil Nadu.

Choosing this category for comparison purposes thus allows us to ask whether the other occupational categories can be regarded as systematically different in any way (and therefore possibly associated with lower poverty). This implies that parameter estimates for the categories which are included should be interpreted not as correlates of employment in a given occupational category, but as indicators of the strength of association of a particular explanatory variable, with the respective occupational category *relative* to the same explanatory variable with agricultural labor. To ease interpretation we consider direct parameter estimates and also some generated tables which summarize the impact of specific explanatory variables.

Multinomial Parameter Estimates. Table A4.2 provides the parameter estimates on the multinomial logit model. In Tamil Nadu women are strongly and significantly more likely to be involved in agricultural labor than in any of the other four occupational categories considered. The parameter estimate for this variable is consistently negative in all four categories, with a probability value of 0, or near 0 in the case of regular non-farm employment (thereby rejecting that the parameter estimate is zero). The parameter estimate on age indicates that the probability of employment in cultivation or regular non-farm employment, relative to agricultural wage labor, increases with age. While the square of the age variable is significant in the first of these two occupations, the coefficients suggest that a turning point is reached only at a very high age (over 80). In the case of non-farm casual employment, it appears that the probability of employment declines with age (relative to agricultural wage labor) but here the turning point is reached at an age of around 25 years, indicating that employment in this occupations becomes more probable relative to agricultural wage employment when workers are in their thirties or higher.

Education is strongly associated with employment outside of agricultural wage labor. Those with no education (i.e., less than the dropped education dummy of some but less than primary, education) are more likely to be employed in agricultural wage labor than in either cultivation, casual non-farm employment, self-employment or regular salaried employment. Point estimates on primary education are not statistically significant. We cannot say with confidence that having completed primary education relative to having stopped prior to completing primary schooling, imparts an advantage in getting a non-farm job or the probability of engaging in cultivation. That conclusion is overturned when the individual has some secondary schooling or higher. Now (relative to someone with only some primary education) education clearly (and significantly) indicates that an individual is more likely to be involved in any of the possible non-farm activities than in agricultural labor. The point estimate is positive but not significant in the case of cultivation. This bolsters Ravallion and Datt's (2002) conclusion that education is extremely important in enabling the poor to participate in the growth of the non-farm sector.

Turning to religion/social class categories, we can see from Table A4.2 that individuals belonging either to a scheduled caste or a scheduled tribe are relatively less likely to be involved in cultivation than in agricultural labor, and similarly are less likely to be involved in any of the three sets of non-farm activities. This echoes our findings in the poverty profile on poverty among the SC/ST population. Individuals who are Muslim are significantly more likely to be engaged in any of the three non-farm employment activities than in agricultural labor. The coefficient on cultivation is not significant for this group.

Table A4.2
Multinomial Logit: Sector of Employment
Tamil Nadu
(Agricultural Wage Labor as Comparison Group)

	Farming and other occupations		Non-farm casual wage employment		Non-farm own enterprise		Non-farm regular employment	
	Coefficient	Prob value	Coefficient	Prob value	Coefficient	Prob value	Coefficient	Prob value
Female	-2.016	0.00	-0.705	0.00	-0.962	0.00	-0.307	0.12
Age	0.165	0.00	-0.048	0.08	0.001	0.98	0.063	0.00
Age squared	-0.001	0.01	0.001	0.13	0.000	0.53	-0.0004	0.28
Non educated	-0.745	0.01	-0.496	0.01	-1.529	0.00	-2.081	0.00
Primary education	-0.172	0.62	0.365	0.13	-0.404	0.19	0.266	0.38
Secondary Education	0.442	0.12	0.539	0.01	0.936	0.00	2.373	0.00
SC/ST	-1.163	0.00	-1.412	0.00	-1.678	0.00	-0.832	0.00
Muslim	2.904	0.22	2.512	0.02	3.705	0.00	2.235	0.06
Household Size	0.163	0.00	0.084	0.00	0.063	0.07	-0.020	0.56
Per Capita Land Owned	0.131	0.00	-0.169	0.01	0.076	0.20	0.099	0.06
Per Capita Land Squared	-0.002	0.02	0.002	0.22	-0.002	0.36	-0.002	0.19
Number of Cultivating Family Members	19.24	0.00	1.470	0.18	-2.270	0.11	2.494	0.02
Population Density (Village Land per Capita)	-0.012	0.81	-0.176	0.00	0.039	0.33	-0.074	0.11
Village average yield (value of output per acre)	-0.0003	0.22	-0.0006	0.00	-0.001	0.00	-0.0004	0.29
Constant	-7.142	0.00	1.493	0.01	-0.042	0.95	-2.009	0.01
Pseudo R ²	0.423							
Log Likelihood	-2237.15							
No of obs.	2,589							

