

**Title of Research Project**

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| Poverty Traps, Nutrition, Health Status and Anti-Poverty Interventions in Rural India |
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**Short Title** (*up to 60 characters*)

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| Poverty Traps and Public Policy |
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**Summary of Project**

The proposed research will examine the nexus between consumption/income poverty, malnutrition and health status in India. Also examined will be the nutritional impact of anti-poverty programs such as the Food for Work Program, the IRDP and the Public Distribution System (PDS). The results of this research would, therefore, have significant policy implications for the design and targeting of the food subsidy in India as well as for evaluating the nutritional impact of anti-poverty programs. Using information on nutritional value of Indian diets, we will compute the nutrition content of the consumption of rural households for the quinquennial NSS surveys of 1987–88, 1993–94 and 1998–99 and critically examine the nature of the divergence between consumption/income poverty and nutrition linked deprivation and the underlying reasons. The household level data will permit us to focus on groups that are highly poverty prone (e.g. agricultural labourers). Since it is possible in such data sets to distinguish between different states, tests for stochastic dominance can be done for the country as a whole as well as for individual states. It would be important to find out whether the pattern of incidence of undernutrition matches the known pattern of incidence of poverty, e.g. whether undernutrition is more prevalent among agricultural labourers or SC/ST. Further, with time series data on nutrition, it would be possible to ascertain whether this pattern of incidence persists over time. Also indices of the inequality of undernutrition could be computed. At another level using indices of average consumption across groups for a longer time span, the pattern of dependence between undernutrition and factors such as inflation of basic food items will be explored. Furthermore, the relationship between nutrition and income/consumption levels will be ascertained. In addition, using the Family Health Survey results for 1992-93 and 1998-99 detailed family health survey for each of the states of India as well as the country as a whole, we would, address issues such as the dependence of health status of children on nutrition, mother's nutrition, education etc. The proposed research would have important implications for designing food subsidy. The costs of removing or reducing such subsidy will be articulated — also the issue of targeting of food subsidy towards groups that are most undernourished will be ascertained.

**Lead Researcher(s)**

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| Prof. Raghbendra Jha |
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**Applicant Institution**

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| Australian National University |
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**Start Date**

|               |                 |
|---------------|-----------------|
| April 1, 2002 | <b>End Date</b> |
|               | March 31, 2005  |

**End Date****Background**

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| This project aims to contribute to our understanding of the nexus between poverty, |
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under-nutrition and health status in India. As such it would have a significant impact on the design and targeting of the food subsidy as well as the implementation of anti-poverty programs. Much of the recent poverty literature has focused on the extent, severity and determinants of consumption/income-poverty in rural India (e.g. Datt and Ravallion, 1998a, b, Jha, 2000). Although there are some studies of the relationship between consumption/income and calorie intake (Subramaniam and Deaton, 1996, Behrman and Deolalikar, 1987), the relationship between poverty and under-nutrition has not received much attention. It is important to underscore the fact that the relationship between the two is a complex and important matter in India. First, as is well known under-nutrition is endemic in India – particularly among children although many of these children may not be below the poverty line. Second, as Dasgupta (1995) mentions, under-nutrition is critical to understanding poverty traps in India. This literature reverses the causation between poverty and under-nutrition, arguing that under-nutrition causes poverty but not necessarily the other way around. Lipton (2001) endorses this point of view and argues that under-nutrition might make the poor unable to take advantage of welfare programs such as food for work since they are too weak to work hard. The poverty trap argument is built around the efficiency wage hypothesis, and claims that nutrition-based poverty traps exist and help explain the persistence of poverty in agrarian economies. (Gaiha 1998). Further poor nutrition could lead to poor health outcomes. As critiques of poverty traps have been sketchy, a detailed empirical investigation would help fill an important lacuna in the development literature and offer new insights into the causation and persistence of poverty in rural India. The critiques (Srinivasan 1994, and Subramanian and Deaton 1996) have focused on the centrality of the fixed energy requirements in Dasgupta's (1995) formulation and the low cost of the required calories to escape the poverty trap. However, Dasgupta argues that there is little slack in the poor's budget so the chances of a poverty trap may be high. Since roughly one third of the world's poor are concentrated in India, the proposed study also has an important global dimension to it in the context of poverty alleviation.

The proposed study will make a contribution to this important policy research agenda and have the following components.

