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**SOCIAL AND BIOLOGICAL REPRODUCTION OF LOWER-INCOME
GROUPS ON THE MESETA CENTRAL IN COSTA RICA**

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A thesis submitted for the degree of Doctor of Philosophy
to the Department of Anthropology, University of Durham

July 1988



- 6 JUL 1989

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ABSTRACT

This thesis examines the social and biological reproduction of households in the sectores populares, ie low income groups, both rural and urban, in the Meseta Central, yields specific outcomes at household level: the social formation based, originally, on smallholder coffee also depends on unusually successful domestic labour. Only multidisciplinary team work could adequately evaluate reproduction at the household level and establish the crucial role of the household in the wider economic system, as well as the role of women in maintaining diverse forms of subordination.

The standard of living of the groups studied was estimated from the nutritional status of the children as a basic indicator of wellbeing; explanations of this status were sought in multivariate analysis of biological, economic, and social factors. Unexpectedly, the explanatory power of such variables such as income proved weak, the explanation appearing rather to lie with the less quantifiable social factors which rendered domestic labour more or less effective. Surveys and analysis, 1981-1984, sought to establish household survival strategies; diversified household enterprise proved of great importance in a survival constantly endangered by the insecurity of temporary, part-time and seasonal work so familiar in the Costa Rican economy as a whole.

The household itself, as a flexible social organisation, seems one of the best resources for livelihood in the sectores populares, along with the 'peasant' tradition of unpaid female and child labour. Proletarianisation remains incomplete. The economic categories of traditional Marxism prove inadequate to explain the gender subordination which characterises male - female relations in countries of markedly uneven development, such as Costa Rica.

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The members of the households, especially the women, who co-operated so willingly with this study.

My children, my grandchildren and my friends, too numerous to mention by name, who made this study possible due to their invaluable help and encouragement.

Responsibility for the data, theory, organisation and findings of the research rests with me.

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I declare:

That none of the material offered for my thesis, for the Degree of Doctor of Philosophy for the University of Durham, has been submitted to this or any other University for a degree.

That part of the third chapter (Chapter 3) dealing with the subject of Nutrition and the development of a method for assessing the nutritional status at the household level, was published by Archivos Latinamericanos de Nutricion. The method was devised, developed and imported by me, but because technical advice was received on the medical aspects of nutrition (from Jorge Piza), they were credited as co-authors.

That I devised and submitted a research project to the United Nations University, about "The Relationship of Women's Activities and the Nutritional Status of Children, in two low-income groups (sectores populares): namely, Santa Barbara and Hatillo". The material has been incorporated into this PhD. thesis, as it represents my personal ideas and knowledge.

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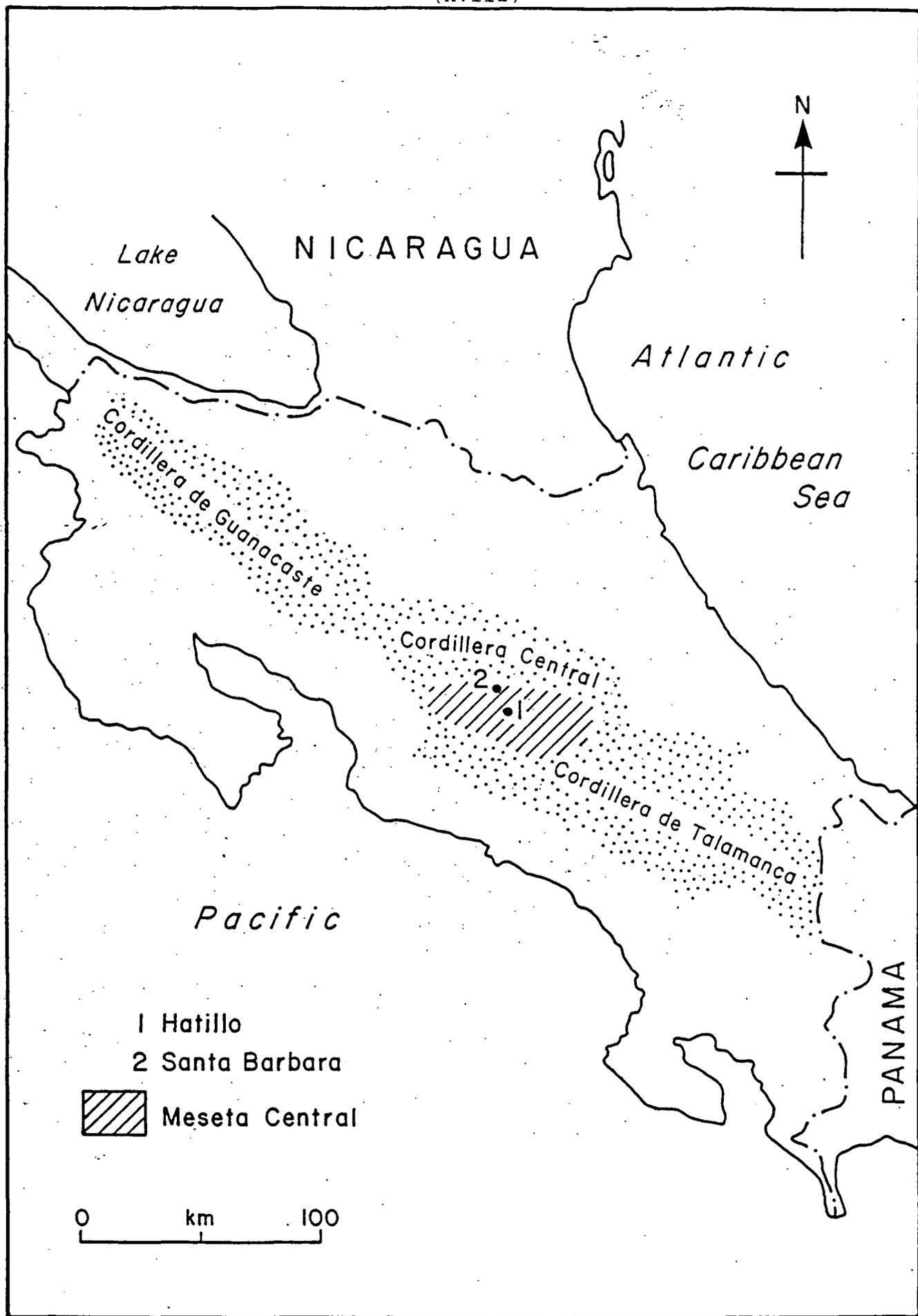


Fig 0.1 Location Map

CHAPTER ONE
INTRODUCTION



CHAPTER ONE

INTRODUCTION AND THEORETICAL FRAMEWORK

1.01 THE THESIS

This study takes its inspiration from the works of Marx. It seeks to break disciplinary boundaries and thereby, to unify Human Biology and Social Science in an historical context. It is my conviction that any such unified science must draw its inspiration from the theoretical insights of Marx, but Marxist theory cannot survive without constantly incorporating new developments.

This thesis seeks to examine survival and reproduction among the poor in Costa Rica. Although this country has a middle income economy (US \$1,020 per capita in 1983) and high income inequality, it scores remarkable success on indicators of welfare such as life expectancy, education and infant mortality.

Within Costa Rica, fieldwork was conducted in the Meseta Central which is more developed than the rest of Costa Rica. It is here that coffee, sugar cane and cattle, the principal products of the country's agrarian economy, are produced; though cattle production here is of minor

importance compared with coffee and sugar cane.

As a consequence of the rapid expansion of capitalism in the Meseta Central of Costa Rica since the nineteenth century, and at the development of the agricultural export sector, different areas of the region have been progressively affected. At the moment Costa Rica is characterised by increasing latifundism and minifundism. The land base is inadequate to yield peasants a livelihood; instead, they have become diversified workers. The land is now only one of many sources of income. At the same time, the structure and the economy of the household has been modified. Peasants have lost their land and have become wage labourers (jornaleros), but they are not becoming a true proletariat as they have been able, in the main, only to obtain seasonal, part-time and temporary jobs.

The research was designed to make a comparison of the households in a rural area with those in an urban area, to establish whether there were similarities or differences between them in their survival strategies.

Santa Barbara was selected because it is a rural community in the middle of the coffee and sugar plantations (including one sugar mill) and a number of small cattle ranches, like many other rural cantons. Hatillo is in many ways typical of the urban districts of San Jose, the capital city. Around Hatillo are squatter settlements whose inhabitants are waiting to establish

themselves in Hatillo as property becomes available.

In order to study survival and reproduction in the chosen areas, the nutritional status of the children was selected as an indicator of well-being, as it would be possible to compare the findings for children in Santa Barbara and Hatillo with those at national level, for which good statistics are available. Work was already being done in Hatillo by Dr Miguel Flores, a paediatrician and nutritionist, on iron deficiency in the blood of children.

In order to study this aspect of reproduction, it was deemed necessary to examine the nutritional status of children in the context of the role played by the women of the households, for it is the women who decide the procurement, preparation and distribution of foodstuffs, as well as being the persons who feed and, except in unusual circumstances, care for the children. In Costa Rica it is almost always the mother who plays this role.

In developing countries, the women frequently become female heads of households, when:

- 1 They are abandoned by their conjugal partners.
- 2 Their partners become incapable, often because of alcoholism, of exercising responsibility.
- 3 They are 'single' mothers, ie they are unmarried, or they have no attachment of their children's biological fathers.
- 4 Their conjugal partners are absent through migration.

5 They are widows.

6 There has been formal marital breakdown.

This situation is more common in low-income groups (sectores populares). In these cases in Costa Rica, a new form of socio-economic organisation may arise, the matri-focal family (female-headed households), in its simple or extended forms ('queen bee' family), where the women play multiple roles, mainly as economic supporters, educators and child-carers. Publication of the results of the 1984 Census has been delayed because of financial problems: informal preliminary reports or rumours suggest that about 40% of households are female headed.

Even in the case of those women who have a male partner, many of them have to share the economic responsibility and leave the household in order to work for a wage, in order to complement the household income and to allow the household members to reach subsistence level. In a high proportion of these cases, the children of the household also contribute, economically, to the family income.

A theoretical framework (below, this chapter) had to be constructed for this work using the multi-disciplinary approach required by the data. Marxist general laws relating to social theory proved insufficient to explain the female subordination and, therefore, it became necessary to explore feminist theories. Numerical models were employed to examine how the social and biological

variables could be used to explain the nutritional situation.

In Chapter 2 the social formation of Costa Rica is examined, taking into consideration the geography of the region and its historical background. The study areas, Santa Barbara and Hatillo, are evaluated in order to examine the degree of penetration of the capitalist system.

In Chapter 3, the methodology used in order to acquire the data is described. Since much of the data recorded is at household level but the anthropometry is at the individual level, it was decided to create an index, based on Waterlow's classification, to assess the nutritional status of children at the household level.

The nutritional status of the Santa Barbara and Hatillo children, at household level, was assessed by anthropometric measurements, the food intake recorded and the biochemical analyses of the children's blood samples detailed. (The nutritional status of children is described (see Chapter 4) and compared with national data.)

Discriminant analysis was attempted, using social and biological variables to establish which factors in this population can be related to malnutrition.

Household composition and structure were examined (see Chapter 5) to establish not only the present characteristics but also the family of procreation, the migratory patterns of the household members and their

parental families. The past and present patterns of land tenure are also reported and the process of depeasantisation described. The physical condition of the houses in which these people live is examined: the educational level of household members is compared with that given in national statistics; the relation between EGO, the mother of the case-children, to other members of the household is recorded in order to ascertain the kinship structure of the household; and a Stepwise Discriminate Analysis is presented, seeking a correlation between nutritional status and household family structure (nuclear, extended or matri-focal/female-headed).

The household economy is detailed in Chapter 6, because production is an important determinant of reproduction. Questionnaires were compiled to discover 1) all the different sources of income of the household (obtained by EGO, her partner and all other household members); 2) the structure of the labour force in the study areas as compared with those given for the national level; 3) jobs undertaken by household members which are remunerated or paid in kind; 4) benefits received from state supplementary food programmes; 5) household expenditure; and 6) the timetable of EGO, ie how she allots her time between domestic labour, remunerative work - both in and outside the household - and rest periods. Wherever possible, the life stories of the women will be used to highlight the situation.

Domestic labour and its role in the household economy are examined in Chapter 7 . The domestic activities which have to be undertaken by EGO, the mother, are outlined and related to the nutritional status of the children. The timetable records were reduced to standard categories, in order to perform Stepwise Discriminant Analysis, in an attempt to compare mothers' time use with the nutritional status of the children.

Patterns of socialisation in domestic labour are outlined, so as to demonstrate how the social skills of these women were obtained. By this information, it is hoped to arrive at an understanding of the role played by women's domestic labour in the economy of the household.

Despite the extensive work and great advances of the last twenty years, much of domestic labour is widely still perceived as unimportant: not a real academic subject. When data such as biochemical evidence of the children's nutritional status, or the measured time-use of housewives, are extracted, they have credibility and scientific status if the methodology is sufficiently rigorous. However, to survey the multiple pressures on an individual, we must have recourse to their own account: if the account is of domestic labour, it may once again seem not 'serious', not valid, not scientific, although an oral account of land tenure change or of factory work might be 'serious'. This thesis calls extensively on extracts from interviews with a sample of women, and seeks to relate

these discursive, multi-dimensional accounts to more measurable and quantitative data for the same survey.

The final chapter (Chapter 8) contains the findings of the other chapters, stating what conclusions can be drawn and suggestions of how the results could be used in future research and in practical applications.

1.02 THE VOICE OF THE WOMEN

Throughout this thesis, attention is drawn not only to the quantitative data, but also to the spoken word, seeking to deploy the advantages of both. Oral accounts by the women of the Meseta Central reveal aspects of life of peasant families, depeasantisation, training in domestic labour and patterns of subordination of women. The account given by Marlene is typical: illustrating all of these in recounting the making of a woman, the production and reproduction of gender:

Marlene, now living in Santa Barbara:

'My parents were living in Jerico de Desamparados, where they had a finca, when I was born. When I was two, we all moved to Guardarrama. When I was five, we moved back again to Jerico, to another finca.'

'Why?'

'My father always had to change to smaller fincas. Again we had to move when I was twelve - to San Miguel. Finally, we came to Santa Barbara to a very small finca.'

'Why were you constantly moving?'

'Always in search of land. We kept on losing land because of indebtedness to the beneficio (processing plant) and then to the banks.'

'What happened then?'

'My sisters and I had to go out to work in other people's houses. Our situation changed for the worse. My father and my brothers were blaming each other for our misfortune. I do not know why it happened, because we all were working so hard. We were sixteen brothers and sisters. All of us worked the land. We grew beans, maize, rice, greens, tomatoes and, of course, coffee. We could feed ourselves without buying anything. We worked together, but we hadn't any money for ourselves, because it all had to go back into the home. We worked on other fincas in harvest season, but still had to give it to our house - things change nowadays, young people hang on to half their money ... I had a lot of experience at almacigo (propagating the coffee seeds, by fertilising them and caring for the plants prior to planting them out) and at wood cutting. We were working in our land from dawn to afternoon taking care of the plants. In the coffee season (harvest) we were working in another finca until 3 pm and then we got back to our finca and worked to midnight.'

'Who looked after the children while you worked on the land?'

'My mother was always worrying about us - she never left us alone. She was always looking after us.'

'But who looked after the little children when your mother went out to work?'

'My eldest sister did all the washing and cooking, while I was the china (the child carer) for my little brothers - there was a new one each year ... Then my eldest sister died and so I had to take on the house work (domestic labour). I was twelve then. My grandmother started to train me in cooking, washing and even to read and write. All this love I have for books, I owe to her ...'

'Did your grandmother live with you?'

'No. I had to go to the house. I was looking after her, you see. Nobody was looking after her you see and she couldn't be left alone. She taught me to sew as well and to make things - which is why I can help my husband now (with his tailoring business). When he cuts things out, I know how to match up the pieces ... I am very grateful to my grandmother. Without her, I would not be able to do things properly. Because of her, I was trained well enough to be able to work properly in other people's houses. The patrona (mistress of the house) was

always pleased with me ... I am very proud of my work, thanks to my grandmother, so I can teach my daughters. A well-trained, good woman (able to perform domestic labour properly), even if they have the disgrace of not marrying, or being abandoned, they can 'fit in' any home - it is not the same for men, 'cos they can't do these things. This is why women are 'wished for' in other peoples' houses, not men. Women are 'fitted' for house work (domestic labour), because women are for households; it is womens' destiny ...'

'Where did you meet your husband?'

'I met him in the 'cogidas' (coffee picking). We married very young, because I wanted to leave the houses (where she was a servant) and because every single penny that we earned, we had to give to the house. If you wanted a dress, you couldn't choose it for yourself; you just had to take what your father bought for you ... Now things are different. Two of my sisters are still single, but after they hand over their money (earnings) they can ask my father for some money and he gives it to them to buy clothes for themselves ...

1.03 THEORETICAL FRAMEWORK

The theoretical framework is an attempt to apprehend a specific reality. It is an intellectual construction which seeks to relate the particular object of study to the social context within which that object operates.

The object of study comprises the sectores populares (low income group) and their reproduction. The object of this study is composed of at least three levels which must be distinguished qualitatively from one another, so that their interaction in real life can be postulated:

- The contradiction¹ between the central capitalism of the industrial nations and the peripheral capitalism of underdevelopment elsewhere.

- The class contradiction between those social groups that dictate, directly or indirectly, the skills and size of the workforce in order to retain power over all surplus, and the vast number of poorer workers who sell their labour and are ideologically oppressed.

-The contradiction of gender between man and women, the relationship founded on oppression and domination which exists between the two sexes, and which discriminates against women's participating in political, cultural, economic and ideological activities within the public and private spheres.

As details of reproduction form a part of the problem presented by the position of women, these three levels of approach should all be considered not as alternatives, but rather as complementary. There is a tendency for researchers into gender matters to separate these three levels, and this can only lead to a reduced understanding. The clash comes between those who consider themselves to be Marxists and who see no further than the class struggle, and those who only take into account the conflict between the sexes.

By considering these three proposed levels of contradiction, we are adopting a richer - and more original - approach.

It was necessary to find an approach which would combine these three areas, while taking care not to allow them to obscure one another but rather relating their

various functions to one another.

1.04 CATEGORIES

A frame of reference must first be established to show the relationship between what is general and what is particular.

What is particular has a certain advantage over what is general, in that particular realities are not seen to be simply the result of a general law being applied, or of a simple mechanical extension of context. Dialectically, what is particular implies its own code (contradiction) which characterises that particular reality and distinguishes it from all other reality.

To know 'that reality' is to know it in terms of what is particular. Complementary to this (as its negation), it must be asserted that what is particular can always be recognised in the context of the multiple relationships within which it operates and which define it within the total sphere that encloses it. ('Concrete knowledge' is not the same as the knowledge of what is particular; it is, rather, what is particular related to a more generalised context (Kosik, 1967)).

It is through a consideration of what is particular that one can recognise (in terms of the specific code which the situation imposes) the features of the wider situation which is its context and which conditions (yet does not cause) its development.

The general contradiction denotes the whole system. The specific contradictions relate to the different classes (in this case the 'working class'), which operate within and relate to this system, each in its own way. There exists a mutual dependence - though asymmetric - between these two levels.

Within the contradiction of gender in Costa Rica, what is concrete (Kosik, 1967) is the macho (male-orientated) relationship between men and women, and the outcome among the working classes.

It is now necessary to define the categories which will be employed in this thesis, and to specify the schools of thought to which the argument relates.

1.05 BEYOND ECONOMICS

The economic cannot be studied in isolation from the social. Whatever the individual characteristics of a social formation, 'a society can no more cease to produce than it can cease to consume' (Marx, 1974, Ch XXII). The relationship between capital and labour is a dynamic process in a state of constant self-regeneration. Similarly, the productive process creates not only merchandise but also the conditions which ensure its own reproduction. The basic condition for capitalism is the existence of the 'free worker', a product of the division between the labour force and the means of production. The capitalist realises profits which can be devoted to

further accumulation; the worker consumes a wage in reproducing the labour force, and as a result 'the cycle comes to an end with the free worker who can do nothing but sell part of himself as a condition for his survival' (Marx, 1982).

The social condition is then both a condition and a product of the capitalist cycle of profit creation. The process of capitalist reproduction is one of reproducing the classes and the relationships of exploitation, but it is even more the reproduction of the relationship of domination and of the legal patterns that conceal this domination.

'The Roman slave was chained by the will of his lord and master; the paid worker is made subject to the will of his employer by invisible threads. The constant change of employer and the fictio iuris of work contracts maintain the appearance of his freedom'. (Marx, 1982, p 537)

The owner of capital and the free worker then reappear in each reproductive cycle, apparently as equals who come together to form a contract in which each party contributes an equal value in exchange: the worker, labour, and the employer, a wage. This is a fiction, also self-perpetuating, which portrays the difference between the two sides as natural.

1.06 REGIONAL ANALYSIS

'A region is a geographical area at a given time, where class interest and social relationships have developed in a particular way because of a spatially specific pattern of economic change and/or social-spatial patterns of inter-relationships'. (Long and Roberts, 1984)

A regional approach combines several different levels of analysis, which is particularly appropriate to the present study. Problems related to the penetration and expansion of capitalism in under-developed economies stem from international involvement and the effects of this incorporation of national, regional, local and ultimately household economies. A regional approach can address both these problems and, at a very different level, the immediate life circumstances of the population (Long and Roberts, 1984). It will require a historical analysis, since the social and economic structure of a locality will derive substantially from the succession of roles which the locality has played in regional, national and international spatial divisions of labour (Massey, 1978: 116).

It will be argued in this thesis that the reproduction of low income groups in the Meseta Central of Costa Rica can only be understood through an appreciation of both the specific relations between capital and labour and the specific relations of production and reproduction within households, both of which are highly characteristic of the region.