Household size is positively and significantly related to cultivation, non-farm own-enterprise and casual non-farm employment, but not to regular non-farm employment. This indicates that individuals from large households are particularly likely to be engaged in the former two non-farm activities, relative to agricultural labor, but that there is no similarly greater propensity to be employed in non-farm regular employment. Relative to involvement in agricultural wage labor, individuals coming from large land-owning households are more likely to be involved in either cultivation or regular non-farm employment. This finding is consistent with the village-level studies evidence that larger landholdings provide both opportunities for cultivation as well as for the most attractive non-farm activities (via a wealth effect). For instance, in Gokilapuram, Swaminathan, (1991) finds that between 1977 and 1985, cultivators were the only households to diversify into business. As Naidu (1995b) notes for Verakadu in 1993-4, workers in low-wage non-agricultural casual occupations comprised mostly of uneducated, unskilled, landless workers; this was in stark contrast to salaried employees, who comprised of educated, skilled, landed, upper caste workers (p. 33.)

When we consider the parameter estimates on the variable indicating the percentage of family members involved in cultivation, we can see that the higher this percentage, the more likely an individual will be engaged in cultivation or regular non-farm employment than in agricultural wage labor. However, the results indicate that those households which are heavily engaged in cultivation, are particularly unlikely to be engaged in non-farm self-employment activities. In the case of cultivation, it is possible that an individual from a household in which many family members are engaged in cultivation is likely to prefer to join other family members in cultivation than work as an agricultural laborer. In the case of non farm employment, it appears that a strategy of diversification into non-farm activities is feasible for regular non-farm employment, but that entry into non-farm self-employment activities or casual non-farm wage employment is not likely for those households with a large commitment to agriculture.

Turning to community-level variables we find that a lower population density (higher per capita landholding per village) only influences (negatively) the probability of casual non-farm wage employment relative to agricultural wage labor. A higher village “yield” reduces the probability of casual non-farm wage employment and non-farm self-employment, but not the probability of cultivation or non-farm regular employment.

Predicted Employment Probabilities. So far we have focused on results in terms of the sign of coefficients and their statistical significance. The multinomial logit model estimates we have scrutinized are not readily interpretable in terms of size of impact. In order to provide some feel for these aspects Tables 30 and 31 provide some predicted employment probabilities, under alternating assumptions about membership of social group and education levels. In Table A4.3 we present predicted probabilities of employment in the five respective employment categories assuming, respectively, that the population is made up entirely of scheduled caste/scheduled tribe households, or other Hindu households. Table A4.3 indicates that the quantitative impact of social group on employment probabilities is fairly large for SC/STs. Table A4.2 indicated, for example, that the predicted probabilities indicate that SC/STs are relatively more likely to be engaged in agricultural wage labor than middle and upper castes or Muslims. This is confirmed in Table A4.3 where we see that the predicted probability of SC/STs working in agricultural wage labor is 43%, compared to 25.5% for other Hindus. Similarly, the probability of self employment in the non-farm sector for SC/STs is 5.4% compared to 12.1% for Other households.