### 1. Poverty and Undernutrition

As there is hardly any agreement on specific poverty and nutrition thresholds, a range of such thresholds will be used in tests of stochastic dominance to assess the comparative incidence and severity of consumption/income-poverty and under-nutrition. Of particular importance is a finding that measures of child malnutrition are considerably higher than of income poverty (Shariff 2000). The proposed study will assess critically the nature of the divergence between consumption/income poverty and nutrition linked deprivation and the underlying reasons. As the analysis will be based on National Sample Survey (NSS) household data such comparisons would be feasible for groups that are highly poverty prone (e.g. agricultural labourers). Since it is possible in such data sets to distinguish between different states, the tests for stochastic dominance can be done for the country as a whole as well as for individual states. It would be important to find out whether the pattern of incidence of under-nutrition matches the known pattern of incidence of poverty, e.g. whether under-nutrition is more prevalent among agricultural labourers or SC/ST. Further, with time series data on nutrition, it would be possible to ascertain whether this pattern of incidence persists over time. Also indices of the inequality of under-nutrition could

be computed. Computing averages of nutrition levels across different groups, the pattern of dependence between under-nutrition and factors such as inflation of basic food items etc. will be explored. Furthermore, the relationship between nutrition and income/consumption levels will be ascertained. Is it monotonic or is there a hump? For 1992–93 and 1998–99 detailed family health survey for each of the states of India as well as the country as a whole are available. We would, therefore, address issues such as the dependence of health status of children on nutrition, mother's nutrition, education etc.

## 2. Poverty Traps

Based on the efficiency wage hypothesis, under-nutrition acts as a barrier to participation in the labour market. A stylised description, partly drawing upon Dasgupta (1995), of how poverty traps operate now follows.

Suppose there is an agrarian economy with a large number of assetless persons relative to the aggregate wealth. The distribution of assets, or land, is highly unequal. The labour market is competitive. The only alternative to agricultural work is to live off local common property resources such as forest products. An agricultural labourer is efficient at a rate of energy intake that exceeds the food energy available to him from the commons. Living off the commons would involve a steady deterioration in nutritional status. Under these assumptions, the agricultural labour market does not clear: there is no wage rate at which the demand for labour exceeds the supply. As a result, there is rationing, implying that some assetless find employment in agriculture at a wage equal to the energy intake at which efficient productivity is maintained. The remaining are forced to live off the commons. In the next period, the employed have a nutritional advantage over the rest, making it harder for the not employed to improve their employment prospects and to break out of the poverty trap. This pattern has the potential of being perpetuated.

We have the National Family Health Survey Data for 1992–93 and 1998–99 for all Indian states as well as the country as a whole. We would use this to do a causal analysis of the links between the trinity of poor labour market outcomes, pure nutrition and poor health status, which then leads to further poor labour market outcomes. The analysis on this research would attempt to quantify the direction, time pattern and quantitative magnitude of this relationship and explore its dependence on other factors.

For an empirical validation, two tests of the pervasiveness of poverty traps will be carried out. One will focus on participation in rural labour markets and the relationship between wages and a measure of nutritional status. The second test will examine whether participation in two major anti-poverty interventions viz. rural public works (RPW) and Integrated Rural Development Program (IRDP) — a credit subsidy programme designed to promote self-employment in rural areas—is conditional upon nutritional status, among other factors. As Deolalikar and Gaiha (1996) argue under-nutrition is more likely to affect participation in RPW than in IRDP. In case the undernourished are excluded both from the rural labour market and anti-poverty interventions, an empirical basis would be provided for the persistence of poverty. A related issue is the large intersection of participating households in these anti-poverty interventions (Gaiha 2001). As many of these are non- poor, an issue is whether these

interventions are complements or substitutes from their point of view. Following Pitt et. al. (1995) we would also analyse such complementarity or substitutability from the point of view of funding agencies. Since the NSS data are based on a large sample, it would be worthwhile to analyse whether there are systematic differences in the way the poor and the non-poor view these interventions. A related question would be how the undernourished view such interventions. This could yield useful insights into the distribution of the benefits of these interventions between the poor and the non-poor. A further line of inquiry could ascertain whether the form of payment is important in some areas, i.e., whether it is better to pay the persistently poor who are malnourished in kind rather than in cash.

### 3. Nutritional Impact of Anti-Poverty Interventions

Although there is a voluminous literature on the targeting and distribution of benefits of RPW and IRDP, their nutritional impact has not been analysed in detail. If there is a significant nutritional impact, this is likely to translate into higher labour productivity and a quicker escape from persistent poverty. For some evidence see Deolalikar (1988). Their comparison with the Public Distribution System (PDS) — subsidised food distribution — may yield useful insights into designing a more effective strategy for food security. This is of considerable significance in the context of starvation deaths *despite* surplus food stocks in some parts of India. Another issue that deserves critical scrutiny is whether public support for the poor in the form of, say, RPW discourages job search and investment in human capital (Besley and Coate, 1992). Although there is some evidence suggesting that the poor withdrew from the Employment Guarantee Scheme in Maharashtra (a special case of RPW) when alternative employment opportunities expanded, a more detailed investigation is necessary as Gaiha (1997) argues. We propose to carry this out using the ICRISAT panel survey of villages in the semi-arid tract of south India.

The nexus between undernutrition, poverty and poor health status is of the utmost importance for the developing world in general and India, in particular. The project would have significant implications for the design and targeting of the food subsidy as well as for the implementation of the anti-poverty programs.

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