1.07 UNDERDEVELOPMENT AND THE CAPITALIST WORLD SYSTEM

A substantial group of authorities argues that capitalism works in a qualitatively different fashion in the 'advanced industrial' economies and in other market

economies (eg Bujarin and Luxemburg, 1980; Amin, 1976; Alguiri, 1976; Pallois, 1971; Baran, 1957; Frank, 1968). This thesis will conform to this school, despite the extensive critiques which it has attracted in the last decade from both the right (Lal, 1983) and the left (Warren, 1980). It will accept that peripheral societies are underdeveloped because they are capitalist; that is, capitalist relationships dominate, although significant numbers of workers are not in capitalist relations of production.

On this model, the unequal and combined development of the circuits of valorisation of capital creates a contradiction between the dynamics which destroy existing forms of production in the periphery and those which expand industrialization there. This contradiction generates a large poorly qualified workforce which is continually present; unemployment and underemployment are features not only of times of economic contraction but of times of boom. In these peripheral economies (Wallerstein, 1979), low earnings are related to relative overpopulation; this is sustained by unequal exchange with the core, or advanced industrial economies. The industrial reserve army is not merely created in accordance with the needs of the system; it is much larger than would be necessary to keep wages down.

Outside a small skilled group, the whole of the working class in such situations may experience repeated

incorporation and marginalisation, and the great majority of working class households may be repeatedly driven from incorporation to marginalisation and back. They may be described as semi-proletarian. In Costa Rica, for instance, workers have no labour rights until they have been employed for three months; many firms create permanent labour instability by using only workers on short contracts. One survey of 100 women who had worked over twelve months in several factories found that all had secured their continued employment by granting sexual favours (Lopez de Piza, 1983).

Underdevelopment is characterised by inadequate and insecure livelihoods. Characteristically, incomes are inadequate to cover the costs of reproduction: they may be too low, too uncertain, too irregular or all three. Underdevelopment thus generates highly specific conditions of production and reproduction.

In the case of underdevelopment, the human resources available comprise more people than would be necessary to meet the labour needs of capital (de Janvry, 1976-7). Social policies are, however, still dictated by the needs of capital, which requires little more than the conservation of a limited work force, poorly qualified and immediately available for work, and the reproduction and replacement of the very small qualified fraction of the labour force. Costa Rican governments from the 1950s to the 1970s (see Chapter 2) have tended to favour a more far

reaching social policy than that dictated by the immediate needs of capital, particularly in health and primary education, but pensions and sickness benefits are still insufficient to cover reproductive needs. There is no unemployment benefit, and family allowances, when they exist, are not enough to cover the costs of raising and educating children.

The development of capitalism in the underdeveloped and dependent countries did not follow the process described for Europe by Marx (1974), Lenin (1970) and Kautsky (1974). Lenin (1974) was able to observe in Russia 'an almost perfect correspondence between the depeasantisation and proletarianisation processes'. For underdevelopment, this correspondence does not exist. The capitalism of peripheral countries was structured by the dynamics of the accumulation in the metropolitan or core countries. Capitalism had allowed diverse forms of production in the periphery. Capitalist penetration may be compared to volcanic lava, which progressively covers the surface, but at the same time follows the variations in relief of rivers, valleys etc. It therefore adopts different aspects while preserving its fundamental characteristics.

Overgeneralisation is still a principal fault of the school of writers who identify 'underdevelopment' or 'dependency' as a distinct condition. There can be no single model of 'underdeveloped society' when such variety

exists (Roxborough, 1979). Some theories have postulated the exploitation of country by country and almost ignored the exploitation of class by class, yielding no place for class conflict. These have tended to focus on certain relationships to the exclusion of others; Laclau (1971) criticised Frank (1968) for omitting both the concept of mode of production and the whole reproductive sphere from the argument. Theorists who have sought to examine the articulation of different modes of production have been more successful, and have been particularly important in describing relations of production which are not fully capitalist. These are widespread in Latin America; in Costa Rica, few rural workers are truly proletarian save on the banana plantations.

Concepts of petty commodity production have also been very useful (Moser 1978; Bromley and Gerry 1979), although some accounts have been excessively simplistic. Certainly, the survival of precapitalist forms of production in the periphery is associated with multiple asymmetrical relationships of domination and subordination. Explanation is more difficult. For some authors, the maintenance of petty commodity production is functional to the extended reproduction of capital; for others, it is part of a long-term process of proletarianization. In coffee production in the Meseta Central, proletarianization remains incomplete after 150 years.

No finally satisfactory account has yet been

developed of the penumbra of relations which surround proletarian wage labour. Many unresolved disputes remain, despite the very extensive and thoughtful literature.

In focussing on reproduction among low income groups in the Meseta Central of Costa Rica, this thesis will seek always to relate findings to the specific incorporation of the region into the world system rather than to any general condition of 'underdevelopment'.

1.08 REPRODUCTION

In order to produce, a socioeconomic system must be reproduced over time. The basis of all reproduction of any socioeconomic system is the maintenance of human life, thereby ensuring a continuous supply of workers.

'Work is the basis of production, and it permits, via the appropriation of surplus value, the accumulation of capital. The maintenance ('reproduction') of the labour force is the mainstay of any economy, and this means that the satisfaction of basic needs to reproduce human life should also be the basic consideration in the construction of any social or economic theory'. (Evers et al, 1984)

The reproduction of human life and the reproduction of society are interrelated. It is still necessary to distinguish between the reproduction of human life and, consequently, the labour force, and the reproduction of the social and economic order, which ensures the continued existence of a given social formation.

The concept of reproduction must relate dynamic change to the continuation of the social system. 'Reproduction' must refer to more than the reproduction of

human beings and must include not only the biological and the social (Beneria, 1979) but the reproduction of the conditions under which the relations of production may be sustained (Hindess and Hirst, 1977). In a class society, reproduction must include the transmission of control over resources from one generation to the next. Edholm, Harris and Young (1977) distinguish three levels of analysis:

- A Social reproduction reproduces the conditions which sustain the system.
- B Reproduction of the labour force refers to the daily maintenance of the labour force and to the allocation of agents to positions in the production process,
- C Biological reproduction refers to the physical production and development of human beings.

The reproduction of society is closely entwined with the reproduction of the individual human being, the concrete person, since the individual always performs or should perform a function in society, in the sense of occupying a specific position in the division of labour (Marx and Engels, 1958). The reproduction of the individual human achieves one part of the reproduction of society; daily life is therefore the total of individual activities which characterise the production and reproduction of individuals. The description of the activities of individuals must include the description of the work of the woman as housewife, charged with the production and reproduction of the labour force of the

next and future generations.

The reproduction of the labour force requires the production and processing of food, the education of the young, the provision of adequate housing, the management of the household etc.

'Many activities in the sphere of reproduction are carried out by unpaid labour, and many products are used that have not entered the sphere of circulation of the markets at all. Consequently, a major part of the reproduction process does not enter government statistics, government planning and government concern, and is therefore not easy to capture statistically; it does not even seem to 'exist' officially. (Evers et al, 1984)

Marx devoted himself exclusively to the analysis of the production and reproduction of capital, in order to comprehend the workings of capitalism. Within this exegesis, domestic labour is not analysed. How and through whom is the labour force born and maintained? The sustained maintenance of the working class is necessary condition of the reproduction of capital, since without workers to sell their labour power, capital itself would not exist.

Engels (1969) called attention to the relation between social reproduction and the subordinate position of women and presented a model of the historical development of the family and of private property which has been highly influential. Strict control of biological reproduction, and particularly of women's role in it, was presented as essential to control over social reproduction. More recent studies have challenged his data

and arguments, demonstrating that the subordination of women arose before either private property or class society (Molyneux, 1978).

Others have sought to develop a logic of the forms of control necessary under different types of production. Meillassoux (1977) has sought to establish the population dynamics of precapitalist modes of production. He characterises biological reproduction under capitalism in terms of the production of labour as a commodity, with women as the means of reproduction. Meillassoux locates the reproduction of life and work in the domestic unit: the relation which is central to reproduction is that of the family, and its place is the domestic unit. He even writes of a domestic mode of production. He is then criticised for ascribing excessive autonomy to the individual household and suggesting a fundamental separation between this unit and the rest of society, as if it were a natural, non-social category (Harris, 1984).

1.09 THE REPRODUCTION OF GENDER SUBORDINATION

The reproduction of gender subordination is a part of social reproduction. In the process of capitalist social reproduction, inequality is present from beginning to end. The distribution of wealth, power and prestige are unequal, and are unequally reproduced among classes, genders and individuals. The reproduction of these relationships demands the acceptance of these inequalities

as 'natural'; their origins may be obscure, but there is no room for the kind of questioning that might lead to the conclusion that some people are rich because others are poor. This must be seen as a natural process, as argued by Bauer (1981).

Domestic structure is one such case of inequality, concealed and camouflaged as 'order'. It is internalised from the earliest stages of socialisation, and the entire hierarchical structure is accepted as 'natural'. Gender divisions of labour within the household make an artificial division between production and reproduction. One gender then receives economic recognition, a wage, an income; the other receives moral recognition.

Women's capacity to bear children is socially regulated as endogamy within limited groups (ethnic, caste, class or kin). When a woman becomes pregnant, she begins the task of nourishing the foetus. When the child is born it is incomplete, immature, biologically dependent; the child needs nourishment and an intermediate phase of dependence begins, part biological, part social. It is not critical to the child's survival that the milk should be from its mother. After weaning, the task of feeding the child continues, with the need for care and hygiene. These domestic tasks are taken to be 'natural' as they are involved in child-care, and satisfaction is presented as an adequate 'natural' reward. As the woman carried and nourished the child in her womb, she is

expected to nourish and care for the growing child. Women's contribution is legitimised as 'social virtue' (Galbraith, 1973). The human body is ideologically presented as 'natural' and historical, which makes it possible to treat domestic labour as similarly natural and a historical (Braun and Adams, 1971).

The socialisation process is the key for the transmission of legal and cultural values, attitudes and ideological structures, reinforced by the educational system, the media, religion and the wider culture.

1.10 THE HOUSEHOLD

The economy of the domestic unit or household 'has had little specific place in Marxist analysis of development' (Long and Richardson, 1978) but attempts have been made to place it at the centre. Helen Safa (1982) sought to resolve the controversy over the conservation or dissolution of precapitalist forms of production by calling for the domestic domain to be placed at the centre of theories of underdevelopment (Redclift, 1985), but this has hardly been achieved.

Some sociological functionalist theorists postulated that the family was a specialised institution, delimiting its role to the socialisation of children, by means of the moral support of the adults, while domestic tasks were carried out in its private domain. Its value was centred around the love of women. These theorists did not consider

the activities inside the household to be socially necessary (Jelin, 1984).

Studies on marginality (Quijano, 1968), migration and the role of informal sectors which were carried out in Latin America (Singer, 1975; Roberts, 1978) challenged the functionalist approach in sociology. These authors achieved a reappraisal of the concept of family and household. Their writing placed emphasis on the social value and political relevance of the daily maintenance of the labour force, as a product of domestic labour and the invisible work of women (Malos, 1980).

In the anthropological tradition of functionalism, Goody (1972) identified three definitions of 'households':

- 1 the residential unit
- 2 the reproductive unit
- 3 the economic unit.

Households may be defined by the shared tasks of their members, linked to their daily maintenance, where skills and resources are combined to carry out production and distribution (Jelin, 1984). Household tasks are part of wider social processes and must be seen in context (Rapp et al, 1979). The degree of coincidence between 'household' and 'family' depends upon

- 1 Social definition of the kinship network
- 2 The role of the residential unit
- 3 Life cycle (Lomnitz, 1975; Hareven, 1978; Laslett, 1972; Berkner, 1972, 1975).

4 The component elements (Meillassoux, 1977; Bourdieu, 1976).

5 Marriage and inheritance norms (Goody, 1976; Canal, Thirsk and Thompson, 1978).

Sahlins (1974) defines the household as an economic unit which relates its component elements through being an agency for sharing and distributing goods. It handles use values in its production and consumption (Gardiner, Himmelweit and McIntosh, 1980; Malos, 1980). In the domestic realm, use values predominate.

Harris (1984) argues that it is contrary to feminist principles to employ the household as a unit of analysis, particularly as to do so seems to follow the extensive literature which characterised the household as a 'natural' category (Marx and Engels, 1978). This is to conceal and legitimise relations of conflict and subordination. The household is indeed neither natural nor self-sufficient; income is rarely pooled; asymmetrical relations are the norm.

Households differ greatly across history and societies; they have different boundaries, for instance, under different conditions. In a capitalist mode of production, the domination of women by men and the use of unwaged female labour to reproduce men seem to be essential features of household structure and family relations essential for the reproduction of capitalist society (von Werlhof, 1980).

In this thesis, the household will be defined as 'a group of persons sharing food and the resources of a common residence, who dispose of a collective income and who mutually ensure its maintenance and reproduction'. It is recognised that analysis at this level may obscure important features at other levels, from conflict within the household to class contradictions in society. This thesis seeks to evaluate the value of a focus on the household level in explanations of child nutrition, but does not claim more than limited value for the household as a unit of analysis. Pahl (1984) has successfully used a definition of households simply as the sites of certain kinds of work. To a certain extent, levels of living are set by the economic and political context of social reproduction; households operate under a set of constraints imposed by the socio-political structure as a whole. But levels of living are actualised within the household; the success of the household survival strategy and of the organisation of consumption determine the outcome.

This is the case by definition: the question is not whether this organisation is collective, conflictive or authoritarian, but whether the behaviour of the group, however arrived at, has permitted the survival of the group. Confusion arises because the phrase 'survival strategies' appears to have reached social science from biology. When biologists refer to the survival strategies

of plants or molluscs, there is no teleological implication; the phrase refers to the characteristics of the species, not to the intention of the plant or bivalve. When attached to human beings, however, the word 'strategy' commonly connotes planning; when attached to a group, it may imply consensus. It is perhaps more useful to restrict the phrase to its biological meaning, when it refers to a sequence of behaviour which, in the event, does or does not promote the survival of the organism. We may then ask whether the behaviour of certain households on the Meseta Central of Costa Rica has achieved a good level of child nutrition. How the decisions were made and with how much agreement, how far good child nutrition was an objective - these are separate questions.

The household in Costa Rica is the main institution that ensures reproduction, raises and instructs the young, takes care of the aged and sick and gives support at times of unemployment. In Costa Rica, households are usually composed of kin (consanguineal and affinal relatives). They are commonly co-residential and coterminous for many activities. To some degree, they are units of consumption (although this is not to imply an absence of internal conflict); They are sometimes units of production. By combining individual incomes to some degree, the household reinforces inadequate individual salaries and ekes out unstable earnings. Domestic work carried out within the household produces use values which

maximise the limited income. Domestic labour is therefore the basic condition which allows low wages.

Households in Costa Rica usually arise from marriage. Men and women carry with them material resources, working capabilities and social capital (their kinship networks, based on reciprocity). When children are born, relatives come to help and the mother remains at home; later, some members may leave and others arrive. As the 'technology or cultural capital' of the household increases (Jelin, 1984) and the extra-domestic network of school, work, church, bureaucracy and state welfare changes, the capacity for work changes. Together with this cycle goes financial and administrative control and a system of internal discipline (Stinchcombe, 1967), which provides a system of authority. This is based on familial moral values which are a product of cultural traditions and of normative ideologies which mediate relations between the household and the external world.

The domestic establishment is a socially organised microcosm of relations of production, reproduction and distribution. It has power structure and strong ideological components which keep the elements of the organisation together and tend to assure its persistence and reproduction (Jelin, 1984). Parents and children may remain as a nuclear family until separated by internal change (deaths, marriages, separation, family crises) or external change (seasonal employment, government change in housing policy).

1. DOMESTIC LABOUR

Reproduction of adequately socialized, adequately nourished labour is a condition of existence for the reproduction of any social system (Harris and Young, 1981). The forms in which labour is reproduced depend on the development of different social formations and the degree of capitalist penetration in a given society. Under capitalism, the wage alone does not secure the reproduction of labour. In the periphery, petty commodity production, informal sector activities and diversified household enterprise contribute substantially, but domestic labour is crucial.

Unfortunately, theoretical debates about domestic labour remain unresolved. It is commonly argued, for instance, that domestic labour is functional to capitalism and reduces the wage; within the capitalist mode of production, it could then be explained in purely economic terms. Molyneux (197) has shown that the problem is much more complex; the subsequent wide discussion in the literature has remained inconclusive.

'The value of labour power is the value of the means of subsistence necessary for the maintenance of the labourer...' (Marx, 1982). According to Marx, the wage is established in such a way as to ensure the maintenance of the worker and his/her family:

'The value of labour power (value of the means of subsistence necessary for the maintenance of the labourer) includes the means of subsistence necessary for the labourer's substitutes, ie. the children of the worker ... (the) normal wage is not only enough to maintain the workforce but also to

allow it to multiply'. (Marx, K. 1974, Vol 1, Ch XXIII)

Marx never considers the domestic labour of the housewife. He is content to establish the relationship that exists between productive consumption, or the maintenance of the labour force, and the reproduction of capital.

'But capital may safely leave its fulfilment to the labourer's instincts of self-preservation and of propagation. All the capitalist cares for is to reduce the labourer's individual consumption, as far as possible, to what is strictly necessary'. (Marx, 1982, p 537)

Within the capitalist world, the value of labour power incorporates its maintenance and reproduction, without need of a wage for the responsibilities undertaken by women. The production of goods is complemented by the satisfaction of making use of them: this predisposes the user of goods to be prepared to sacrifice himself and dedicate himself to their acquisition. These psycho-cultural characteristics are presented as a natural vocation. Women learn these characteristics from childhood, and have an 'invisible qualification' as a result of their process of socialisation, in a series of practical skills (cooking, cleaning, washing, tidying, caring for the young, the sick and the elderly).

The labour force is human energy expended in the labour process. The fatigue which follows a day's work is the physical expression of this expenditure of energy; through food, rest and recreation, this energy is

restored. In the capitalist system, labour power is the same as any commodity which has a market value: it is sold, in this case in return for a wage. Like any commodity, labour power has a use value and an exchange value. The use value gives utility to its possessor; the exchange value is expressed in trade and in the equivalence with other commodities. Marx demonstrated, of course, that a human being does not need a standard quantity of products to be sustained. He concluded that the labour time necessary for the production of this labour force was simply the labour time necessary for the production of the goods required for subsistence at a given place and time. Within the goods required for subsistence are food, clothing, housing, the education of the worker, the maintenance of his/her family and the education of his/her children, as well as recreation. Subsistence requirements vary according to country, region, class and socio-cultural setting. The determination of what constitutes 'subsistence' is not automatic or mechanical, but derives from the theoretical and material possibilities of a society as a fruit of the efforts of the labour force to raise their standard of living.

A part of 'subsistence' is normally met through domestic labour, but at no point does Marx discuss the domestic labour of the housewife. The labour invested in the reproduction of labour power is free, since although

the wage pays for the goods which make reproduction possible, the labour which transforms these goods into use values is not taken into account; nor is the labour invested in the reproduction of the labour force.

For Engels (1969), the central thesis of the Marxist position is the contradiction between capital and labour. It is here that the basic inequality of capitalist society originates, and all other inequalities flow from here. The situation of women and their oppression through their sex comprise a contradiction on a lower plane, subordinate to the first. Socialist states have developed from Engels their strategies for the liberation of women. The oppression of women will find its solution in the emancipation of the working class and the abolition of private property in the means of production; in the short term, they will profit from the insertion of women in paid work outside the home. Progress will also be achieved in the collectivization of domestic labour and the creation of supporting infrastructure such as nurseries, workers' dining rooms and communal laundries.

This position, however, has provoked criticism from feminist groups, above all on observing the situation in socialist countries, where domestic labour continues to fall on women, despite their incorporation in work outside the home. It is still necessary, therefore, to analyse domestic labour.

Meillassoux (1975) has described three complementary

components in the value of labour power:

- 'Reconstitution', or what is needed to sustain the labourer for the period of employment.
- The maintenance of the labourer through unemployment, whether through lack of opportunity or through sickness, disability or old age.
- The replacement of the labourer, including maintenance and education of the labourer's children.

We may perceive the critical role of women in the three aspects of reproduction defined by Harris and Young (1981). First, individuals are reproduced within a class structure and assigned to a class position and a position in the division of labour. Gender is a component of this allocation. Secondly, there must be reproduction of an adequately socialised labour force in accordance with class and power structures; ideology and education play an important role. Thirdly, workers must be sufficiently fed, clothed and refreshed for the service of capital. Under capitalism, material reproduction through domestic labour is assigned almost exclusively to women. Even in other modes of production, many authorities consider that women's subordination derives from their reproductive role.

Some Marxists have sought to reformulate the theory of value to incorporate domestic labour. For Secombe (1975), domestic labour is outside the law of value and its relation to capital is indirect. For Gardiner (1975),

although domestic labour does not create value, it contributes to the creation of surplus value, since it maintains necessary labour at a cost below the real subsistence level of the working class. Molyneux (1979) questions the common assumption that domestic labour necessarily lowers the cost of labour or the wage:

'The value of labour power is ultimately determined by the value of the bundle of commodities necessary for the production of labour power and can only be determined in relation to specific societies and periods of history. The contribution of housework to establishing the value of labour power plays a relatively minor role. Indeed, it cannot be assumed a priori that housework plays any significant role in this determination at all...Domestic labour is also subject to historical/cultural variations. It requires empirical evidence to show that it costs workers less to perform their own domestic labour than to purchase what they require on the market... No invariant relations between domestic labour and the value of labour power can be assumed.'

Domestic labour, then, cannot be seen as merely economically determined. Domestic labour lies outside the theory of the capitalist mode of production. At this level, capital is not interested in the domestic sphere. Whatever the relations between the domestic sphere and the requirements of social reproduction, they appear not to be established simply because they are functional to capitalism. An economic analysis of housework is not sufficient to provide a comprehensive theory of the political economy of women. The ending of housework as a women's responsibility and the removal of this form of oppression could possibly occur with no loss to capital whatsoever.