It is important to recognize that the counterfactuals considered here are somewhat artificial, because they impose the assumption that in every other respect individuals’ are identical. Once one allows for the fact that SC/STs are also less educated than the rest of the population, and generally less wealthy,

the actual employment incidence across employment categories and population subgroups are likely to be much more pronounced (see also the previous section).

Table A4.3
Caste and Sector of Employment
Predicted Probabilities from Multinomial Logit Model

	Tamil Nadu	
	SC/ST	Other Hindu
Cultivation	27.6	30.1
Agricultural wage labor	43.2	25.5
Casual non-farm wage	9.4	18.7
Self employment	5.4	12.1
Regular non-farm	14.4	13.6

We turn next to a similar set of simulated employment probabilities where we consider alternative educational outcomes across the population. In Table A4.4 we consider the predicted probabilities of employment assuming, respectively, that no person has any education in the population, all have somewhere between no and primary-level education, all have primary-level, and all have secondary or higher level education. We see considerable differences across the alternative scenarios. The probability of employment in a salaried non-farm occupation is as high as 35% if all individuals were educated up to the secondary or higher level (controlling for other characteristics) compared to 1.7% if nobody had any education. Even if educated only to the level of below primary, the probability of salaried non-farm employment is nearly five times the no-education probability. Own-enterprise activities are also monotonically related to education, but in the case of non-farm casual wage employment, the employment probabilities first rise and then decline as one postulates higher education levels. These findings provide yet another important reminder that the non-farm sector is very heterogeneous, and that absent a careful delineation of different types of non-farm activities, the importance of education might be easily overlooked or misinterpreted.

Table A4.4
Education and Sector of Employment
Predicted Probabilities from Multinomial Logit Model

	Tamil Nadu			
	No Education	Below Primary	Completed Primary	Secondary and beyond
Cultivation	30.3	31.2	29.8	26.8
Agricultural wage labor	47.4	32.5	30.9	14.3
Casual non-farm wage	15.4	15.1	20.4	10.7
Self employment	5.2	13.0	8.4	12.8
Regular non-farm	1.7	8.3	10.4	35.4

Rural Non-farm Earnings. We now turn to an examination of non-farm *earnings* as opposed to employment probabilities. Our “explanatory” variables remain unchanged. A brief comment about

our econometric approach is in order. It is well known that a regression of non-agricultural incomes on a range of explanatory variables, using simple OLS techniques, yields biased estimates on the explanatory variables. This is because the OLS regression does not properly take account of the censoring of the dependent variable at zero (corresponding to all households which do not have any non-agricultural sources of income). A standard approach in this case is to estimate the tobit model instead. Recently however, concerns have been raised regarding the use of the tobit model in contexts, such as ours, where heteroskedasticity is likely to be present.²⁸ In the presence of heteroskedasticity, parameter estimates on the tobit model are not consistent.²⁹

To overcome these difficulties we proceed by estimating a censored least absolute deviation model (CLAD) of non-agricultural incomes on a set of explanatory variables (see Jolliffe, 1998, and also Deaton, 1997). The approach here consists of estimating a quantile regression on the full sample of households (both with zero and non-zero non-farm incomes), predicting non-farm income on the basis of the parameter estimates, dropping those households for which predicted non-farm income is negative, re-estimating the regression and then repeating the exercise with multiple iterations until no more negative predicted values are obtained. We then calculate bootstrapped standard errors on the parameter estimates.

CLAD Parameter Estimates. Table A4.5 presents results from the estimated CLAD model for Tamil Nadu. Gender is strongly and significantly related to non-farm earnings. Controlling for all other characteristics, a woman would expect to earn only 2-3% of a man's income from non-farm activities.³⁰ This dramatic earnings gap is likely the product of a conflation of factors. First, women may spend fewer days in non-farm employment during the course of a year. Second, women are likely to be more highly represented in lower-paid occupations (see also the previous section). Third, they might receive lower pay than men for the same occupation.

Non-farm earnings rise with age. This continues until the mid 40's whereupon earnings begin to decline with age. The association between non-farm earnings and education is strong. Those workers with no education earn significantly less than those with incomplete primary education. Completing primary education does not appear to impart higher earnings compared to those with just some primary education. But the impact of secondary or higher education is dramatic. As Naidu (1995a, b) finds, for instance, this is likely to reflect the fact that salaried work, in both the private and public sectors, is almost exclusively accessible to those with education beyond the primary level.

Not surprisingly, given that the scheduled castes and scheduled tribes are less likely to find employment in the well paid non-farm occupations, we find evidence that such individuals also earn nearly 57% less than the higher castes from non-farm activities, even if education, wealth, and other characteristics are controlled for. Muslims do not earn a significantly different non-farm income than do the higher caste Hindus with the same characteristics. Household size is negatively related to non-farm incomes, and the effect is statistically significant.

In the previous section we saw that per capita landholdings were positively associated with employment in salaried non-farm occupations. In the non-farm income regression considered here, however, the relationship is negative. An additional acre of land per capita is associated with a 17%

²⁸ Deaton (1997) provides a valuable overview of the approach adopted here.

²⁹ It should be noted that testing for heteroskedasticity in these models is not straightforward as such tests require an assumption of normality and this is routinely rejected empirically (see Deaton, 1997).

³⁰ A coefficient ϵ multiplying a dummy variable can be interpreted as a percent change in the endogenous variable only as long as ϵ is close to zero. For larger values, in absolute terms, the percent change in the endogenous variable is given by $100[\exp(\epsilon)-1]$.

decline in non-farm earnings. Apparently, while land may capture well the *opportunity* to access non-farm jobs, those employed in the non-farm sector who come from households with sizeable landholdings are less likely to work full-time in the non-farm sector. Once land holdings become very large, however, this inverse relationship disappears (beyond 42 acres per person non-farm incomes start to rise with landownership).

The larger the percentage of family members employed in cultivation the lower is non-farm income. As was suggested in the case of land, households appear to choose between agriculture and non-farm activities rather than viewing them as complementary.

Turning to village-level characteristics, we find population density is negatively but not significantly related to non-farm earnings. However, in the case of agricultural productivity the negative relationship with non-farm earnings is statistically significant. The point estimates suggest that higher population density (lower per capita landholdings in the village) is associated with higher non-farm earnings, while higher agricultural productivity is associated with lower non-farm earnings. While not strongly significant, this evidence suggests that the linkages between farm and non-farm activities are on the weak side in rural Tamil Nadu.³¹

Table A4.5
CLAD Estimates of Log Non-farm Incomes Per person

	Tamil Nadu	
	Coefficient	Prob value
Female	-3.800	0.00
Age	0.235	0.00
Age squared	-0.003	0.00
Non educated	-0.539	0.00
Primary education	0.170	0.61
Secondary Education or Higher	1.460	0.00
SC/ST	-0.842	0.00
Muslim	0.294	0.57
Household Size	-0.075	0.00
Per Capita Land Owned	-0.168	0.00
Per Capita Land Squared	0.002	0.00
Number of Cultivating Family Members	-6.432	0.00
Population Density (Village Land per Capita)	-0.041	0.11
Village average yield (value of output per acre)	-0.0003	0.00
Constant	5.012	0.00
Pseudo R ²	0.366	
No of observations	6692	

³¹ An important caveat to this point is that the linkages we are refer to here are within the same village. As has been noted in several village studies in India, the response of villages to the introduction of new agricultural technologies can vary with the underlying conditions in those villages. A village that is well suited to agriculture might become more concentrated on agricultural activities while a neighboring village that is less well placed may diversify out of agriculture per se in favor of more supportive activities such as agricultural marketing, processing, transport, repair. Epstein (1973) provides a detailed account of this process in two villages in Karnataka. Van Dillen (2003) observes a similar process in the context of two villages of southern Tamil Nadu.