Domestic labour as one basis of oppression of women under capitalism has been central to the feminist struggle which has begun to transform social science. The Marxist approach has caused them to concentrate their attention excessively on economic relations (Delphy, 1977; Himmelweit and Mohun, 1977; Gardiner, 1975, Seccombe, 1974; Molyneux 1979). The exploitation of domestic labour by capital and the question as to whether it is necessary to capitalism has been extensively discussed (Molyneux, 1979), arguing that domestic labour and productive labour are not comparable categories, since domestic labour is concrete and cannot conform to the principles of the law of value. Some authors have presented domestic labour as a mode of production (Harrison, Meillassoux), but it does not fulfil the requirements of a mode of production; it is subject to the laws of the dominant mode of production, lacks laws of its own and has neither productive base nor social production. There is no appropriation of surplus value.

Rather than pursuing fruitless economic debates, it is perhaps more important to establish why domestic labour is carried out by women rather than by both sexes. Asymmetry within the household has not been adequately explained. Some gain, others lose: in the Meseta Central in Costa Rica, the good nutritional condition of children, which is fundamental to the reproduction of the labour force, is achieved at the expense of the women. It is

therefore worthwhile to focus on certain relations at the household level and to examine how these asymmetries operate.

1.12 THE ANALYSIS OF REPRODUCTION: AN OVERVIEW

A brief account of the thought of this thesis may serve at once to introduce it and to clarify the problem of research on reproduction. The research began with the nutrition of children in low income groups: it was proposed to explain this with reference to their mothers' use of time (Questionnaire 1, Appendix 1). Two problems immediately arose: the inadequacy of the sample group (Chapter III) and the failure of 'mothers' time' as an explanatory variable. Problems, population and methodology were redefined. More variables were introduced; all children in the selected families were included in the study; an index was developed to represent household nutrition, and enable comparison with factors bearing on the household. Structured interviews were also conducted.

The anthropometric data (Chapter III) established that malnutrition was not severe by the standards of low income groups and low income countries, but stunting was prevalent. Explanations were sought for the pattern of this. Environmental considerations were eliminated (5.02): few illnesses appeared in the life-histories of the children. All aspects of income were examined with great care, and it was established that income alone, however

measured or expressed, was a weak determinant of child nutrition in these groups. It did appear, however, that the irregularity of income and of diet were significant in stunting (Chapter 4).

Income had proved a poor explanation for child nutrition at the household level. This led the research into fuller consideration of reproduction at the household level, and of the roles of domestic labour and of extra-household support via the extended family. Throughout, the most weakly documented feature of reproduction at the household level in Costa Rica, and the most salient in the findings of this research, was the role of the mothers, in the realization of the possibilities of a given income at the household level, and often in the generation of income. Both these roles have to date been little recognised and less studied.

This research began with small children and proceeded to their mothers. The household level of analysis proved itself incomplete: reproduction could only be explained in the local, regional, national and world economy. This sequence is not unexpected or surprising; it is a reminder of a familiar phenomenon. Nevertheless, it is a reminder that reproduction today cannot be evaluated at a single level.

CHAPTER 2

THE SOCIAL FORMATION OF COSTA RICA

CHAPTER 2THE SOCIAL FORMATION OF COSTA RICA2.01 GEOGRAPHICAL SETTING

Costa Rica is a tiny country in the Central American Isthmus, between Nicaragua to the north and Panama to the south. It comprises a little over 50,000 square kilometres, but parts are so mountainous that access to much of its territory is still difficult. Its inter-oceanic position, as well as the variations in relief and altitude, create a diversity of micro-climates (Hall, 1976).

The country can be divided by climate and agriculture into 4 main areas (Arias et al, 1981):

- 1 The Guanacaste plains in the northern part of the Pacific coast region have an average temperature of 27°C and low rainfall and are dedicated to beef cattle and rice.
- 2 The lowlands of the South Pacific and Atlantic regions were formerly humid tropical forests, but banana and cocoa plantations have been established on the coasts (cocoa in the Atlantic zone). Some forests remain on lowlands away from the coast, but much has been cleared for ranching.
- 3 The Meseta Central, as the name suggests, is a plateau in the centre of the country. Its altitude

varies from 800 to 1400m above sea level; the mean temperature is 23°C and the rainfall 250cm per annum, with a dry season from June to December. The seasons are of the first importance in human life. This is the most economically productive part of the country (Sanchez et al, 1981) and the most densely populated. It includes the four oldest cities (San Jose (the capital), Alajuela, Cartago and Heredia); their aggregate population was estimated at 1,463,174 in 1981.

- 4 The mountainous regions over 1600m above sea level have some dairy and horticultural products, including potatoes and other vegetables.

The 1981 population of Costa Rica has been estimated at 2,288,473, with an economically active labour force of 885,424, including 76,661 (8.66%) unemployed. This labour force consisted of 628,654 men (7.5% unemployed) and 256,770 women (11.6% unemployed). Of the total population, 57% was urban, and 59% were under 19 years of age. (These figures were based on an estimated increase on the Official Census figures of 1973 by Sanchez et al, 1981.)

Costa Rica is a representative democracy, with direct elections every four years. The official language is Spanish, and the state religion is Roman Catholic. Costa Rica is unique in having no army: it was disbanded in 1949. Civil Guards are responsible for maintaining order.

It was from the Meseta Central, the leading region of

Costa Rica, that two groups of households were selected for a study of the conditions under which lower-income households achieve social and biological reproduction. Hatillo was selected as a representative urban neighbourhood and Santa Barbara de Heredia as a representative rural neighbourhood.

2.02 COLONIAL HERITAGE

Costa Rica suffered from extreme scarcity of both labour and mineral resources. Here, enterprises based on slave labour did not develop, and there was no original accumulation of capital. The economic structure bequeathed by the Spanish colonial masters in the early nineteenth century may be summarised as follows (Fernandez, 1984):

- 1 Predominantly subsistence agriculture, most of it based on small, self-sufficient holdings.
- 2 Little social differentiation based on economic relations; land distribution was relatively equal.
- 3 Very little external commerce and hardly any internal market.
- 4 Limited accumulation of wealth, by a few descendants of the former conquerors (Stone, 1975), based on the farming of cocoa and tobacco.
- 5 Scarcity of wage labour, due to the small population and the 'yeomen' condition of the majority. The 'yeoman' farmer was independent, self-sufficient, poor and isolated. The colonisation of Costa Rica was spontaneous; each new settler found himself a plot

and began to farm, and settlement was widely dispersed (Seligson, 1980; Fernandez, 1984; Hall, 1976; Cardoso, 1976.)

- 6 A large amount of unoccupied land. The inhabited territory was concentrated in two small areas: the Meseta Central and the Guanacaste plains.

The Spanish American colonies were organised as economic appendices of the metropolis, and their development was conditioned by the needs of the Spanish Empire. Three main types may be differentiated:

- 1 Mining centres (Mexico and Peru).
- 2 Zones of plantations of tropical products (Venezuela).
- 3 Complementary regions producing food, such as cattle, wheat and corn (Central America).

The political-administrative Organisation was centred around the viceroyalties (Mexico, Peru, Nueva Granada and Mar del Plata). Costa Rica was the remotest area of the Captaincy of Guatemala, in the viceroyalty of New Spain. It was a marginal zone of a secondary region. The absence of a large exploitable Indian population, the mountainous topography, and the difficulties of communication impeded the development of export products (Facio, 1972; Cardoso, 1976; Cerdas, 1967; Stone, 1975; Hall, 1976).

Table 2.01 shows the dramatic decline in the Indian population. In only twenty years, 1563-1583, it was reduced by 95%. This decline continued, though more slowly, until 1714, when there were only 999 Indians, ie,

TABLE 2.01
POPULATION IN COLONIAL COSTA RICA FROM 1563-1720

Year	Indian	Spanish	Negro
1563	80,000	-	-
1569	-	-	30
1573	-	55	-
1581	7,000	-	-
1583	4,504	-	-
1645	3,200	200	-
1665	1,600	-	-
1675	2,000	500-700	-
1681	1,600	-	-
1700	-	2,146	154
1714	999	-	-
1720	-	3,059	168

Source: Fernandez et al, 1976:8

about 1% of the 1563 figure. 'Disease, overwork and general mistreatment by the Spanish produced in Costa Rica, as in most areas of Spanish colonisation, the destruction of the Indians.' (Seligson, 1980).

During the 16th, 17th and 18th centuries, cocoa was cultivated in the Atlantic Zone, with the intention of establishing a commercial link with the metropolis. This achieved little because of the high taxation decreed by

the Spanish Crown, and because of constant looting by both Miskito Indians and European pirates (Seligson, 1980). The local government was unable to guard these isolated plantations (Facio, 1972). Later, tobacco plantations were attempted on the Meseta Central, but these experiments also failed, despite the privilege of monopoly production granted by the Spanish Crown for a short period. Poor communications and high taxation were the main reasons for the failure of this second attempt, as they prevented accumulation of wealth sufficient to generate marked social differentiation.

During the colonial period, agriculture was based predominantly on subsistence crops produced by self-sufficient peasant households. The lack of products suitable for national or international trade hampered the emergence of wage employment.

Costa Rica did not develop a latifundist colonial aristocracy. The existing unoccupied land surrounding the villages was not monopolised as latifundia because of the lack of labour (Fernandez, 1984). The colonial government took measures intended to protect small property. The lack of Indian labour meant the hacienda system would not have been viable. The encomienda remained on a small scale and was replaced in 1620 by an individual tax system. Furthermore, the poverty of the country prevented the importation of slaves. The Spanish tradition of partible inheritance, where there was no primogeniture, militated against land hoarding (Melendez, 1972). Parcelation,

favoured by the Spanish, derived from the Roman tradition which permitted the acquisition of titles of property based on continuous peaceful possession over a period of 10 years (Salas and Barahone, 1973); this was to be important after Independence.

2.03 COFFEE PRODUCTION AND THE DEVELOPMENT OF CAPITALISM IN COSTA RICA

The non-mercantile character of the early economy of Costa Rica did not prevent the establishment of coffee farming. Coffee was introduced in 1812. This was the dynamic factor needed to open up the formerly closed colonial economy after Independence (Cerdas, 1967).

The scarcity of free labour, the existence of unoccupied land and the possibility of small scale production based on the peasant household provided the basis for the development of agrarian capitalism in Costa Rica. Coffee production was long organised on the basis of small scale, peasant property. This was due to the permanent scarcity of wage labour until the 1950's, when the population expanded sharply. The shortage of wage labour has been a major influence on the development of the economy of the country. The characteristic ecology also favoured smallholdings.

The fertility of the Meseta Central, as well as its climate, favoured coffee production. It was the most densely populated region at the time of Independence (1821) and there was already a tradition of small land-

holding. The Government promoted coffee planting by free distribution of land, exemption from Land Registration Tax and also by a decree of 1821 which, made compulsory the utilisation of specific areas for coffee growing (Seligson, 1980).

There are no census of occupation data available for the period preceding the introduction of coffee. All accounts, however, point to the predominance of small-holders (Seligson, 1980). In 1864, nearly half the peasants farmed their own land. In 1868, the population was 120,499, employed mainly in agriculture. Of those employed in agriculture, 49% are listed as wage labourers (jornaleros and chacareros). By 1883, 71% of the population were landless labourers (Seligson, 1980).

Coffee brought seasonal employment, temporary and part-time work, urbanisation and, to the coffee plantation owners, wealth. Before its introduction there were no substantial urban centres in Costa Rica; Cartago, the then capital, had a population of only 2,000 people. In addition to work on coffee, a new category of work became available for women and young girls: paid domestic work outside the home.

Because the season of the coffee harvest differs in different zones, day-wage labourers follow it by migrating from one place to another. This migration, mainly of men, contributed to the disintegration of the peasant family. As a consequence, some matrifocal families began to appear in Costa Rica, headed by women who assumed responsibility

for the support and education of their families and added to the reserve labour force for the harvest season (Lopez de Piza, 1979).

Large estates devoted to coffee farming did not develop during the 19th Century. Instead, the fragmentation of land holding gave way to the rise of 'farmer capitalism' (Lenin, 1973), as the most dynamic enterprises tended to consolidate their holdings and thus acquired control over the means of production. This was a very rapid process. By displacing the less successful producers it made labourers available for the development of capitalism. Yet peasant property persisted because some displaced peasants turned to previously unused land and enclosed it for subsistence crops. Such parcels of land, called abras², were not suitable for the cultivation of coffee because they consisted mostly of forest and required tremendous human effort to turn them into fertile land. Later, when the land had been sufficiently improved, these new areas were given over to coffee production. In this manner, a cycle of expansion was constituted which ensured the permanence of the small property. Capitalist enterprises could not simply concentrate land and means of production in the hands of a few. The cycle did not detach all labour from the land. Coffee production did not pay a wage high enough to ensure the reproduction of the labour force.

Originally, coffee was exported to Chile, where it was blended with local varieties and then re-exported to

London. By 1840 enough capital was available to build roads to the ports to facilitate the direct export of the crop. However, processing by rudimentary methods demanded a considerable amount of labour and did not permit large scale production. In 1850 machinery made in England was imported for the first time, and from that moment production expanded, because labour was freed to attend to the harvesting of the coffee beans.

The permanent scarcity of workers encouraged the British importing houses to extend credit for raising wages during the coffee harvest. By this means they secured the high quality Costa Rican coffee. These loans were captured by an emerging class of owners of coffee-processing facilities (beneficiadores), who profited by passing them on to small scale land owners in the form of advance payment for the harvest (adelantos³). The consequent indebtedness, compounded by high rates of interest, forced the peasants to lend the labour force of the whole family to the 'beneficiadores', principally at harvest time.

Thus a second phase of development took place, during which original accumulation remained in the hands of exporters and 'beneficiadores', who were thus able to accumulate fresh capital. Mercantile societies were constituted on this financial base, to export coffee and import consumer goods. In due course, these societies constituted the coffee oligarchy. The largest firms embraced both farming and the preparation (beneficios) and

ultimate export of the beans. A social division of labour in coffee production emerged which has persisted up to the present: 1) growers, 2) beneficiadores or processors and 3) exporters. This new relationship of exploitation leaves the major part of profits in the hands of the exporter and processor, who are frequently the same person or legal entity. The small land holders became totally integrated into the capitalist system: they were the producers who planted the coffee destined to be sold to the processors, who imposed a new system of exploitation by becoming moneylenders. They provided the cash for the crop at high rates of interest, and the borrowers were obliged to deliver the crop to them. The peasants constituted a reserve of labour to be hired out at harvest time. They supported themselves for the rest of the year with the produce of their smallholdings.

Farming of coffee requires a small permanent labour force. At harvest time (from October to January) it is necessary to hire a much larger number of workers, because coffee beans must be picked by hand. It has been customary to employ all members of the household for coffee picking, on piece rates.

The concentration of coffee production around existing settlements and the small farm property system of the Meseta Central greatly enhanced the value of available land. Prices for land rose by up to 100% (Hall, 1976). This was a new obstacle to constituting latifundia.

Hence finance capital turned out to be both a constructor and a destructor of small scale independent farming. It tended towards its preservation, because the small farms supplied the beans to complete the minimum volume of the processing plant, which often had little land. On the other hand, the indebtedness of peasants has been the main mechanism for progressive incorporation of smaller properties (Fernandez, 1984).

According to Bartra (1979, p.45)

The growth of capital tends at the same time to dissolve the peasant economy, and also to reproduce it, in such a way that the small producer is submitted to a two faceted economic pressure: on one hand it encourages their reproduction as producers of a surplus value, to be expropriated; on the other hand, capital appropriates a part of the necessary work contained in their product, forcing them to reproduce, but in a restricted scale. This pushes them into a downward cycle in which they tend to become a free labour force, potentially wage labour.

In Costa Rica, there was no strong agrarian proletariat at the base of the economic system. Capitalist relations developed very slowly and, at the same time, were undermined by a constant reconstruction of the peasantry as small parcels of lands were developed in new geographical areas of the country. Although he has lost his land, the peon (day labourer) still preserves many of his peasant traits (ie the extended family, non-wage work, family work). Coffee plantations also keep their patriarchal and traditional traits. They are small compared to those of other countries (Brazil or even Mexico), and they are generally made up of geographically separated parcels of land, making a centralised administration difficult. This scheme favours the role of

the foremen (mandadores) (Hall, 1976) and requires a relatively low number of permanent labourers (Torres-Rivas, 1976; Fernandez, 1984).

The existence of these plantations, with a small number of permanently hired peones on their payroll, called for the participation of the small land holders as a source of reserve wage labour to be tapped during the harvest season. For the rest of the year these peasant householders farmed their land on a basis of unpaid family work. The largest of these production units were able to hire additional labour during the harvest season; at the same time they themselves worked in the harvesting of coffee on the larger haciendas. They are semi-proletarian, both seasonal labourers and small tenants, who subsist for nine months of the year on their work on their own land, and, for the other three months, work on the large haciendas as proletarians (peones).

More recently, the structure outlined has given way to a new system of exploitation. Processors and exporters are integrated as capitalists to exploit the peasants. Therefore, this society was, from the beginning, neither as equitable nor as democratic as has been reported.

The dynamic of capitalism reproduces its own conditions of existence. This means that it promotes the productive forces as well as the prevailing relations of production. In this way, the peasantry are a subordinate formation and are able to reproduce within a larger scheme of exploitation which is constantly renewed. Within this global reproduction of capital, the state emerges as a

leading entity. It promotes the conditions for an uninterrupted continuation of this process and perpetuates the exploitation of the peasantry. For this reason, the state, as an element which favours the reproduction of the system, enables some rural subsectors to survive by allowing them a precarious means of reproduction. In other instances, the state actually creates small production units, to ensure reproduction of sufficient temporary labour (Bartra, 1982, p.24-25).

In other words, the peasant production unit should be studied as one element of the social formation and, at the same time, its particular character must be identified.

2.04 PEASANT UNITS OF PRODUCTION AND CAPITALISM IN COSTA RICA

Mario Fernandez (1984) proposes a model recognising six different types of agrarian unit of production in Costa Rica, all generated by the capitalist nature of the national economy. In three cases the extraction of surplus value is based on the exploitation of wage labour. Another three are peasant forms of production in which the participation of family labour is dominant, though they are fully incorporated to the capitalist system.

- 1) In Fernandez' first group, extraction of surplus value is based on profits obtained mainly from renting the land. In Costa Rica these are not large. There are, as we have seen, none of the large landholdings (latifundia) engaged in coffee production in other Latin American countries.

- 2) In the productive units which Fernandez terms 'agrarian industrial capital' the extraction of surplus value is obtained mainly as relative surplus value.⁴ They show a high degree of technological development, and they have permanent wage labourers. The large processors are found within this group. They combine coffee growing with processing and, frequently, also with the export of coffee.
- 3) The productive units which Fernandez called 'agrarian capital' are the most numerous in the capitalist sector of coffee production in Costa Rica. They obtain considerable profits from the exploitation of wage labour and, in general, show a capitalist reasoning. The technical level varies so in some cases the predominant form of extraction is of absolute surplus value whereas in other cases it is of relative surplus value. They employ few permanent wage labourers and the temporarily hired labour force is an economic factor of considerable importance.
- 4-6) The productive units which belong to the peasant sector are classified as
- 4) 'capitalised peasant unit' or 'farmer',
 - 5) 'standard typical peasant unit', and
 - 6) 'semiproletarian peasant unit'.
- In these units the extraction of surplus value is not based on wage labour but on the work of the

peasants as direct producers. They keep control over a substantial portion of the means of production.

- 4) In the farmer units, the use of unpaid family labour is higher and more significant than the seasonally hired wage labour. The development of the productive forces is relatively high and they show a moderate degree of technology and productivity. They achieve a certain accumulation of capital. Therefore, there is a tendency for them to become capitalist units. This type of unit represents one end in the tendency to de-peasantisation, being located at the extreme which leads to the creation of capitalist units from the former peasant units.
- 5) In the productive standard peasant productive units, unpaid family labour is predominant. They show a low development of the productive forces,⁵ low technological level and low yield per unit area, which only covers the overall costs of reproduction of the unit (simple reproduction and sometimes reduced reproduction). Occasionally, seasonal wage labour is hired. Their income is scarcely enough to meet the basic needs of the family, and this has brought about the eventual hiring out of the household labour force to obtain a complementary income. Maintenance of this type of unit is precarious, they show a tendency to be

transformed into semi-proletarian units. Notwithstanding their internal weakness, such units demonstrate a vitality which makes it necessary to regard their proletarianisation as a long-term tendency. Their vitality comes from the diverse forms by which capital has subordinated them to its interests: a) as generators of a product, which later is converted into low cost raw material for its ultimate industrialisation and commercialisation, and sometimes acting like 'domestic industries' (Marx, 1974). b) as a reserve of seasonal labour, which supports itself until the moment when it is needed by the capitalist enterprises to assist with the harvest.

- 6) Semiproletarian productive units have no hired labour force; they have a reduced development of the productive forces due to a very low technological level, and have their productivity per unit area is very low. The producer and other members of his family sell their labour on a permanent basis, because their income is insufficient for the reproduction of the household. This semiproletarian productive unit represents the opposite extreme from 4 in the process of depeasantisation, tending toward complete proletarianisation. This phenomenon led Lenin (1973) to include the poor peasants in the rural proletarian category; Mao (1983) considers this situation as semi-proletarian.

In Costa Rica, productive units smaller than 7 hectares are usually semiproletarian; medium sized units, from 7 to 35 hectares, are predominantly agrarian capital or capitalised peasant units. Those larger than 35 hectares consist mainly of agrarian capital or industrial agrarian capital.

2.05 AGRARIAN CHANGES IN COSTA RICA

A radically different pattern of employment emerged with the introduction of banana plantations. In 1870 a railroad was constructed from the Meseta Central to the Atlantic port of Limon to facilitate coffee export. Early in its history this enterprise was on the verge of bankruptcy, brought about by topographical difficulties encountered in its route through mountains covered by a dense tropical forest, and by the incidence of malaria, which was rife among the railway workers. In order to provide the railroad with operating funds, the railway company started planting bananas at the sides of the railway tracks. The export of this new product not only sustained the railroad enterprise but produced sufficient wealth to allow the formation of one of the biggest transnational monopolies; the merger with the Boston Trust Company gave birth to the United Fruit Company (Seligson, 1980).

The United Fruit Company became under a contract with the Costa Rican government, an enclave subject only to the clauses of the contract and not to the legal system of the

country. The company became essentially a captor of wage-labour for migratory workers from the Meseta Central, and thus contributed to maintaining a scarcity of labour in the central areas, despite demographic growth (Seligson, 1980). The captured labour consisted mainly of men who left their families behind to migrate to the banana zone, thus bringing about a large-scale disintegration of the traditional family unit. The permanent banana workers became a true agrarian proletariat.

Seligson (1980) sums up the influence of the banana production upon the economy of the country.

A comparison between coffee and banana industries in Costa Rica demonstrates that while coffee produced a very important impact upon the economy of the country, not only in terms of internal savings but also in terms of tax collection, the banana industry had a minimum impact. Furthermore, the monopolistic practices of the United Fruit Company interfered with the development of local producers, which could have substantially contributed to the economy of the country.

During the 19th Century and the first years of the 20th Century the economy of Costa Rica was oriented toward fulfilling the needs of the European market, exporting coffee primarily to London, from where it was distributed to the rest of Europe. The European market for coffee could not be sustained during the Second World War, because England was no longer able to finance coffee production. Other agro-industrial activities were initiated, in particular sugar-cane and beef cattle, and coffee sales were redirected.

Sugar-cane cultivation was initially organised as an alternative crop during the years when coffee prices were

low in the world market. It was, therefore, organised on the same basis as coffee production, and it had a similar influence upon the economic structure of the country. The sugar mill ('ingenio') assumed the roles previously performed by the coffee 'beneficio'. The owner also grew some sugar, and bought cane from small independent producers. They, in turn, constituted a reserve of wage-labour for the harvest ('zafra'). Sugar is also a seasonal product, but the harvest requires great physical effort and children cannot participate.

Another difference between sugar cane and coffee lies in the altitude required. Whereas coffee requires a minimum altitude of 600m above sea level, sugar-cane can be cultivated on the vast plains found in the lower zones. These areas are suitable for large-scale mechanisation and have the necessary conditions for establishing large land-holdings, especially along the Pacific coast. Sugar-cane production was increased very substantially in Costa Rica after the commercial block imposed by the United States on Cuba during the socialist revolution (Seligson, 1980).

The production of beef cattle for the local market was organised at the beginning of the century on the plains. It was based on large land holdings. Beef production has been expanded and extended to other zones of the country. Beef export to the United States has acquired an increasing importance since the Second World

War. The progressive turning over of land, previously dedicated to intensive crops, to cattle ranching has been called the 'grass revolution' (potrerizacion) of Costa Rica. This is part of a tendency common to all Central America. Cattle production is mainly in the hands of trans-national companies, and because it requires the labour it has contributed to a large-scale migration of the peasants to the banana plantations or to the cities.

Coffee has progressively lost its relative importance. In the 19th century it contributed 60% to 90% of exports (Facio, 1972). In 1970 its share had dropped to 25%, giving way to sugar, bananas and beef (Seligson, 1980). By the time of this study it had dropped to 15% (Coffee Institute).

After the Second World War agriculture and cattle production were greatly expanded. These activities led rapidly to exhaustion of the so-called 'agricultural frontiers'. At the same time, a demographic explosion took place, as a result of health measures which drastically reduced infant mortality (Jaramillo, 1984).

In the twentieth century, the population increase continued (see Table 2.02). Contributory causes were the health service (the Hospital San Juan de Dios was founded in 1883), a better diet helped by the introduction of dairy farms in the Meseta Central, the beginning of general education, and the coffee boom which gave more people purchasing power.

TABLE 2.02
POPULATION IN 20th CENTURY COSTA RICA

Year	Total Population
1927	471,524
1950	800,875
1963	1,336.274
1973	1,871,780
1984	(estimated) 2,610,900

Source: INTER AMERICAN DEVELOPMENT BANK, 1977

2.06 THE MODERN ECONOMY

A political change took place after 1948: the coffee group lost its influence to a techno-bureaucratic middle class, which developed a 'reformist, democratic, capitalist state' (Vega Carballo, 1979). Uncoordinated programmes of public welfare were created, and industrialisation was promoted. The public sector was greatly expanded.

In the 1960's Costa Rica became a member of the Central American Common Market. Laws were promulgated to favour new industries for secondary processing of imported raw materials. Industrial expansion has been dynamic. Nevertheless, the benefit was dubious for various reasons: (1) The productivity of the new industries has been limited.

- (2) Most of the raw materials used in the main have had to be imported.
- (3) There has been no possibility of export outside the Central American region.
- (4) The industries have operated under a very costly scheme of state protection.
- (5) They have not absorbed a significant number of wage-labourers.
- (6) They have not been linked with other industries, nor have they stimulated the creation of subsidiary companies.
- (7) They have been unable to create a really large and important national industrial complex.
- (8) They have had a negative influence on the balance of trade of the country, because of the import of raw materials and the repatriation of profits.
- (9) They have created inappropriate demands.

Industrialization has not answered the problems of the peasantry. The story of the Costa Rican peasantry is that of a group of people who change their status from small land holders into landless people. These peasants, confronting an intolerably insecure situation, have been forced, as a last resort, to become squatters, subject to constant harassment and a complete lack of security (Seligson, 1980).

In Costa Rica, the role of the state in the process of depeasantisation has been to soften its otherwise

drastic effects through laws which are intended to reconstitute the peasant way of production. The government, through its different agencies, has attempted to promote a series of reforms in demographic policies as well as to institute credit and to promote health and nutrition with the aim of stabilising this sector of the population and establishing a labour force in specific areas of the country.

Even so, the reproduction of the peasantry is still possible. Not only does capital dialectically allow it, eliminating and reconstituting it at the same time, the state supports it and the peasants develop strategies to attain their own reproduction, but this reproduction cannot be autonomous. It is based on capitalist production and reproduction, which is hegemonic and gives higher rank and importance to other productive forms, inside the social formation (M. Margulis, 1979, p.132).

By means of many socioeconomic policies, the state has tried to re-establish small productive units. The state has played a very important role in this respect, legitimising its decision to the public. However there still exists social conflict in land tenure, which is worsening. By 1963 there were about 16,000 squatters, in private or in state holdings (ITCO, 1963). ITCO (Instituto de Tierras y Colonizacion) had been founded in 1962 as the agency in charge of the land reform). ITCO was not born as an immediate response to the internal problems of the

country, but in response to the desire of the United States of America to avoid a repetition of the Cuban experience. It failed to slow the process of land concentration demonstrated in Table 2.03.

TABLE 2.03

CHANGES IN LAND-HOLDING IN COSTA RICA

Size of holding	Total area in 1000's of Hectares 1963	%	Total area in 1000's of Hectares 1973	%
Less than 5 has	51.3	1.9	58.9	1.9
From 5-100 has	952.4	35.7	971.3	31.3
From 100 & over	1662.8	62.4	2082.3	67.0

Source: Oficina de Programacion, Universidad Nacional

The state developed a vast socio-economic project for the reactivation of the agrarian sector, to expand national production, and bring about a betterment of the existing conditions of the peasants. To this goal the following steps were taken (1948-1975):

- 1 Establishment of a National Bank System.
- 2 Strengthening of the 'Consejo Nacional de Produccion' which secures a minimum price for agrarian produce and rural low price food shops.
- 3 Creation of the 'Instituto de Vivienda y Urbanismo' (INVU).

- 4 Intensive construction of rural roads and highways.
- 5 Strong impulse given to cooperative policies, consumers, agrarian and industrial (Barahone, 1980).

Land reform projects were not a direct result of negotiations initiated by the working sectors of the rural areas. They were really policies which emerged from the Costa Rican bourgeoisie in response to recommendations of international organisations. In spite of governmental efforts to revitalise the peasant units, the process of depeasantisation continued inexorably. Although the ITCO is still providing land to peasants, the tendency to squatting does not appear to decrease.

As stated earlier, the economic development of Costa Rica until about 1950 has been characterised by the expansion of agrarian capitalism based on coffee growing in the Meseta Central. Labour had been scarce. This, as well as the difficulty in mechanising agriculture due to the mountainous topography, prevented the development of extensive latifunda. Capitalist enterprises were forced, from the start, to incorporate the small land-holdings as producers of necessary raw material and to provide a seasonal labour force.

The state, supporting the dominant mode of production, has taken measures necessary to protect small land holdings and to secure the reproduction of the labour force for coffee harvesting. Thus, many social reforms have been introduced, one step ahead of other Latin

American countries.

In Costa Rica, some reformist steps were taken, such as the establishment of universal, free education (1887) (Lascaris, 1964); foundation of the National Bank, aimed at providing credit for small land holders; nationalisation of the insurance companies; establishment of direct taxation; the foundation of the Consejo Nacional de Produccion, which secures a minimum price for agrarian produce, and the Patronato Nacional de la Infancia, for the protection of minors.

After the revolution of 1948 (caused by electoral fraud,) and under the influences of local communist, social Christian and social democratic parties, labour laws were decreed and social rights were included in the Constitution, the army was forbidden, a state social security system was created, which covered almost all the population, and universities were founded. Many institutions were also created, charged with providing electricity, water, communications etc.

After the triumph of the National Liberation (or social democratic) Party in 1948 a new sector of the bourgeoisie developed the conditions for its consolidation, through industrialization and export diversification. The period of government by decree, after the revolution, permitted them to take important measures to weaken the coffee oligarchy, such as nationalizing the banks, channelling resources into non-traditional sectors.

The ruthless suppression of working class and communist organizations used co-optive and repressive methods; workers' organizations in the Meseta Central had been weak, but not in the banana zones. A new accumulation process was initiated with the creation of a reformist state. Support came from the small peasant sector and the expanded bureaucracy.

The emergence of the new reformist sectors of the bourgeoisie was facilitated by the new international division of labour which permitted industrialization in peripheral countries and the creation of demand for diversified agricultural products. This reformist project was necessary for the expansion of capitalism in Costa Rica during this period (Solis y Esquivel, 1980). In the absence of an industrial reserve army, the state was forced to increase the productivity of the labour force through education and training, and through extending the productive period of individual workers by modernizing the national health system. These factors permitted the thirty-year success, from 1950 to 1980 of the Costa Rican development model (Solis y Esquivel, 1980).

2.07 THE MODERNISATION PROCESS: DIVERSIFICATION AND DIFFERENTIATION

Urban development has expanded on the Meseta Central so that sugar and coffee plantations are adjacent to the main cities. Since the 19th Century, the occupations

recorded for urban and rural areas have overlapped and today many rural people work in the factories around the main cities.

By the end of the '70s an economic crisis in Costa Rica, due to external debt, produced a high rate of inflation and a severe devaluation of the currency to a seventh of its original value. This forced the government to seek an agreement with the International Monetary Fund in order to renegotiate its external debt. The agreement produced a new strategy for development based on neo-liberal economic principles. The political and social strategy implies the redistribution of power, weakening the action of the state, as well as reinforcing the private financial and exporting sectors. The national income has been redistributed at the expense of the proletarian sector, through devaluation and unemployment. The poorest 20 per cent of families has been impoverished, and strategies to help the poor have assisted middle groups instead. The 'benefactor state' has relieved certain symptoms of poverty, but failed to eliminate the structural causes (Fallas, 1981).

An additional factor in this crisis is the existence of a virtual state of war in Central America. At this moment, Costa Rica is suffering the impact of a massive migration, consisting of displaced refugees from other Central American countries, who add to the unemployed (not to mention the health problems they create). This state of

belligerence is an obstacle to commercial interchange with the countries of Central America, which are the only countries with which Costa Rica has had a favourable commercial balance.

The above mentioned problems have created the conditions necessary for the large scale establishment of 'maquila': international companies which are based on the import of semi-elaborated raw materials to be finished by national cheap labour and later re-exported for foreign consumption. In other words, these are industries which exist exclusively on cheap labour and at present constitute an escape valve for unemployed or underemployed women in low income groups. They form the most recent style of exploitation of the Costa Rican labour force.

2.08 THE STUDY POPULATIONS:

HATILLO

The Unidad Sanitaria (Health Centre) of Hatillo, which was selected for the study of the urban households, includes the satellite city of Hatillo, Sagrada Familia, 15 de Setiembre and Los Nietos de Carazo, the last being a squatter settlement. The area was planned by the Instituto Nacional de Vivienda y Urbanismo (INVU) as a solution to the housing problem of the low-income urban groups and as part of the welfare programmes of the State.

Hatillo was founded in 1958 and constituted eight neighbourhood units, with a population of 39,126

inhabitants (Sanchez et al, 1981). This zone had basic public services such as electric light, drinking water, sewerage systems etc. The area formerly consisted of coffee farms of low productivity due to the poor condition of the soil. These farms were approximately 5km south-east of San Jose, and thus not too far from the health services and also near to the most important zones of the capital. During its development, Hatillo sheltered many people from slum areas. Other areas of the city have been designed to accommodate diverse occupational groups such as school teachers, factory workers etc. (Perlaza, 1982). From the Hatillo district certain households were selected, from criteria to be detailed later, as Hatillo illustrates many features characteristic of lower-income groups in San Jose.

2.09 SANTA BARBARA de HEREDIA

This is a canton of the Province of Heredia, located 20km north-east of San Jose. It has an area of 50km² and is situated at an altitude of 1,000 to 2,400m above sea level. Settlement commenced in 17th century by a migration of people from Cartago, the former capital of the country (Salas, 1979). The first village was not established until the 19th Century, when a British citizen named John Hale sold part of his land to his neighbours. The remaining land was bought by the government.

The canton consists of the districts of Santa

Barbara, San Juan, San Pedro, Jesus, Santo Domingo and Puraba. The pattern of settlement is partly nucleated and partly dispersed rural. The early crops were of a subsistence nature; during the colonial period sugar-cane plantations were initiated, and by the early 20th Century, the sugar processing plant of Zetillal was established, which is still in operation today. Coffee plantations were started by the middle of the 19th Century and their production rapidly increased until it became the most important product of the region. The process of proletarianisation in this zone has been very rapid: according to the census of 1927, 75% of the heads of households were classified as jornaleros (agricultural wage labourers) and 20% of the households were headed by women, mostly dedicated to domestic work. By 1981 the canton had a population of 12,935 inhabitants of whom 7.9% were illiterate and 11.3% were unemployed (Census Nacional de Poblacion, 1981).

The Centro de Educacion y Nutricion (CEN) is located in the centre of Santa Barbara which is the largest of the rural concentrations. From information from the files in this Centre, certain households were selected for the present study. Santa Barbara may be considered as representative of a rural settlement in the Meseta Central.

FOOTNOTES

- 1 HACIENDA - Large scale agricultural system with dependent labour. The hacienda developed elsewhere in Spanish America before 1700 to supply the mining economy.
- 2 In Fabian Doble's novel called El Sitio de los Abras he describes the difficulties, hard work and perils with wild animals, confronted by 'colonists' of 'frontier' areas. Forest was felled with the participation of all members of the peasant household. To be abrero was synonymous with being courageous and valiant, but at the same time they can also be seen as 'forest devastators'.
- 3 ADELANTO - Partial payment in advance for the unripe beans.
- 4 SURPLUS VALUE - According to Marx, the extraction of surplus value is the specific way exploitation takes place under capitalism in which the surplus takes the form of profit, and exploitation results from the working class producing a net product which can be sold for more than they receive as wages (Capital, 1982).
- 5 PRODUCTIVE FORCES - were conceived by Marx as including means of production and labour power. Their development, therefore, encompasses such historical phenomena as the development of machinery, changes in the labour process, the opening up of new sources of energy, and education of the proletariat (Harris, 1983). Geographical space is also included by Cohen, 1978, as a force.
- 6 THE BANANA WORKERS had the strongest workers' union (Sindicato de Trabajadores Bananeros) within the country. Most of the social reform decreed during the forties were, in part, a result of their continuous struggles for better conditions for workers, against the United Fruit Company. At the time this organisation had been weakening due to the abandonment of the banana crops. The United Fruit Company decided eventually to move to another country seeking cheaper wage-labour.

CHAPTER 3
METHODOLOGY

CHAPTER 3
METHODOLOGY

3.01 INTRODUCTION

Since this was to be a study in depth over an extended period, it was decided to select reference groups rather than to extract a random sample of informants from the wider population. The reference groups were chosen using a sampling criterion which would permit the rigorous examination and comparison of specific variables which were theoretically significant for the classification and description of the target population.

Three basic decisions were made. The first step was to compare the 'urban' and 'rural' sectors of the Meseta Central, Costa Rica, by focussing on one place of each type. The second step was to select women who were the mothers of children under two years old. This was the preferred approach to the analysis of the most important part of the reproduction of the labour force: the production of children. The third step was to include two types of household in the survey, one group with undernourished children, one group with children of good nutritional status. These children became the 'case children'.

Biological, economic and social variables were examined to establish the complex combination of material

relations through which women's subordination is mediated. Alongside this statistical approach, domestic work was analysed through life histories to extract the psychocultural dimension. The women's words were used to express the role of ideology and the meaning of the relationships between the sexes, and finally expose the subordination of the women in domestic work.

3.02 SELECTION OF SUBJECTS FOR STUDY

The nutritional status of children in any society can be taken as an indicator of development (Bengoa, 1971). Therefore, it is also an indicator of social reproduction. It was decided to examine the nutritional status of children in certain households in one urban and one rural area, Hatillo and Santa Barbara de Heredia. (see Chapter Two).

In May 1981, a number of healthy children under the age of 2 were randomly sampled from the records of the Centros de Educacion y Nutricion (Health and Nutrition Centres) in each of the two areas under study. Each child was regarded as a 'nino-caso' (case-child) and, starting from this case-child, the whole household was studied. All the children under 13 years of age in the study households were then weighed and measured. The mother (or the person in charge) of the case-child, who will be referred to in this study as 'EGO', was interviewed and became our principal informant.

During the field-work, which lasted from May 1981 to February 1982, 15 families withdrew from the group under study. In the main this was due to migration; other reasons given were the reluctance of the male partner to give further information or the informant's (EGO's) refusal to undergo laboratory tests. When a family withdrew, its place was taken by another family, chosen at random from the appropriate category, ie 'well nourished' or 'undernourished'. Some of those who had previously withdrawn were later persuaded to participate again.

The case children of the final study consisted of:

Well nourished urban	20
Undernourished urban	22
Well nourished rural	21
Undernourished rural	<u>22</u>
TOTAL	85

3.03 THE VARIABLES

The following variables were used in assessing the nutritional status of children:

- 1) Biological: Anthropometric measurements; blood chemicals; food intake and the nutritional value of the food.
- 2) Environment: Condition of house; water supply; sewerage and refuse disposal (garbage); electricity; household equipment.
- 3) State Social Benefits: Food supplement programmes;

nurseries and health services and education.

- 4) Socio-Economic: Occupation; income; household composition and domestic labour.

As nutrition is a multivariate problem, we have to take all these variables into consideration. It is necessary to realise that all these variables are interrelated and, therefore, cannot be evaluated singly.

3.04 TECHNIQUES USED IN THE FIELD WORK

In the first interview the purpose of the study was fully explained to EGO, in order to obtain her consent and collaboration for the study. In the second interview an exploratory study was made with EGO, based on a precoded questionnaire, of family structure, source of income, migration history, housing conditions, inventory of domestic electrical appliances and access to Public Services (Appendix 1). These were verified later.

3.05 DIRECT OBSERVATION

Each family was visited seven times in order to record time use: these visits were spaced at different times of the month and days of the week.

The following techniques were used:

- 1) Survey with precoded questionnaires.
- 2) Record of familial occupations.
- 3) Register of mother's daily timetable.

- 4) Semi-structured interviews to discover the internal organisation of the household.
- 5) Questionnaires on economic details, in order to ascertain the real household income.
- 6) Dietetic Survey of a sub-sample of the households.
- 7) Questionnaire for collecting data on nutritional habits of the case child, as well as that of the household. These data were complemented with material obtained from direct observation.
- 8) Anthropometric measurements were taken of every child under 12 years of age in the households surveyed, as well as of their mothers.
- 9) Blood samples were also taken from the children for biochemical analysis of the iron content of their blood, in order to ascertain the amount of iron reserves and haemoglobin.

3.06 ANTHROPOMETRIC DATA

All the children in the selected households were weighed and their height measured during September 1981: Weight was obtained by weighing the children while clad in the usual clothing of their country and barefoot. Three measurements were taken, using a portable balance (CMS Weighing Equipment Ltd., London). The average of two measurements with a difference of less than 200g was then calculated.

Height: Children under 2 years were measured lying down;

the older children were measured standing upright. In both cases a standard measuring rod was used (Jordan, 1979); three measurements were taken, and two with a difference of less than 0.5 cms were averaged. All measurements were taken by a paediatrician and an anthropologist (author).

3.07 BLOOD CHEMICAL LEVELS

Blood samples of 173 children were collected (other families refused to participate) in order to determine the amount of haemoglobin, haematocrit, ferritin, zinc and serum proteins. Blood samples were collected before breakfast into heparinised tubes, free from minerals, and transported at 4°C. The volume of packed blood cells was determined by micro haematocrit technique (Lynch, 1969) with an accuracy of $\pm 0.4\%$. Haemoglobin concentration was determined by the method of cyanometahaemoglobin (Lynch, 1969), with an accuracy of 2.1%. Plasmatic zinc level was obtained by atomic absorption spectrophotometry. Ferritin was determined by radioimmunoassay. Serum proteins were estimated using Biuret technique (Lynch, 1969) and albumin by reaction with bromocresol green (Westar, 1977). All the analyses were performed at the INCIENSA Laboratories, Tres Rios, Costa Rica.