Table A5.1: Village-Based Studies Consulted For Tamil Nadu Poverty Note

Author	Location*	Village(s) or Town	Year(s)
Anandhi, Jeyaranjan and Krishnan (2002)	Chengalpattu District	Thirunur	not mentioned
Artheya, Djurfeldt and Lindberg (1990)	Tiruchirapalli District, Kulithalei and Manaperi Panchayat Unions	Rajendram, Poyyamani, North Nangavaram, Naganur, Kalladai, K. Peripatti	1979-1980
Balasubramanian, Tamizoli and Murugakani (2002)	Dindigul District	Pudupatty	not mentioned
Gough (1981, 1987)	Thanjavur District	Kumbapettai (near Thanjavur city), Kiripur (Nagapattanam Taluk)	1951-1984
Guhan and Mencher (1983)	South Arcot District	Iruvelpattu	1916-1981
Harriss (1986)	North Arcot District	Randam	1977-1986
Harriss-White, Janakarajan and Colatei (forthcoming)	North Arcot District	Nesal, Vinayagapuram, Veerasambanur	1972-1994
Hazell and Ramasamy (1991)	North Arcot District	11 villages (unnamed)	1973-1984
Heyer (1992)	Coimbatore District	3 villages (unnamed) 40-60 km. NE of Coimbatore	1981-1982
Hockings (1999)	Nilgiris District	O:rana:yi, Kl:y Odeyaratti, Ke:ti Toreke:ri, Hulla:da	1963-1990
Kapadia (1993)	Tiruchirapalli District	Aruloor	1987-1988
Naidu (1995a)	Thiruvalluvar District	Enathimelpakkam	1985-1994
Naidu (1995b)	Thiruvalluvar District	Verakadu	1985-1994
Neelakantan (1996)	Karur District	Chettipalayam Hamlet in Appipalayam village; Karur town	1940-1995
Rajasekhar (2002)	Not mentioned	Sabthalipuram, Mottupalayam	not mentioned
Rajuladevi (2001)	Tanjavur and Ramanathapuram Districts	2 villages each in Kottur and Kamudi blocks	1995
Saravanan (2002)	North Arcot District	Katteri	not mentioned
Ramachandran (1990), Swaminathan (1988, 1991)	Madurai District, Uthamapalayam Taluk	Gokilapuram	1977-1986

Ravindran (1999)	Chidambaram, Tiruchirapalli, Periyar, Tirunelveli, North Arcot and Tiruvannamalai Districts	15 villages (unnamed)	1994-1995
Srinivasan (forthcoming)	North Arcot District	Amudur, Duli, Kalpattu, Meppathurai, Nesal, Sirugathur, Vayalur, Veerasambanur, Vegamangalam, Vengodu, Vinayagapuram	1973-1995
Van Hillen (2003)	Tirunelveli District	Thaiyanallur	1995-1998
Vincentnathan (1996)	Cuddalore District	Ennakulam	1989-1992

Other Tamil Nadu Studies

Author	Location*	Village(s) or Town	Year(s)
Arogyamary (2003)	Chennai	Washermanpet	2002
Bardhan (2000)	6 districts (unnamed)	48 Villages	not mentioned
Cawthorne (1995)	Coimbatore District	Tiruppur	not applicable
Chari (2000)	Coimbatore District	Tiruppur	not applicable
de Wit (1996)	Chennai	Slum areas	not applicable
Jeyarajan and Swaminathan (1999)	Chennai	Ambattur	1997
Nihila (1999)	"Tanning Pockets" including Dindigul, North Arcot and Tiruchirapalli Districts	various	not mentioned
Ramasamy, Janiah, Selvaraj and Hossain (2003)	Study sites containing "all rice production environments" in Tamil Nadu	various	2000-2001

*As described by the author. May not correspond to current district names.

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