3.08 FOOD INTAKE

In order to examine the food intake, three methods of analysis were used:

- 1) The 24 hour Recall Method (ICNND Manual, 1963). This involves using a questionnaire (see Appendices 1, 3 and 4) to obtain information about the case child and other members of the household. Type of food consumed, time of consumption and frequency of consumption were recorded. EGO was the informant and the researcher filled in the document.
- 2) For the study of food intake, a sub-sample of 29 households was selected. The food intake one day was measured by the method recorded in ICNND Manual, 1963. This method requires the agreement of all members of the household. Whenever possible, the portion of food to be served was weighed. The food intake of all members of the household was recorded for a full day. Two interviews were conducted, one on the first day and the other on the following day. All food consumed was previously measured, including breakfast, lunch and dinner, as well as snacks, and an estimate was made of food consumed outside the house and also of waste food on the few occasions when there was any. At the end of this survey the complete diet for one ordinary day for 152 persons had been recorded. This information was collected from October to November 1981.

3.09 OCCUPATIONS AND INCOME OF MEMBERS OF THE HOUSEHOLD

Through semi-structured interviews, using tape-

recorders, details were obtained of the occupational history of members of the household. When this was completed it became obvious that the situation was very complex. Therefore a questionnaire was employed to record the details of income and expenditure of each household. Daily, weekly, monthly and yearly amounts were used to arrive at an average monthly amount.

3.10 INCOME OF EACH MEMBER OF THE HOUSEHOLD

On questioning the members of the household it was found that they had a variety of incomes and received money and goods from various sources. Questionnaires (see Appendix I.5) recorded details of their primary and secondary occupations; seasonal work (temporary and part-time); self-employment, remunerative work inside the household; income in kind; food from state supplementary programmes; produce from own land and loans from pawn-brokers.

3.11 MOTHER'S TIMETABLE

In order to arrive at EGO's timetable for one week in harvest time and one week off-season, the fieldworkers (in this case three persons) recorded her activities and rest periods during the whole 24 hours of the day (see Appendix I.2). Then these details were transposed on the Form No. 2, which classified the activities according to their nature - cooking, cleaning, washing clothes, caring for

the family, caring for self, leisure, sleep and remunerative work inside and outside the household. A separate sheet was completed for each day of the week.

3.12 METHODS OF ANALYSIS OF DATA

The nutritional status of the children was evaluated at the individual level, using anthropological measurements and biochemical methods. For children, indexes have been developed by comparing weight and height with standards for age (weight for age, weight for height and height for age - Tanner, J.M. et al, 1966; Hamill, R.V. et al, 1979; Jordan, J.R., 1970) which show the existence and degree of a nutritional deficit (Waterlow, J.C., 1973). In the study of population groups, percentages of individuals with a nutritional deficit have been used as well as the mean of the different indices (Waterlow, J.C., 1977).

The nutritional status of individual children was evaluated in accordance with Waterlow's criteria, using the 50 Percentile Tables of NCHS for reference values (Waterlow, Buzina, Ketter et al, 1977; Hamill, Drizd, Johnson et al, 1979).

It was then decided to create a new unit of analysis, taking into consideration all children of the household. This analysis is discussed later in this chapter.

3.13 STATISTICAL ANALYSIS OF THE DATA

For the study of the association between nutritional

status and all the other variables (economic, social and cultural), step-wise discriminant analysis was employed.

Discriminant analysis¹ mainly facilitates the study of the existing relations between a collection of quantitative variables and the separation of specific groups of the statistical units under study. The distribution of the statistical units into disjunctive categories or groups corresponds to a Boolean variable. In this work our interest was to search for the possible factors which determined nutritional status of typical households. The nutritional status is considered as a Boolean variable which establishes a division of the households into three well differentiated groups, previously determined by PCA.

- 1) Households with adequate nutritional status of children.
- 2) Households with deficient nutritional status of children.
- 3) Households with children 'at risk' of malnutrition.

The quantitative variables are entered in discriminant analysis as descriptors, which characterise the statistical units under study. For this study very diverse descriptors were considered, such as family income, occupations of members of the household, distribution of time taken up by the mother in child care, family structure, dietetic intake, etc. Discriminant

analysis looks for an answer to the question: Do the descriptors permit one to discriminate or establish a difference in the state of the variables between the various groups? In other words, is adequate nourishment associated with a more varied diet, better sanitation etc?

For this study, discriminant analysis was used as a descriptive technique. The objective was not to look for indicators of the nutritional status to be used in future enquiries, but to identify those socio-economic and cultural factors which were closely related to an adequate social/biological reproduction. The latter was evaluated through the nutritional status of the children of the households of two specific areas, rural and urban. Starting from the interrelationships of these variables, an attempt will be made to indentify microdifferences between households and the significance of these differences in the context of the economic and social developments of the country.

3.14 DESCRIPTORS USED FOR THE HOUSEHOLDS

Through precoded questionnaires and other techniques of investigation (see Appendix 1), a considerable amount of information was obtained. The data were separated into the eight units described above. The nature of the data was diverse and multidisciplinary. One of the units (anthropometry) was used in the first stage of this work for the definition of nutritional status of the households. Many of the variables of the remaining units

were used for the construction of quantitative indexes; others were decodified into dichotomic indexes, and some were discarded as having limited descriptive value within this analysis. The information was then reorganised into five new descriptive units (see Appendix III). 260 descriptive indexes of each household were analysed and their relationship to the nutritional status of the households, previously defined, was studied in order to discover any relevant differences.

3.15 A METHOD FOR THE ASSESSMENT OF THE NUTRITIONAL STATUS OF CHILDREN, AT THE HOUSEHOLD LEVEL

The results of statistical analysis may be questionable when data measured by different units are compared: for instance when nutritional status, which is quantified individually, is compared with social variables (such as family income, patterns of education, housing etc.) measured by households. In this nutritional anthropology study, the anthropometric measurements of children have to be plotted against such social factors. Therefore, it was necessary to find a method to evaluate the nutritional status of children at the level of households.

Principal component analysis (PCA) was employed, using the family average of the following indexes: weight/height, weight/age and height/age. Also, two new indexes were created by giving a numerical value to

Waterloo's classification. This divided households into three groups:

- 1) households with well nourished children,
- 2) households with children at risk of malnutrition,
- 3) households with malnourished children.²

Nutritional status is evaluated at the individual level, using mainly anthropometric measures. In children, indexes have been developed by comparing weight and height with standards for their age (weight for age, weight for height and height for age)(Tanner, J.M. et al, 1966; Hamill, P.V. et al, 1979; Jordan, J.R., 1979), which show the existence and degree of a nutritional deficit (Waterlow, J.C. et al, 1977).³

The household is a group of persons, sharing food and the resources of a common residence, who dispose of a collective income and who by definition mutually ensure its maintenance and reproduction. Whether decisions are autocratic, collective or conflictive, the Costa Rican household is the primary nucleus which acquires, prepares and distributes nourishment (Scrimshaw and Pelto, 1982), as well as the source of patterns of upbringing and feeding habits; therefore we expect to find similar nutritional status in all the children of one unit.⁴

3.16 BUILDING A NEW INDEX OR PROCEDURE

For an index of infant nutrition per household, weight and height were regarded as basic data, compared to

the 50th percentile of the charts of the NOHS (Hamil, A.V. et al, 1979).

A preliminary test using the family average of the indexes weight/age, weight/height and height/age showed that none of them, when used alone, gave a good general representation of the households.

It was also considered that the existence of children with diverse types of deficit should be taken into account, in accordance with Waterlow's classification (Waterlow, J.C., 1973).

- a) Normal nutritional status: weight for age and weight for height 90% or more of expected values, height for age 95% or more.
- b) At risk of malnutrition: weight for age less than 90% of expected values, height for age 95% or more, weight for height 90% or more.
- c) Wasted: weight for height less than 90%, height for age 95% or more of expected values.
- d) Stunted: height for age less than 95%, weight for height 90% or more of expected values.
- e) Malnourished: weight for height less than 95%, height for age less than 90% of expected values.

Next, the data were compounded, giving a value to each child in accordance with its nutritional status, in order to rank each household on a scale from 0 to 100, according to the number of children in each of the

following groups: 'normal', 'at risk', 'wasted', 'stunted' and 'malnourished'. For the purposes of this study, the existence of stunted children was given greater weight than of wasted, since it demonstrates a prolonged nutritional deficit.

The following indexes were evaluated:

Index No 1 The average weight for age of children within the household.

Index No 2 Average height for age of children within the household.

Index no 3 Average weight for height of children within the household.

Index No 4 $\frac{100a + 75b + 50c + 50d + 0e}{a + b + c + d}$

$a + b + c + d$

Index no 5 $\frac{100a + 75b + 60c + 40d + 0e}{a + b + c + d + e}$

$a + b + c + d + e$

In indexes 4 and 5, a, b, c, d and e correspond to the number of children of each household falling within the above mentioned groups. Using the 5 indexes, a principal component analysis (PCA) (Maxwell, A.E., 1978) was performed separately for each of two localities: Santa Barbara (rural) and Hatillo (urban).

3.17 RESULTS

Figures 3.1 and 3.2 represent a summary of the PCA for the two communities. (The principal component No 1 is the ordinate and No 2 the abscissa). Each index is

represented by a vector, and each household by a dot. The principal component 1 condenses 65.56% and 66.92% of the information (Table 3.01). It has a weight more than three times as great as that of component 2, and defines two areas in the main plane: households without deficit on the right and those with deficit on the left. A high positive correlation exists between component 1 and the nutritional indexes in both localities (Table 3.01; Appendix III). Indexes 1, 4 and 5 are almost perfectly correlated with principal component 1, which expresses both the compound indexes and the average weight for age by household.

The second principal component condenses 21.58% (Santa Barbara) and 20.28% (Hatillo) of the original information (Fig. 3.1). It is defined fundamentally by vectors of indexes 2 (height for age) and 3 (weight for height) which contribute to its formation in opposite directions. Index 2 has a negative, and index 3 as positive, correlation with the same component (Fig 3.2).

The first two components were then used to classify households (Figs 3.1, 3.2). Regions within the main plane define stunted households (deficit in weight for height) and households at this. For example, units 36 of Santa Barbara and 10 of Hatillo consist of stunted children, while unit 4 of the first community and unit 5 of the second contain wasted children.

FIG. 3.1 Principal Component Analysis with information of area no.1: Santa Barbara.

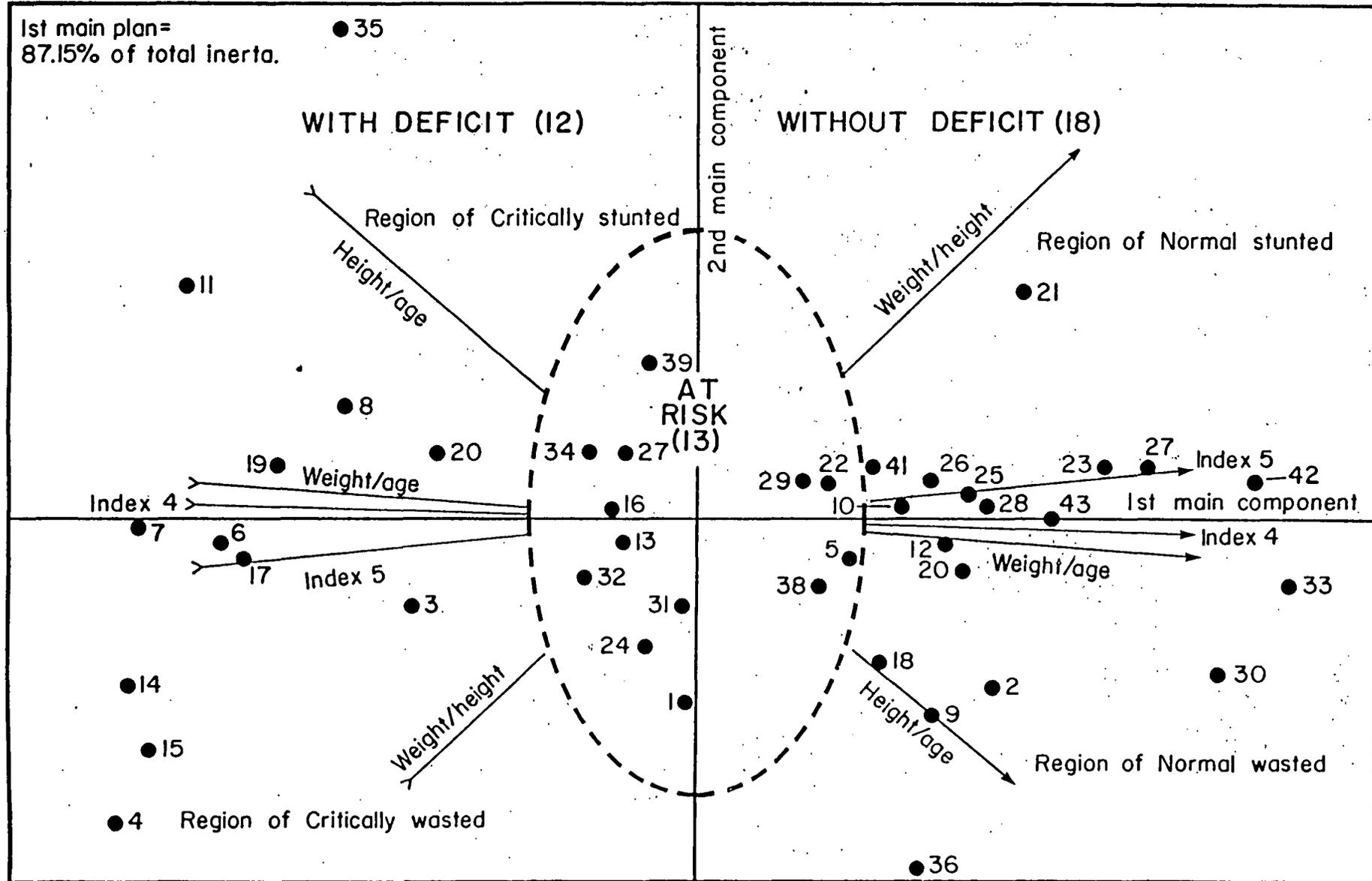


FIG.3.2 Principal Component Analysis with information of area no.2:Hatillo.

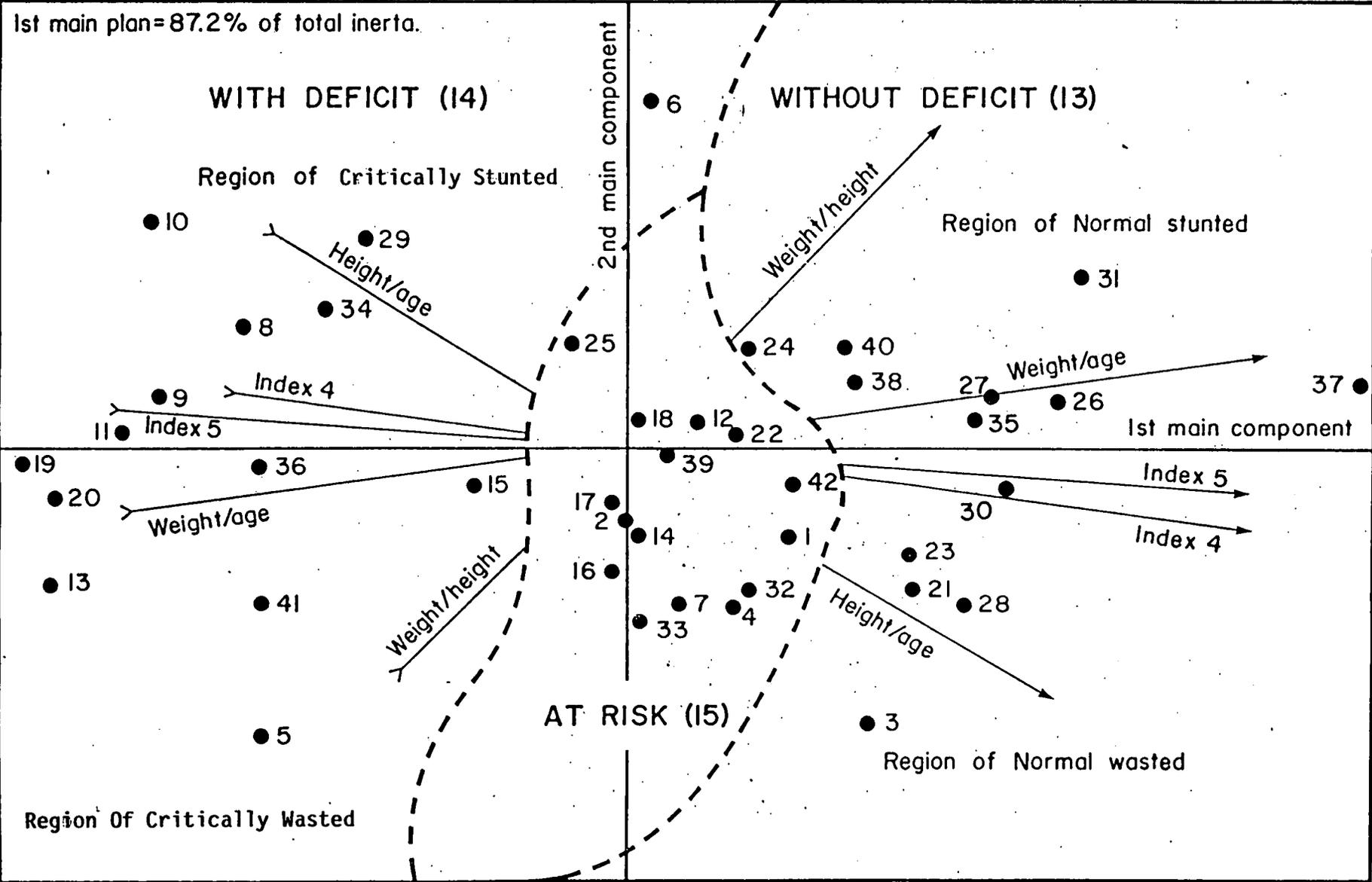


Table 3.03 shows the average values of the 5 indexes for the 3 groups of households: 1) 'adequate', 2) 'at risk' and 3) 'deficient'. Each one is divided into urban (Hatillo) and rural (Santa Barbara). It may be noted that all the groups have a similar number of households (13 to 15). The number of children per household is greater in group 3 (compare Lipton, 1983). The index of weight for age is one of the most influential in the separation of the 3 groups.

Table 3.04 condenses the nutritional indexes and Waterlow's classification of 27 children, who belong to 10 households. Eight are at the extremes of the quadrants of the PCA, and two belong to the group 'at risk'. In the households falling in the upper quadrants, most children have a low height for age index, while the weight for age index is normal, and even over 120% in six cases. Many children, mainly in the upper left quadrant (quadrant of critically stunted) fall in the stunted group. At the lower quadrants (mainly at the lower left quadrant) there is an inverse situation: height for age index is normal, but weight for height is low because of recent deficiency in nourishment, which very probably reflects an economic crisis in the household.

TABLE 3.01

PERCENTAGE OF INERTIA EXPLAINED BY EACH
ONE OF THE PRINCIPAL COMPONENTS

	AREA	AREA
	<u>SANTA BARBARA</u>	<u>HATILLO</u>
	%	%
Component 1	65.56	66.92
Component 2	21.58	20.28
TOTAL PCA	87.15	87.20

N.B. See Appendix I for detailed tables.

TABLE 3.02

CORRELATION BETWEEN NUTRITIONAL INDEXES AND
THE PRINCIPAL COMPONENTS No.1 AND No.2

	AREA		AREA	
	<u>SANTA BARBARA</u>		<u>HATILLO</u>	
	<u>Comp.1</u>		<u>Comp.2</u>	<u>Comp.1</u>
<u>Comp.2</u>				
Weight/age	0.887	0.088	0.901	0.195
Index No.1				
Height/age	0.658	-0.706	0.704	-0.552
Index No.2				
Weight/height	0.583	0.745	0.574	0.793
Index No.3				
Index No.4	0.935	0.016	0.929	0.195
Index No.5	0.920	0.134	0.920	0.067

TABLE 3.03

AVERAGE OF HEIGHT/AGE, WEIGHT/HEIGHT AND WATERLOW'S INDEX IN HOUSEHOLDS
WITH NORMAL CHILDREN, CHILDREN AT RISK AND CHILDREN WITH MALNUTRITION

	No. of Household	Av % of children	Average hght/age	Average wght/age	Average wght/hght	Normals %	At risk %	Wasted %	Stunted %	Malnourished %
1. H/H without malnutrition										
STA. BARBARA	18	2.33	101.36	108.23	106.80	88.57	2.86	2.86	5.71	4.00
HATILLO	13	1.92	100.53	114.86	111.77	88.00	4.00	0.00	8.00	0.00
<u>TOTAL</u>	31	2.14	100.43	110.99	110.12	88.33	3.33	1.67	6.67	0.00
2. H/H at risk										
STA. BARBARA	13	2.07	97.82	95.66	99.85	62.07	6.90	6.90	24.14	0.00
HATILLO	15	2.53	98.59	97.33	100.74	57.89	15.79	7.89	18.42	0.00
<u>TOTAL</u>	28	2.31	98.26	96.61	100.35	59.70	11.94	7.46	20.90	0.00
3. H/H with malnutrition										
STA. BARBARA	12	3.62	92.28	83.91	100.71	14.89	6.38	12.77	61.70	4.26
HATILLO	14	3.21	93.22	87.63	99.85	13.33	4.44	11.11	60.00	11.11
<u>TOTAL</u>	26	3.41	93.00	85.73	101.38	14.13	5.43	11.96	60.87	7.61

TOTAL: 85/223

TABLE 3.04

Height/age (H/A), weight/age (W/A), weight/height (W/H)
and Waterlow's classification in 10 families
located at the extremes of the quadrants of the PCA

Area *	Family No.	H/A Index	W/A Index	W/H Index	Waterlow's classification
	No. of children				No. of children
Region of 'critically stunted'					
1	36	80.7	106.5	156.1	1 stunted
		89.2	110.3	120.0	2 stunted
		78.0	67.7	104.4	3 stunted
2	10	95.2	91.7	104.0	1 normal
		90.8	76.5	87.4	2 malnourished
		97.5	93.4	98.3	3 normal
		94.1	94.3	104.5	4 stunted
		94.3	106.9	125.2	5 stunted
Region of 'critically wasted'					
1	1	102.5	122.2	113.4	1 normal
		92.3	60.4	71.8	2 malnourished
		96.0	56.1	61.0	3 wasted
2	41	98.9	86.9	90.3	4 at risk
		95.9	81.0	88.3	5 wasted
Region of 'normal stunted'					
1	21	95.4	108.9	120.9	1 normal
2	31	98.2	116.6	121.3	2 normal
		97.6	116.8	124.7	3 normal
Region of 'normal wasted'					
1	33	120.5	117.4	88.8	1 wasted
		107.3	114.2	102.9	2 normal
2	3	104.7	104.7	93.1	3 normal
		103.8	95.0	91.4	4 normal
Region 'at risk'					
2	32	109.0	95.5	84.3	wasted
		100.4	111.3	113.1	normal
		100.6	102.0	101.1	normal
		101.9	94.1	89.9	wasted
1	13	95.0	86.3	92.1	stunted
		95.9	92.4	99.1	normal
		98.3	92.4	95.3	normal

*1 = Santa Barbara (RURAL) 2 = Hatillo (URBAN)

3.18 EVALUATION

The results of PCA show that in two communities, one rural and one urban, it is possible to classify most of the households according to the nutritional status of the children. However, it is not possible to establish a numerical index for the separation of households into 1) 'good', whose children would have a normal nutrition; 2) 'bad', with malnourished children and 3) 'at risk', which would include children with a slight degree of malnutrition of both normal and malnourished children. A more severely malnourished population would show strongest separation.

A number of children had weight for height and height for age indexes in the lower normal values and, at the same time, a low weight for age. This is because deficits in weight and in height are added in the weight for age index. This group is not considered in Waterlow's classification, and usually falls under first degree malnutrition in Gomez classification (Gomez). (These cases were weighted with a value of 75 in indexes No.4 and No.5, and labelled as 'at risk').

In figures 3.1 and 3.2, two dissimilar groups of households have been identified: first, households with 'adequate nutritional status' (18 in Santa Barbara and 13 in Hatillo); second, units with 'nutritional deficiency' (12 in Santa Barbara and 14 in Hatillo). An intermediate group is labelled 'at risk' (13 in Santa Barbara and 15 in Hatillo).

The boundaries between the intermediate and the other two groups have been suggested by the author after a careful evaluation of the original data. In the assessment of social facts and their relationship to the nutritional status of children in households, the groups to be compared are the two extremes ('adequate' and 'deficient'). The group 'at risk' can only be included when, as in this case, the boundaries with the other two groups can be clearly defined.

To sum up: this method is effective for the reduction of social and anthropometric data into one common unit of analysis, which is the household.

FOOTNOTES

- 1 Discriminant Analysis - this method performs a discriminant analysis between two or more groups. The variables used in computing the linear classification function are chosen in a step-wise manner. Selection of variables may be either forward and backward; at each step the variable that adds the most to the separation of the groups is entered into (Or the variable that adds the least is removed from) the discriminant function.
Important group differences can be specified as contrasts. These contrasts guide the selection of the variables. Group classifications are evaluated and presented in a classification table. A jack-knife validation procedure may be used to reduce the bias in the group classifications. Two or more Subsets Regression can also be used if the grouping variable is coded as zero or one. Cases can be classified even if they are not used in the computation. Output includes, at each step, F Statistics (with an approximate F Statistic), Mahalanobis De for group means; classification and percentage of correct classification. Posterior probabilities and Mahalanobis distances for each case are assigned to each group. Canonical discriminant function coefficients and eigen-values, canonical scores for each case and a plot of the first two canonical variables can also be generated (Jenrich et Sampson, 1981).
- 2 This was accomplished using the package 'ANADA', created by PRIAD, University of Costa Rica, and a Burroughs B6920 computer.
- 3 Waterlow's classification - In 1973, Waterlow published an article in The Lancet (I: 87-89) in which he clasified children into the following nutritional categories, 'normal', 'at risk', 'wasted', 'stunted' and 'malnourished'. This is explained, in detail, in Chapter 5 of this thesis.
- 4 Other studies made in Costa Rica have shown no evidence of discrimination between male and female children (Mata, 1981).



CHAPTER 4
NUTRITIONAL STATUS

CHAPTER 4NUTRITIONAL STATUS4.01 INTRODUCTION

The overall aim of this work was to study the reproduction of households in the lower income sectors, both rural and urban, of a capitalist, dependent and under-developed nation, as represented by Costa Rica. In such lower income sectors, a high percentage of the income of the household is spent on food. For this reason, any adverse factor affecting the economy of the household, is reflected in the nutritional status of its members, in particular that of the smaller children.

Anthropological methods were used to obtain socio-economic and cultural data on the household (Chapter 3) and to relate them to the nutritional status of the children. The nutritional study consisted not only of an evaluation of the children's nutrition, determined by measurements of weight and height, but also by an exploration of food habits and dietary intake. Several chemical indicators of specific aspects of nutrition, such as amounts of haemoglobin and ferritin in their bodies, were taken into consideration.

Traditionally, nutritional scientists based their studies on surveys of sample populations, in which dietary

ingestion and the nutritional content of the foodstuffs were evaluated, using biological knowledge of nutrition. However, a second line of research was initiated by A. Richards (1932). This was devoted to assessing the food habits, emphasising the non-nutritional aspects of the food and taking into consideration their ethnic identity, cultural traditions and cultural change. Her work influenced others to take note of the cultural preferences for certain foodstuffs (Bennett, 1943; Cussler and de Give, 1952; National Research Council, 1945). A third line of research emphasises the cognitive aspects of food, analysing their non-nutritional values in ideological systems. Singer (1978) and Douglas (1975) laid stress on the symbolic value of foods.

Ecological studies by White (1949), Steward (1955), Service (1971) and Bennett (1976) suggested a fourth line of research. They 'viewed human beings as intelligent, technologically equipped and culturally conditioned biological actors, existing in open feedback systems, together with other biological units in their environment' (Jerome, Kandel and Pelto, 1980). These authors consider that this approach makes it possible to relate biological and cultural factors in a single level of analysis. All these factors are examples of a system of variables; nutrition is part of a food system and an indicator of social conditions. The ecological approach is useful for this present study, because household size and

composition, macro and micro economic and social factors and the prevalence of disease etc all influence nutritional status.

In large population groups, children's nutritional status is an important indicator of the level of social development. (See Bengoa, 1971, and the United Nations Economic Commission for Latin America, 1973). For the purpose of this study it was postulated that the evaluation of the nutritional status of children under 12 years would constitute the best measure of the quality of social reproduction. In order to achieve optimum growth and development of the individual, it is necessary first to have adequate nutrition (Jellife, S., Jellife, D.B., 1981). Other factors do exist, however, which can favour or impede the social development upon which depends the population's standard of living. In addition to an adequate diet, the greatest influence on infant nutrition in these low income groups is environmental sanitation, as poor sanitation permits the development of infection. Mata (1978) has demonstrated that infectious diseases, especially those of the digestive tract, interfere with the normal growth and development of children in the periods in which they occur. This consequent height loss is irrecoverable.

4.02 HEALTH PROGRAMMES IN COSTA RICA

Costa Rica, since 1970, has seen the application of

intensive government programmes for health, nutrition and immunisation. The result has been that 'preventable' infectious diseases have been practically eliminated and infant mortality has been reduced from 61.5 per thousand in 1970 to 18.8 per thousand in 1982. The causes of death in children changed according to the following chart (Jaramillo, 1984):-

TABLE 4.01

MAIN CAUSES OF INFANT MORTALITY IN COSTA RICA
(Infant = 0 to 4 years of age)

<u>1971</u>	<u>1982</u>
1. Diarrhoea	1. *Perinatal Diseases
2. Pneumonia	2. Congenital Malformations
3. Septicaemia	3. Malignant tumours
4. Meningitis	4. Meningitis
5. Prematurity	5. Pneumonia

* Perinatal - from 7 months gestation to 7 days after birth

Source:- Hospital Nacional de Ninos

Vaccination of 85% of the infant population against certain transmissible disease (tuberculosis, diphtheria, pertussis, poliomyelitis, measles and rubella) has been accomplished, thus reducing mortality due to those causes. Portable water is supplied to the total urban population and 64% of the rural, while the sewerage system, together with latrines and septic tanks, serve 96% of the urban and 86% of the rural areas.

The above measures have greatly improved the growth potential of the majority of Costa Rican children. However, some ailments, such as diarrhoea and malnutrition, together with deficiencies in care, growth and stimulation

of the child, remain endemic in lower income populations (Mata 1982). (See Table 4.02).

At the international level, we can see that Costa Rica, when compared with other countries in Central America, has the lowest mortality rate, the lowest percentage of infectious diseases and parasites, and the lowest percentage of malnourished children (under 4 years). In terms of public services, Costa Rica shows the highest percentage of population with access to potable water, sewerage disposal and is the country which spends the largest amount per capita on a public health service; with the exception of Panama, its population has the highest calorie intake, per capita.

The incidence of malnutrition has decreased at the national level, from 57.4% in 1966 to 38.6% in 1982, for children under 4 years of age. Severe degrees of malnutrition which formerly afflicted 13.5% of the population under 4 years of age, fell to 4.1% in 1982 (Jaramillo, 1984). This change has been brought about through the application of public health policies, referred to above, and by improvements in the standard of living, due to education and the availability of state programmes of aid (CEN and CINAI) in the form of free supplementary meals to children and pregnant women in lower income groups, and school dining halls. These programmes have a tendency to reduce the gap between the groups of the most and the least privileged. Costa Rica's 'IMAS' (Institute for

TABLE 4 .02 BASIC DATA ON CENTRAL AMERICA AND PANAMA

<u>Information</u>	<u>Costa Rica</u>		<u>El Salvador</u>		<u>Guatemala</u>		<u>Honduras</u>		<u>Nicaragua</u>		<u>Panama</u>	
	Year	No.	Year	No.	Year	No.	Year	No.	Year	No.	Year	No.
Rural Population as % of total	1980	56.6	1980	58.9	1980	61.1	1980	64.0	1980	47.0	1980	45.7
Mortality Rate of Children 1-4yrs per thousand	1981	1.1	1980	6.9	1980	12.4	1979	4.3	1978	10.4	1981	2.1
Infectious Disease and Parasites	1981	3.9	1980	10.7	1980	33.2	1980	26.8	1978	20.8	1980	7.9
Percentage of Population with Portable Water	1981	87.5	1981	53.0	1979	42.0	1980	55.0	1981	42.2	1980	100
Percentage of Population with Sewage Disposal	1981	91.4	1979	20.0	1980	29.0	1980	15.0	1981	21.9	1980	33.0
Public Health Service Costs per capita	1981	295.7	1980	14.4	1982	151.9	1982	35.4	1981	39.5	1982	128.25
Calorie Intake per capita per day	1978	2.267	1977	1.890	1978	1.936	1978	1.800	1974	2.141	1978	2.425
Percentage of Malnourished Children 0-4 yrs	1982	38.6	1978	52.9	1980	73.0	1980	80.0	1976	56.8	1978	50.0

Source: WHO World Population Trends and Prospects by Country (UN 1979).

Social Assistance) has, for example, developed programmes in popular housing.

However, regional inequalities in well-being do exist in Costa Rica, because of variations in access to basic goods, services and amenities. Overcrowded houses constitute a major social problem throughout the country (Hall, 1984).

While Costa Rica ranks high in many conventional socio-economic indexes such as the gross national product (GNP), literacy and access to social services and domestic amenities, nevertheless, Costa Rica shares with Third World countries many socio-economic problems such as dependence on a few agricultural exports, an inequitable structure of land tenure, widespread poverty and a rapid process of tertiary urbanisation (Hall, C. 1984).

Sen (1981) has demonstrated that access to food in a market economy depends on an individual's wages and assets plus the price of goods and invoices, the taxes that must be paid and the social security benefits to which the individual is entitled. This account of the individual may be translated to the household. In Costa Rica, a household's 'exchange entitlement' may be very significantly increased by social security and public services, so that family welfare, though far from good, is strikingly better than might be expected from levels of income. Sen (1981) makes the point that

'The reason there are no famines in the rich developed countries is not because people are

generally rich on average ... With the proportion of unemployment as high as it is, say, in Britain or America today, but for the social security arrangements there would be widespread starvation and possibly famine.'

In Costa Rica, social security arrangements similarly avert starvation: the 'entitlement system' in some ways resembles that of a rich, developed country.

It has been stated above that the nutritional status of children is an indicator of the level of social development of a country; it is also a direct indicator of the living standard at the household level, since it depends directly on its food supply. Other factors that influence individual as well as community nutrition must be taken into account. These factors are ecological, cultural, social, economic and biological in origin.

4.03 MALNUTRITION

Malnutrition is defined (Payne, 1985) as a state in which the physical function of an individual is impaired to the point where he or she can no longer maintain adequate performance in such processes as growth, pregnancy, physical work or resisting and recovering from disease.

Early attempts by nutritionists to discover the cause of malnutrition in infants were restricted by their concentration on attempting to discover a single cause for malnutrition. However, in 1932 James Spence made a study of malnourished children in Newcastle-upon-Tyne, Northern England, and came to the conclusion that malnutrition was

not caused solely by inadequate food, but could be attributed to three factors interacting; these were infectious diseases, the effects of poor housing and inadequate diet (Spence, 1960).

During the last two decades, it has become obvious that malnutrition in infants is due to a variety of factors or a combination of several of them; these factors are class structure, gender discrimination, geographical location, environment and disease (Joy & Payne, 1975; Payne, 1982).

In terms of class structure, the inequality of resources, social discrimination, poor housing and sanitation, taken together, contribute to malnutrition. When Levinson (1974) made a comparison, in the Punjab, between children from landless families and children from households owning some land, it was found that proportionately three times as many children in the landless group were below 60% of the standard weight for age. As Payne (1985) points out, the population group covered by this survey consisted of not only farmers and labourers, but also of some people with 'service jobs'. 'Seasonal fluctuations in work load could be very different in the pressures on mothers' time and consequent variations in the feeding of young children.' This illustrates the importance of being able to recognise the socio-economic differences between the occupational groups.

When taking into consideration the housing conditions of families and classifying some as 'poor', we are basing our judgement on their lack of certain basic facilities, e.g. adequate protection from an adverse environment, pure fresh water in continuous supply, adequate sanitation and refuse disposal. The absence of any of these enhances the risk of parasitic disease and diarrhoea, particularly in young children (Latham et al, 1983). Overcrowding, which is a feature of low income groups in Costa Rica (Hall, 1984), overstrains the basic facilities of the households, thereby increasing the risk of disease in its members, in particular the younger members. The FAC Report (1977), when commenting on the incidence of malnutrition, states that 'weight-for-age deficit is more related to infection than to diet.'

Even where the mother is able to provide an adequate diet for her young offspring, problems can arise. Other demands on her time may make it impossible for her to provide the frequent meals necessary for the very young, or have fresh food for each meal. (Food prepared in advance but then inadequately stored encouraged bacteria multiplication and, in consequence, disease (Khan, 1984).)

Seasonality of the food supply, a major problem in Third World countries, is a primary cause of undernourishment in mothers and malnutrition in children (Paul et al, 1979; Valverde, 1980; Rowland et al, 1981; Prentice et al, 1981; Roberts et al, 1982; Lopez de Piza,

1983). In Costa Rica the groups of people who face the most severe problems, with regard to malnutrition, are not only the workers and their children in the sugar, banana and coffee plantations, but also workers in the tertiary sectors in the urban areas. The latter is due to the temporary nature of their work which is tied to the plantation crops and to the system of employing factory workers on a three-monthly basis and then making them redundant. When they are re-employed, it is again as 'temporary workers', which means that their employers are not liable for 'worker's insurance'. This is why the problems of adequate nourishment of the young are not confined to the rural areas.

Lack of remunerative employment at certain times of the year, coupled with the higher market process of food stuffs which are out of season, is reflected in the seasonal increase in the malnourishment of children (Devkota, 1981; Rickelton, 1981). In these periods malnourishment is not confined to children. Their mothers, due to the ideology of mother as the martyr in which Roman Catholics seek to emulate the sacrifices made by the Virgin Mary for her Son, feed themselves only with food which remains after feeding the men and the children (Lopez de Piza, 1979). There are many references in the literature for this practice, e.g. Christians in Guatemala (Valverde, 1979) and India (Prentice et al, 1981).

The causes of malnutrition are therefore multi-

factorial. However, for a better understanding of the problem it is necessary to examine the situation at household level, taking into consideration social and biological variables.

4.04 ANALYSING MALNUTRITION AT THE HOUSEHOLD LEVEL

The importance of socio-economic differences between households is complementary to an understanding of the casual processes operating within the household (Payne, 1985). The household's demographic expansion, as more and more children are born and reach maturity, directly affects the food supply. In Costa Rica, during the first year or two of marriage both parents are usually able to contribute in labour or other economic activity. Earning or production capacity will then be high in relation to the number of household members to be supported, and the economic dependency ratio is low (Lipton, 1983). However, things may become more difficult as the number of children increases, particularly if and when they are at school. Later, as the children take on more and more work, the economic burden carried by each working household and the number of workers necessary to support that household are, therefore, constantly changing through time.

Statistical analysis must be capable of accommodating several variables. For this study biological and social variables were selected, for discriminant analysis. These variables were selected because they had

been found by nutritionists and social scientists elsewhere to be relevant to studies of nutrition, and the results can be compared with nutritional surveys at national level in Costa Rica.

In 1973 the results of a national census made it possible to identify a great many occupational groups, and when this was followed by a nutritional status survey it was possible to see that certain groups of people faced quite severe problems. Among these were labourers in sugar and banana plantations, and farmers growing basic grains and coffee. By contrast, cattle farmers and dairy workers appeared to face few nutritional problems (Payne, 1985). However, these surveys, while providing valuable information, did not take into consideration the situation at household level and the fact that people were not permanently occupied, but did a variety of jobs, part-time work and seasonal work in both rural and urban situations. This reality became obvious when the field work for this study was completed.

4.05 FOOD REQUIREMENTS OF CHILDREN

Young children require relatively large amounts of dietary energy. A one year old child is one-fifth the weight of an adult, but his/her energy intake will be about half the adult level. The young child somehow has to take in a relatively large amount of food. Much depends on the frequency with which a child is fed and on the amounts

of milk he/she is given. The factors associated with a good energy intake in children under two years old are:

1. Breast-feeding while other foods are introduced.
2. Three or more non-breast feeds per day.
3. A good appetite - showing absence of infection.

(Ruttishouser, 1974)

It is of critical importance that the mother, or whoever cares for the child, should have sufficient time in the working day to feed and, in some cases, to prepare special items for him/her, because even though the family diet may have a good nutritional value, some nutrient-rich items may be too difficult for very young children to handle.

The high growth rates and high relative energy needs of young children require frequent concentrated feeds, yet the lifestyle of many poor families makes this extremely difficult to achieve, especially in seasons when work is highly intensive (Wheeler, 1982).

Therefore, there are many factors affecting the nutrition of young children, including: the inequality of resources, conflicting demands on their mother's time, lack of opportunities for employment, low wages, poor housing and bad sanitation.

4.06 NUTRITIONAL CONDITION OF THE POPULATION STUDIED

In this chapter, the anthropometric data obtained

from children under 13 years of age in the populations under study are taken together with certain blood biochemical tests and the measured food intake of selected households, in order to ascertain the nutritional status of both populations. The intention was to use data, obtained from different sources, to crosscheck for validity and seek an anthropological interpretation.

A classification of the nutritional status of children in both populations under study is shown in Table 4.03:

TABLE 4.03

NUTRITIONAL STATUS OF CHILDREN*
(Waterlow's Classification)

Classification	Santa Barbara (Rural)		Hatillo (Urban)	
	No	%	No	%
Normal	50	42.7%	47	38.5
At Risk	5	4.3	9	7.4
Wasted	7	6.0	10	8.2
Stunted	52	44.4	45	36.9
Malnourished	3	2.6	11	9.0
Totals	117	100.0	122	100.0

* Children under 13 years of age

Table 4.03 shows that severe malnutrition is greater in Hatillo - the urban zone. The most significant feature in the table is the high percentage of children in both rural and urban populations who are stunted. This could be due to prolonged periods of low food intake in the past. (Joy and Payne (1975) state that 'stunting' affects 60.9% of children in developing countries). This may be the result of fluctuations in the economy of the households and/or the frequency of non-chronic infectious disease,

mainly diarrhoea and upper-respiratory tract infections.

According to national statistics, the degree of malnutrition in Costa Rica is 38.6%. This figure refers to children under 4 years. In this study, all children under the age of thirteen years are taken into consideration because, by Costa Rican law, children under the age of 12 years can obtain work permits, so under that age they are considered by law as children. By taking a larger age group, it is easier to follow the growing process and detect stunting.

By combining the groups from Table 4.03 - wasted, 'stunted' and 'malnourished', we can see that 53% of the children surveyed in Santa Barbara and 54% in Hatillo suffered some degree of malnutrition.

It should be recalled that the study began with groups of children identified from CEN records as 'well nourished' and 'malnourished', in Santa Barbara and Hatillo: the case-children'. On re-evaluation of the 'case-children' nine months later, the following results were obtained:-

1. In Santa Barbara, where the 22 children who were classified according to CEN as 'malnourished' were measured again using Waterlow's classification nine months later, 13 were 'adequate', 5 were 'stunted' and 4 were 'wasted'. Using the weight-for-age index alone (CEN criteria) 17 out of the 22 were 'adequate' and 5

'deficient'.

2. In the case of the 21 originally 'well-nourished' in Santa Barbara (CEN), 8 remained the same, 9 became over-weight and three were stunted. These last seem to illustrate the speed of changes of nutrition, but may cast doubt on the measurements of the CEN.
3. In 22 malnourished children from Hatillo, after nine months, 11 were 'adequate', 6 were 'stunted', 2 were 'wasted', 2 were 'malnourished' and 1 'at risk'.
4. With the 20 'well-nourished' children in Hatillo (CEN), 13 continued to be the same, 4 were over-weight, 1 was 'stunted', 1 was 'wasted' and 1 'at risk'. The weight for age index was low in 9 cases in this group including 1 who previously was considered to be 'normal'.

It is likely that these important variations were due to the mother's awareness that the case-child was under observation, and, therefore, special attention might have been paid to these children. Despite the existing nutritional differences between households whose case-child had been considered 'malnourished' and those whose case-child had been 'normal', the differences overlapped considerably. In other words, there were no

clear differences between households on 'normal' and 'malnourished' children. That is why it was necessary to consider all children, under 13 years of age, in the household. A new index and a new classification were, therefore, developed (see Chapter 3).

Anthropological intervention could be considered as assisting public health programmes as during this study more children became breast-fed and, thus, better nourished.

In Principal Component Analysis (PCA) described in Chapter 3, the nutritional status at household level was:-

TABLE 4.04

NUTRITIONAL STATUS AT HOUSEHOLD LEVEL

Classification	Santa Barbara households	Hatillo households
Adequate	18	13
At Risk	13	15
Deficient	12	14
TOTALS	43	42

According to these classifications, the rural area has more households with all children 'adequate' (well nourished) than in the urban area of Hatillo. In Santa Barbara the population is more homogeneous and they have a longer history of settlement and are better adapted to the environment than are the people in Hatillo. In the latter

place the households are more economically differentiated and with a greater number of poorer people than in Santa Barbara. In Hatillo, there were seven households whose children were severely malnourished (2nd degree), and had problems related to recent migration to the city - lack of support of an extended family and law breaking (stealing, selling marihuana etc.).

In Santa Barbara only the first degree of malnutrition was found even in families where there were a large number of small children and, therefore, high dependency ratios.

In both populations the number of households with children 'at risk' were similar. With improvements in their diet these children should thrive and, therefore, leave this category. However, if their situation does not improve, they will become susceptible to disease and their growth restricted.

4.07 FOOD PATTERNS

Recording the basic diet of these two population groups, adds one more element in determining the adequacy of reproduction of the households. By analysing their food habits, it is possible to see how they fulfil the requirements for an adequate diet.

Figs 4.01 - 4.03 show the foods consumed in these populations and the percentage of consumption by the households. The foods consumed daily by the population

were rice, beans, bread, coffee, fats, sugar and pasta. This diet is based mainly on carbohydrates, with very little animal protein: meat, eggs and milk were consumed by less than 60% of the population and only 20% consumed them every day.

The foodstuffs consumed daily were similar in Santa Barbara and Hatillo. However, some foods were consumed once or twice a week, with a higher frequency in the urban zone (Fig 4.02). This includes the consumption of meat, eggs, vegetables and fruit, which indicates a richer and more varied diet in the city. The less well fed families have similar dietetic pattern but consume smaller amounts. The reason for this is not a lack of knowledge, as dietary instruction is given by CEN (Health and Nutrition Centres) as part of the supplementary food programme, but a lack of the necessary resources.

A low protein and high calorie diet characterise the Costa Rican dietary pattern; nevertheless, it is dietetically adequate and, therefore, there is a relatively low index of malnutrition. This monotonous diet was introduced to the Caribbean countries at the same time as sugar-cane and coffee crops which absorbed most of the workforce. 'Depeasantisation' and the loss of land caused the abandonment of traditional crops, so that the food habits bear no relationship to the local ecological potential. The dietary food pattern was based on rice, a high calorie and low cost product, which, at that time, was imported from the south of the United States and

Figure 4.01

Daily food pattern of households of Costa Rica. Rural and urban distinguished

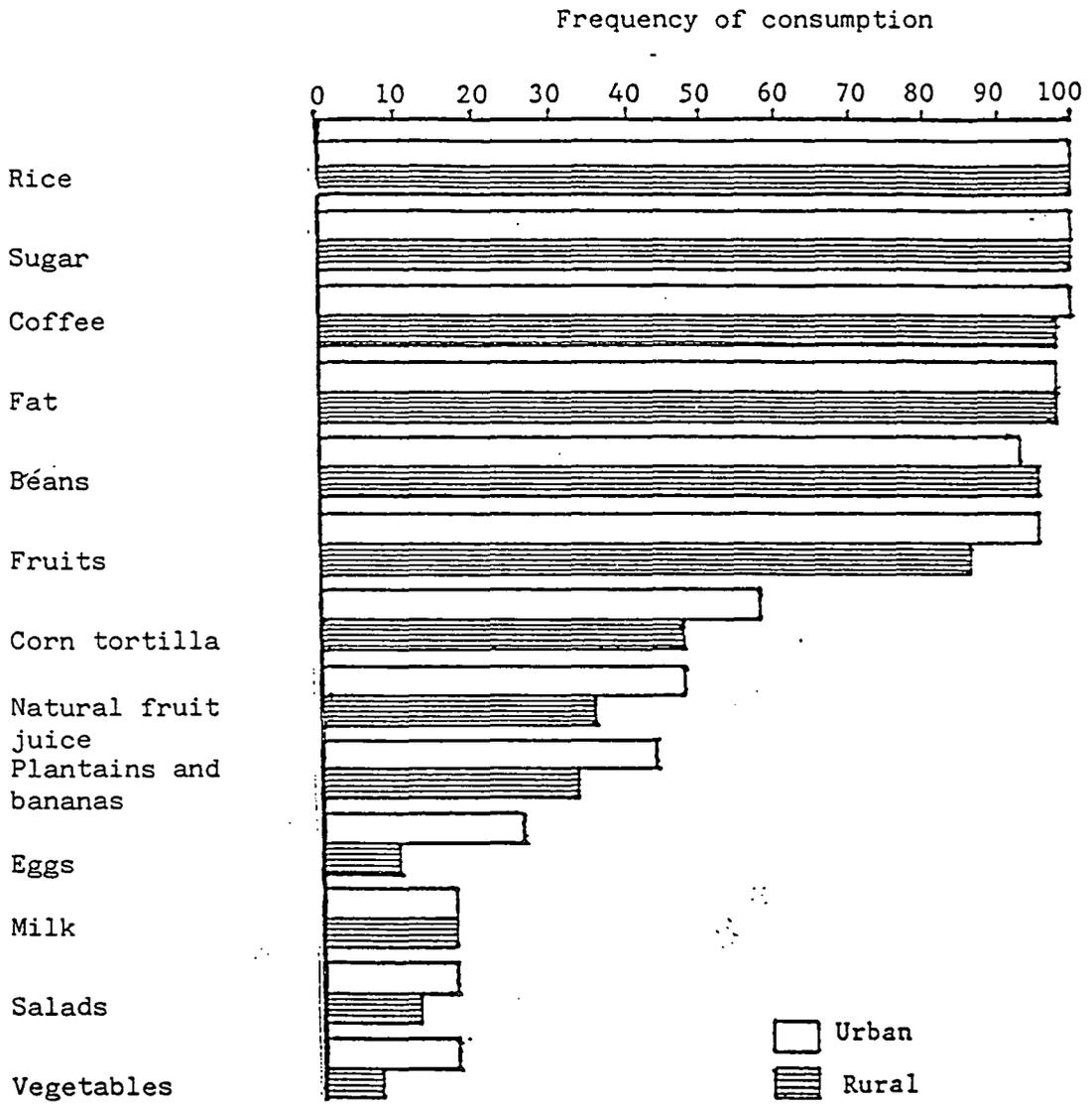
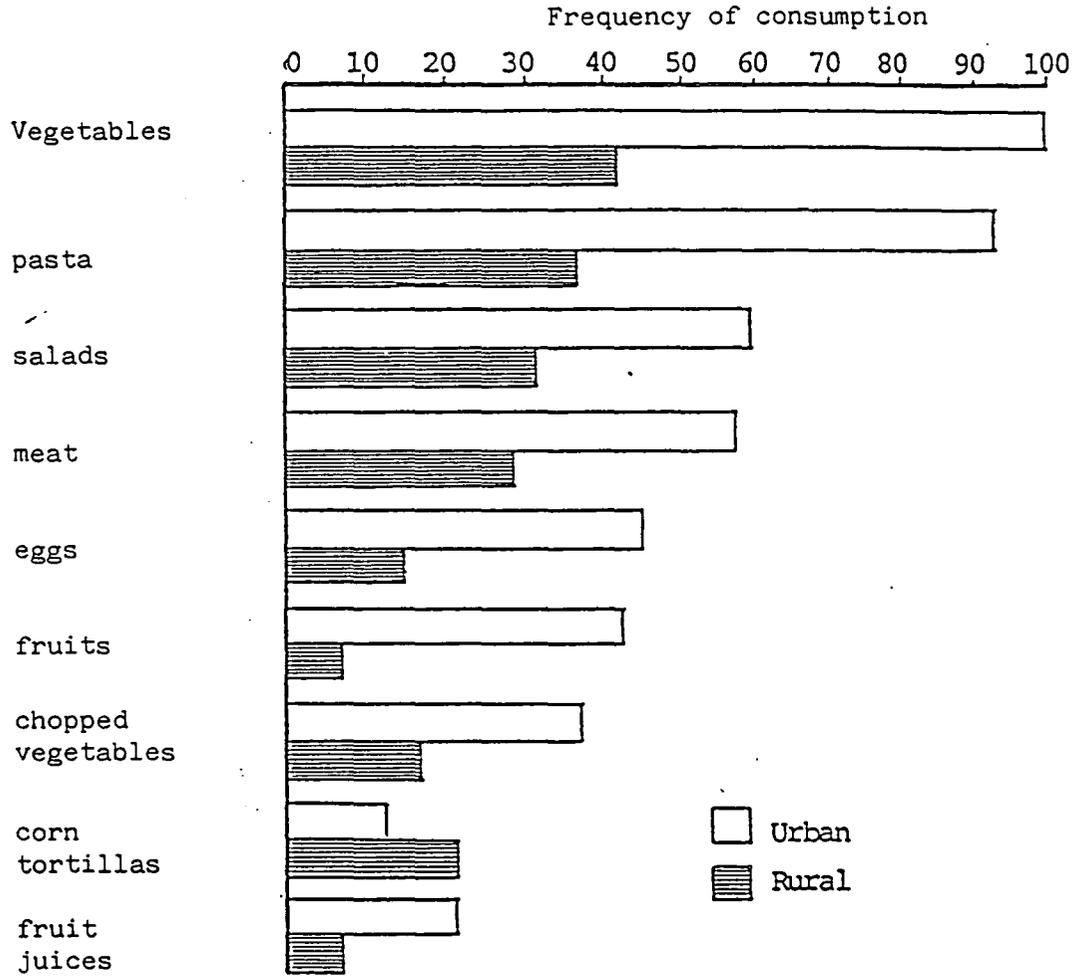


Figure 4.02

Weekly food pattern of Households, rural and urban

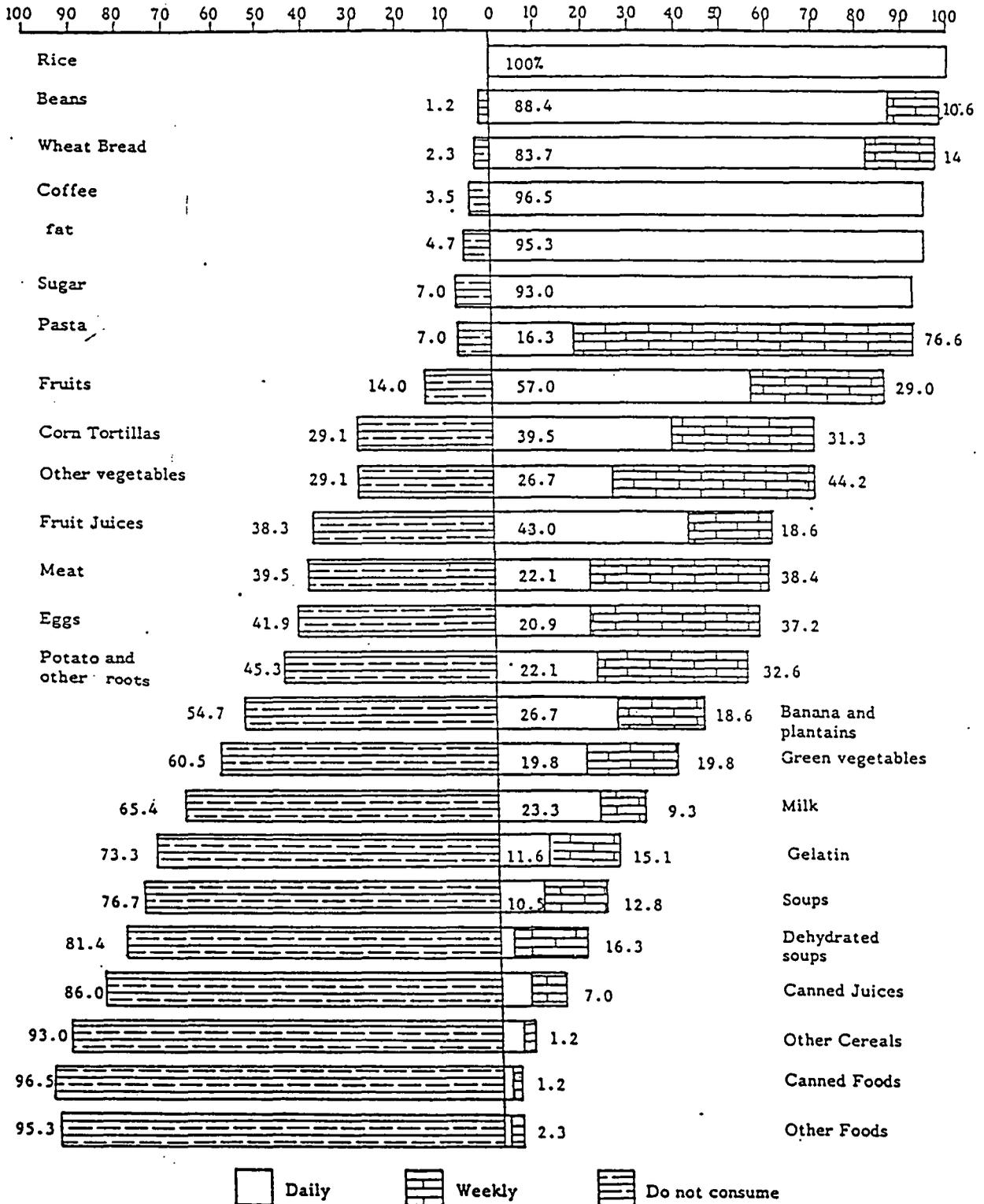
Weekly consumed
foods



Foods eaten once or more in a week

Figure 4.03

Food pattern of 85 Households, rural and urban



combined with locally produced beans. This diet was imposed on the slaves in the plantations of Cuba, and has been called 'the slave diet' (Villapol, 1978).

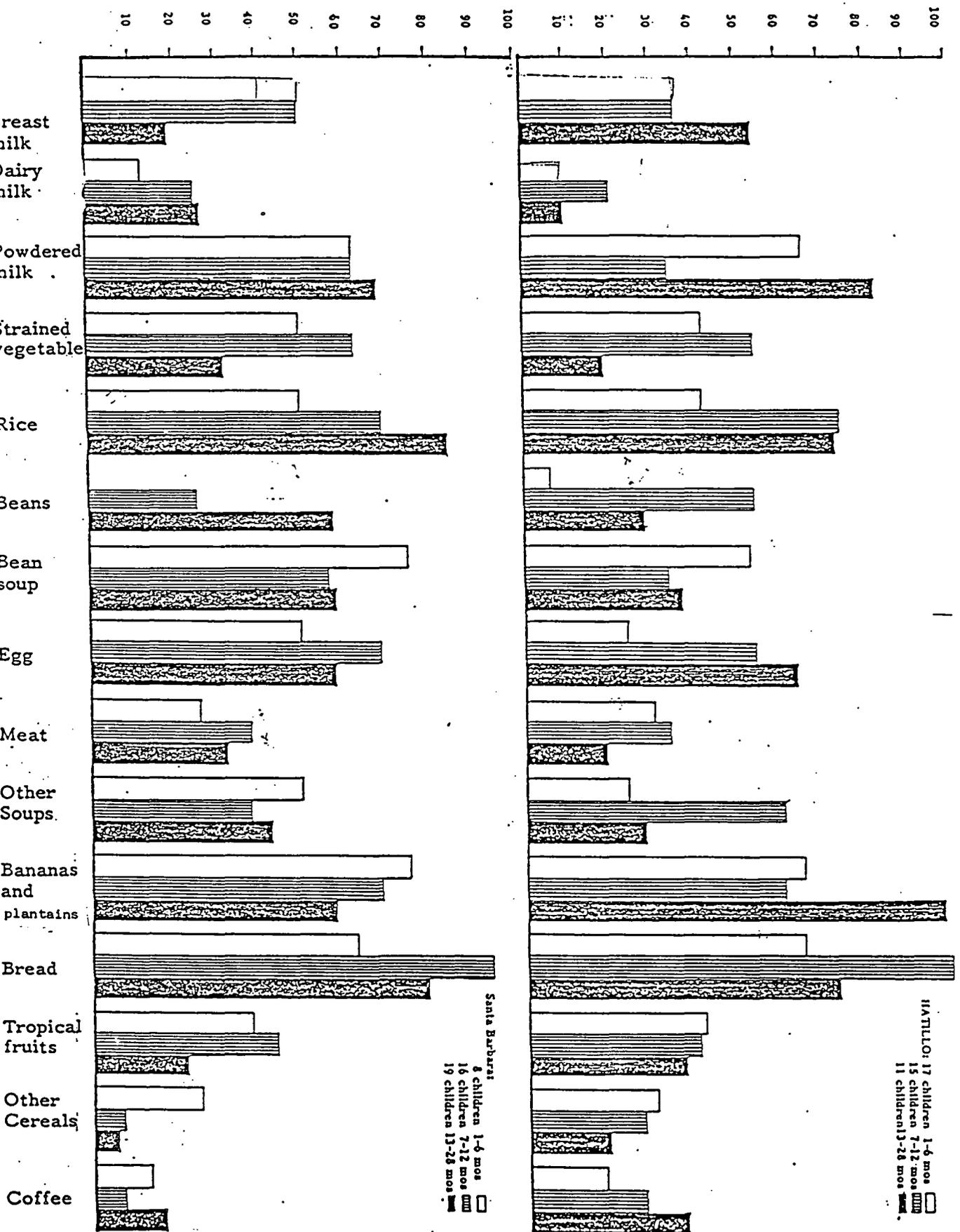
4.08 BREAST FEEDING

From Fig 4.04 it can be seen that 50% of children under 6 months of age in Santa Barbara and 35.8% in Hatillo were breast-fed (including those whose mother did so under pressure of this research). Breast-feeding is a 'lost habit' in Costa Rica, the main reason being that women have to work in the harvest season. This is part-time or full-time work which requires them to migrate to various locations on the Meseta Central and it is not possible for them to take their babies with them. There is a lack of nursery facilities in the countryside and in urban areas. (Recently, social security payments have been made for the first four months for lactating mothers).

4.09 FOOD PATTERN OF CHILDREN UNDER 28 MONTHS

The food pattern of young children can be examined using the same Fig 4.04, which shows that some type of milk is given to nearly all of these children. This is mainly powdered milk, which is supplied free by the government to the lower-income families. (There are three government agencies which give assistance to children of lower-income families:- CEN (Centre for Education and

Percentage



Nutrition; these provide hot and cold meals for children); CE (dining halls in the primary schools) and CINAI (centres for nursery and creche provision). Eggs are given to these children more often than to the rest of their family. This is part of the tradition of Costa Rica, of taking special care of the children; perhaps because the household will provide the future labour force or human capital in a society where labour is scarce. Apart from milk and eggs, the diet of these children is similar to that of older children and adults.

4.10 DIETETIC INTAKE

The subsample for dietetic intake comprises 15 households in Santa Barbara and 14 in Hatillo. In the rural area there were 5 'adequately nourished' households, 3 'at risk' and 7 'deficient', according to the classification obtained by the PCA. In Hatillo, 3 were 'adequate', 5 'at risk' and 6 'deficient'. On Figs 4.05, 4.06, the percentage of requirements consumed is shown, comparing the 6 groups mentioned for nine elements evaluated. All elements were ingested at a more adequate level in the city. In both localities there was a lower food intake in the 'deficient' households compared to 'adequately nourished' and 'at risk' households. The only difference between 'adequate' and 'at risk' households was a lower intake of retinol in the latter.

For this analysis, an intake over 90% of the quantities recommended by INCAP was considered to be adequate. Very few households fulfilled the requirements for energy, niacin, iron and retinol. Figures 4.05 and 4.06 show the adequacy of ingestion of nutrients. A consumption of 50% or less of requirements was considered as severe deficiency, between 50-90% as a moderate deficiency and 90% over as adequate. In the urban zone there was a severe deficiency of niacin, iron and riboflavin in over one third of the households. In the rural households the diet was more homogeneous, with less households exceeding the recommended amounts and very few with a severe deficiency. Both populations show a lack of niacin, which is probably caused by the traditional practice of removing of the shells of the maize seeds.

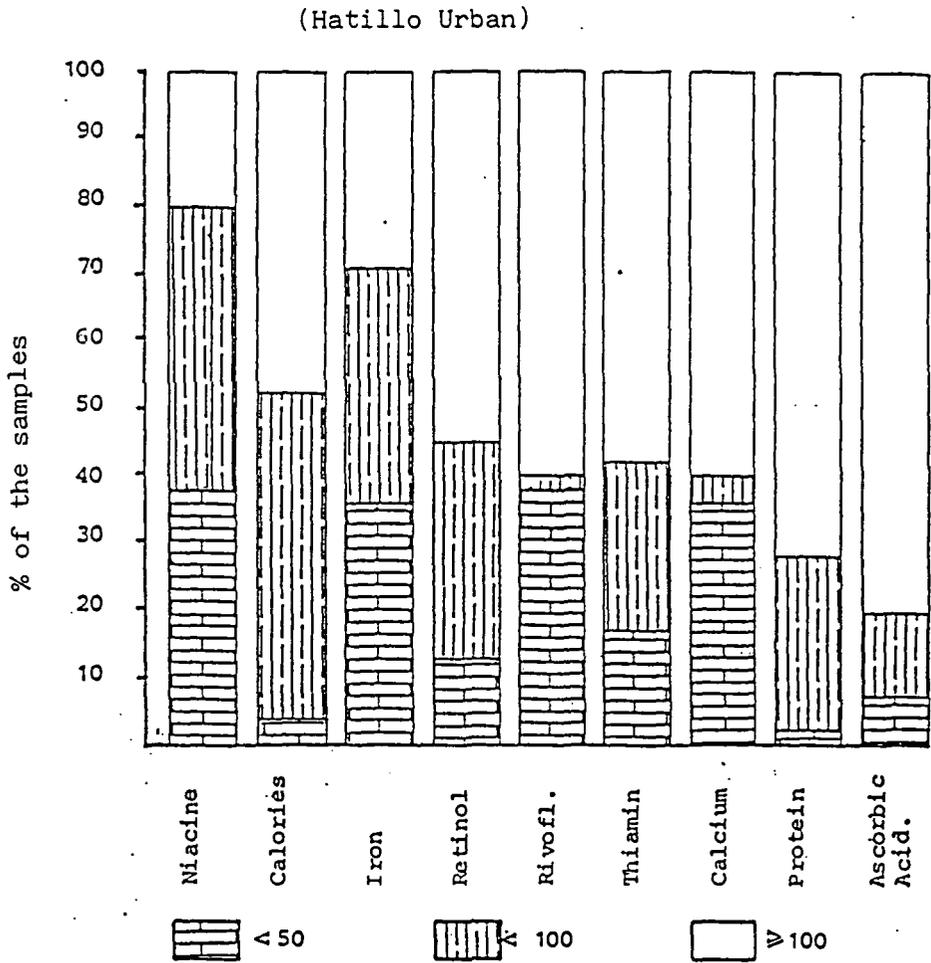
Food intake evaluation is a very expensive technique, which provides information for only one day. Since there is a fluctuating and changing diet, because of equally variable socio-economic conditions in low income households, this method of food evaluation must be complemented by a careful exploration of food habits.

4.11 PERCENTAGE OF ADEQUATE OF FOOD INTAKE AT HOUSEHOLD LEVEL

Table No.4.05 and 4.06 show the percentage of food requirements met in food intake per household in urban and

Figure 4.05

Percentage of Daily Intake of Nutrients (as compared with INCAP recommendations)

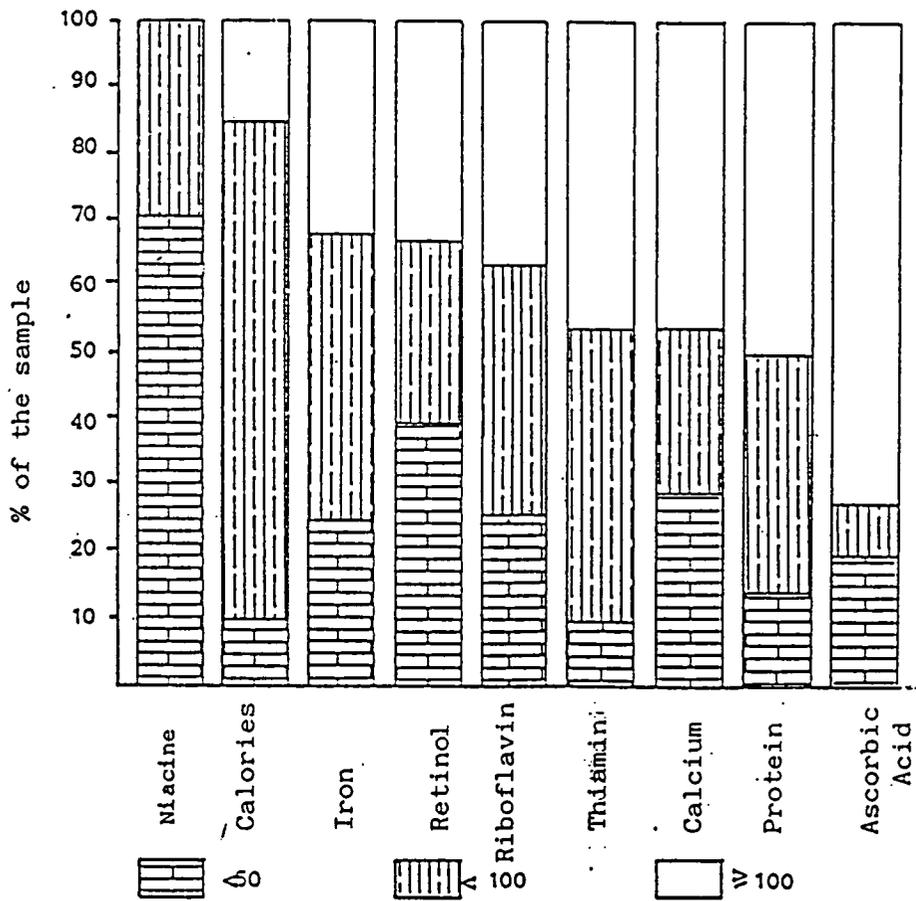


100% = Incap recommendations for daily intake

Figure 4.06

Percentage of Daily Intake of Nutrients (as compared with INCAP recommendations)

(Santa Barbara rural)



100% = Incap recommendations of daily intake

rural populations in the Meseta Central, Costa Rica. The findings of the analysis of direct weighing and food intake support the anthropometric and biochemical findings, with the exception of the amount of ascorbic acid present. All the household members were aware that these experiments were being performed and this could have influenced the behaviour of the members, in particular with regard to food intake. However, only very few households could change the food patterns voluntarily, as most were too poor to increase their food intake from choice. The differences in the results obtained from households in the same neighbourhood indicate a lack of homogeneity.

4.12 ENERGY AND PROTEIN

Thirteen households fulfil the requirements of calories and proteins, according to INCAP recommendations; the other sixteen households fall far below the necessary requirements. Therefore, the diet is insufficient for more than half of the subsample of households studied.

In both tables it will be seen that the ascorbic acid intake was very high in all households. Consumption of fruit was underestimated in the responses to the questionnaire. The fruit picked by the children from the fences in the rural area and that given to them by the fruit sellers in the urban market place were not considered as 'food consumed', because they were

non-purchased items and freely obtainable. However, very small children cannot obtain these for themselves.

4.13 IRON

From Tables 4.05 and 4.06 it can be seen that there is a shortage of iron in the diets of the households studied. This explains the high percentage of persons with anaemia found in the households in both rural and urban populations.

4.14 PROBLEMS WITH 'AVERAGE' LEVELS IN SURVEYS

When comparing Figures 4.05 and 4.06, which show the percentage of food requirements met at the household level, in Santa Barbara and Hatillo, with Tables 4.06 and 4.07, which give details for individual households, we can see that the 'average' figures in Figures 4.03 and 4.04 mask the reality of the situation. Very high values offset extremely low ones; for example, household no.26 with a high calorie level of adequacy of 157.74 and a protein level of 245.63 masks household no.32 which has levels of only 62.37 and 82.13 respectively. This shows the necessity of examining the situation at the individual household level, rather than accepting 'average' figures as representative of the whole population. National average statistics should be treated with caution, as they could hide the true situation, especially in countries with a wide range of inequalities, as in underdeveloped countries.

4.15 VARIATION IN FOOD INTAKE AND NUTRITIONAL STATUS IN CERTAIN HOUSEHOLDS IN HATILLO AND IN SANTA BARBARA

The Tables 4.05 and 4.06 include households where there seem to be discrepancies between the nutritional status, according to PCA classification, and the food intake figures for one day's consumption. For example, households nos. 26 and 39, in Hatillo, while classified as 'at risk' on the basis of the children's physical condition, nevertheless, on the day when they had their food intake measured, had a good percentage of adequacy for diet. The reason for this was that both these households had a high dependency ratio -1/6 - but were able, on occasion, to purchase meat as on the survey day. The father of household no. 26 was a skilled worker, but, nevertheless, his salary was insufficient to support his household; the father of household no. 39 had two jobs - night-watchman and, during the day, brick-layer - but his income was insufficient for a good food intake for his household.

In Santa Barbara, household no. 49 is classified as 'at risk', but nevertheless, on the day of the survey of the food intake, had adequate food. Their dependency ratio was 1/3, but the mother is very young - 17 years, and had, only recently, left the parental home and was finding it difficult to manage her new household. Her baby was too young for her to leave in order to seek work. Her husband was a building labourer, aged 22 years, whose salary was

Table 4.05

SANTA BARBARA - Rural situation : subsample

Percentage of Adequacy in Diet
(in accordance with INCAP recommendations)

Household Number	Nutritional Status of Household	Dependency Ratio *	Calories	Protein	Calcium	Iron	Retinol	Thiamine	Ribo-Flavin	Niacine	Ascorbic Acid
01	Deficient	2/6	78.75	70.15	38.25	53.81	35.76	73.33	56.76	33.47	212.22
06	Deficient	2/8	51.98	43.17	66.61	43.30	56.25	53.28	51.48	29.82	282.73
09	Adequate	1/3	91.49	93.65	238.90	52.26	79.05	70.00	160.00	48.19	702.00
11	Deficient	3/11	69.49	80.50	51.72	93.63	05.76	96.10	34.92	45.36	750.00
17	Deficient	8/14	44.81	59.87	117.33	21.77	21.80	36.33	82.25	22.79	39.00
19	Deficient	1/5	61.20	97.87	247.72	44.17	56.12	79.29	157.11	27.62	327.73
20	Deficient	5/9	64.97	73.35	79.67	75.58	11.81	103.08	42.39	39.46	84.44
22	At Risk	1/3	104.72	141.09	150.89	87.06	38.29	94.80	86.36	82.66	137.50
45	Adequate	1/3	138.31	185.37	225.25	116.63	193.50	109.75	164.55	71.66	246.67
48	Adequate	1/3	105.54	101.16	175.55	65.39	100.82	123.00	208.57	79.30	494.00
49	At Risk	1/3	131.41	133.33	103.67	120.45	45.67	126.43	100.79	87.56	250.00
50	Adequate	1/6	80.89	114.00	74.57	86.12	124.16	74.08	64.18	68.99	349.29
62	Deficient	9/15	55.21	73.30	71.96	47.62	20.51	83.10	81.95	26.04	181.57
63	At Risk	1/5	87.15	102.46	199.15	76.27	90.65	120.25	104.91	63.24	250.00
64	Adequate	4/5	165.25	190.96	119.90	139.40	126.58	136.00	92.55	83.84	619.00

* Ratio producers within household consumers

Table 4.06

HATILLO - Urban situation : subsample

Percentage of Adequacy in Diet
(in accordance with INCAP recommendations)

Household Number	Nutritional Status of Households	Dependency Ratio	Calories	Protein	Calcium	Iron	Retional	Thiamine	Ribo-flavin	Niacine	Ascorb Acid
24	At Risk	1/5	115.59	171.54	368.11	36.93	260.73	109.17	300.94	54.70	185.55
26	At Risk	1/6	157.74	245.63	272.86	136.42	105.48	132.50	220.19	110.65	275.71
32	Deficient	4/12	62.37	82.14	60.48	80.48	33.55	63.33	46.17	38.15	137.78
39	At Risk	1/6	117.12	175.24	345.16	127.13	103.40	211.19	191.72	60.12	132.50
42	Deficient	3/9	108.13	113.04	52.95	41.67	92.23	71.04	60.30	91.35	156.11
66	Adequate	1/3	106.32	143.02	53.66	97.30	50.04	120.61	50.89	122.77	375.58
71	Deficient	2/9	119.36	175.00	227.55	104.38	40.44	141.60	162.29	66.86	128.75
74	Adequate	4/9	61.77	81.66	68.94	41.24	18.76	39.05	56.61	55.47	53.57
75	At Risk	1/6	70.97	71.54	95.03	60.79	54.82	56.53	65.37	44.32	388.57
76	At Risk	4/10	87.01	84.47	129.47	50.51	74.18	63.23	70.93	58.36	210.00
77	Deficient	1/7	77.20	108.12	169.41	59.71	23.81	90.21	101.06	76.95	118.57
79	Deficient	1/5	96.12	74.65	30.78	84.61	94.24	71.94	47.20	56.28	213.33
84	Adequate	1/6	116.68	176.53	274.45	98.69	761.92	141.32	291.57	97.70	293.64

very low.

From the information obtained from the study of adequacy in the diet of the households, it can be deduced that the main deficiency in the household diet is one of iron. Traditional diets are weak in vegetable sources of iron. Meat, which could supply their needs, is expensive to purchase and, therefore, is usually beyond their means. The biological situation thereby reflects the social situation. All these people belong to the lowest income group in Costa Rica. They all share one thing in common, which is poverty. However, there is a range of differences between households in income and the number of persons dependent on that income. These people have to spend approximately 80% of their income on food (Mideplan, 1984) and, therefore, small differences in income can result in them having well nourished or malnourished children.

4.16 IRON NUTRITION IN SANTA BARBARA AND HATILLO

Deficiency of iron is found frequently in low income groups in Costa Rica (Flores et al, 1984). Haemoglobin corpuscular concentration reflects long term iron deficiency, usually to a severe degree. Standard values for haemoglobin and haematocrit vary in accordance with age, sex, sexual maturation and other physiological conditions, such as pregnancy. Moreover, its values depend on the altitude above sea level, increasing 4% every 100 metres (Garn, S.M. 1981). The iron binding protein,

ferritin, is found in plasma according to the iron reserves and a value below 10 micrograms indicates a depletion of these, due to low iron ingestion or blood loss. Values between 10 and 20 micrograms are considered as moderate depletion, or at risk of iron depletion. Since this element varies proportionally to iron ingestion, its value was plotted as one indicator of nutrition (in this case iron nutrition) without establishing 'normal' limits and groups of 'adequate', 'at risk' and 'deficient' children. The same treatment was given to other laboratory parameters, mainly haemoglobin, haematocrit, albumin and zinc (see Chapter 2).

Mean haemoglobin corpuscular concentration (haemoglobin/haematocrit x 100) values are low in iron deficiency anaemia, whereas they tend to be normal or high in anaemia due to other causes. In this investigation, haemoglobin, haematocrit, mean corpuscular haemoglobin concentration (MCHbC) and ferritin were measured in order to evaluate their correlation with anthropological and socio-economic data and their importance as predictors of the nutritional status of the household as well.

Table 4.07 shows more severe degrees of iron deficiency in Hatillo which correlates with the anthropometric data of malnourished children. Iron depletion was found in both populations. This finding supports the results of Food Intake Analysis.

4.17 PLASMATIC PROTEINS

The plasmatic proteins are made up of a combination of proteins of different composition and function. Of these proteins, albumin is the major component and the protein determines, in a higher proportion, the osmotic pressure of plasma and serves as a vehicle for transporting this substance and for many others such as bilirubin. On the other hand, globulins are made up mainly by antibodies (gamma globulins) and other proteins, such as alphas antitrypsin, whose functions and variations are less well known. The concentration of albumin in plasma reflects protein ingestion at a short term and has been used extensively as a laboratory nutritional indicator. Serum albumin falls before any detectable change in anthropometric measures, when there is protein deficiency. This is not a good indicator for medium or long term iron deficiency. Protein energy malnutrition with oedema (Kwashiorkor) is characterised, among other things, by a low albumin concentration, and this has been proposed as the main cause for nutritional oedema. 'Normal' values were not established for this study. Albumin concentration was plotted against the three groups of households with 'adequate', 'at risk' and 'deficient', in order to corroborate the adequacy of the groups.

The values for globulins depend on other factors independent of the nutritional status. Gamma globulin increases with repetitive or chronic infections and higher

TABLE 4.07

NUMBER & PERCENTAGE OF CHILDREN WITH LOW VALUES OF
HAEMOGLOBIN, ZINC, ALBUMIN AND FERRITIN
RURAL AND URBAN GROUPS OF MESETA CENTRAL

	HAEMOGLOBIN less than 11 g/dl		ZINC less than 0.7 ng/dl		ALBUMIN less than 4.24 g/dl		FERRITIN less than 11 ng/dl	
	No	%	No	%	No	%	No	%
RURAL	12	16	3	4	43	57	25	33
URBAN	23	33	2	3	44	63	23	33

values may be expected in children of the less privileged social groups who are exposed to a large number and more frequent infectious diseases (Mata, 1984).

Table 4.07 shows protein deficiency to be greater in the urban zone, correlating with malnutrition.

4.18 PLASMATIC ZINC LEVEL

Zinc levels were estimated because a low level of plasmatic zinc limits the normal growth. Low values of zinc in the plasma have been found in the United States in 'stunted' children of low social economic strata. However, Flores (1985) reported higher values in malnourished children in Costa Rica. The significance of this element in nutrition is not fully understood and requires further investigation. However, very few children had low values of zinc in the population studied (Table 4.07).

4.19 DISCRIMINANT ANALYSIS

For discriminant analysis certain variables were considered to be relevant for this study. These were: number of self-employed in the household; number of persons living in the household who are skilled workers; number who are wage workers; number who earn money for the household (producers); number of members of the household who consume but do not produce income (consumers); monthly income of the household; monthly expenditure of the household; time spent in domestic labour by mother (EGO);

time mother spends in remunerative work; number of children in the household with inadequate levels of the following: haemoglobin, concentration of corpuscular haemoglobin, haematocrit, zinc in plasma, plasmatic proteins, albumin and ferritin.

The Discriminant Analysis¹ selected from the variables detailed above, the following variables for Santa Barbara: number of self-employed, number of skilled workers, number of producers, number of consumers, monthly income, monthly expenditure, EGO's remunerative work, concentration of corpuscular haemoglobin, haematocrit and albumin. The 'predicted group membership' was 'adequate' - 84.6%; 'at risk' - 66.7%; 'deficient' - 80%; with a Canonical Correlation of 0.894 (see Appendix III).

The variable finally selected by Discriminant Analysis for Hatillo were: number of self employed, EGO's remunerative work, number of producers, number of consumers, monthly expenditure, concentration of corpuscular haemoglobin, protein and ferritin. The 'predicted group membership' was 'adequate' - 66.7%, 'at risk' - 70%, 'deficient' - 100%; with a Canonical Correlation of 0.836 (see Appendix III).

Explanation of these results:

Number of self-employed:- This variable is selected for both groups. This is significant because certain households had their own economic enterprise, which provided them with an additional source of income.

Number of producers and number of consumers:- taken together these measure the dependency ratio. Again they were selected for both groups. A high dependency ratio often results in malnutrition in poverty (Lipton, 1983).

EGO's remunerative work (selected for both groups):- this may be another source of income for the household, although it could be the sole source of income for the household.

The anthropometric variables selected differed between the groups. In Santa Barbara the analysis selected children with low levels of haemoglobin, haematocrit and albumin in their blood - these reflect short-term iron and protein deficiency. In Hatillo the elements selected were plasmatic proteins and ferritin, which reflect long term anaemia and low protein intake. These findings again reveal the presence of more severely malnourished children in the urban zone (Hatillo); with long term anaemia and loss of iron reserves. The short term deficiencies of iron and protein in the rural zone (Santa Barbara) portray less severely malnourished children than in the urban zone.

Monthly income and expenditure were both selected for Santa Barbara, but monthly expenditure only for Hatillo. The reason for this difference was that Santa Barbara is a rural zone and there the household income comes from two sources - monetary (salary) and kind; whereas, in the urban zone of Hatillo, the household income is solely monetary (salary).

These variables represent factors contributing to the nutritional status of children in the households and show that social and biological factors are interrelated. The results of this analysis confirm the anthropometric, food intake and blood test findings.

TABLE 4.08

VARIABLES SELECTED BY DISCRIMINANT ANALYSIS OF HOUSEHOLDS

SANTA BARBARA		HATILLO	
<u>Variable</u>	<u>Description</u>	<u>Variable</u>	<u>Description</u>
	(see Appendix III)		
VV04	No. of Self-employed	VV04	No. of Self-employed
VV06	No. of skilled workers	-	
		VV07	No. of members with Remunerative work
VV09	No. of Producers	-	
VV10	No. of Consumers	VV10	No. of Consumers
VV12	Monthly Income	-	
VV13	Monthly Expenditure	VV13	Monthly Expenditure
VV15	EGO's Remunerative work	VV15	EGO's Remunerative work
VV22	Low conc. Corpuscular Haemoglobin	VV22	Low conc. Corpuscular Haemoglobin
VV23	Low Haematocrit	-	
VV26	Low Albumin values	VV25	Low Protein values
		-	
		VV27	Low Ferritin values

4.20 NUTRITION IN CONTEXT

The results obtained in this study show variations in living conditions which relate to seasonality. However, the relatively low frequency of severe malnutrition, wasting and stunting in Hatillo and Santa Barbara are proof of a relatively good reproduction of this

population. At the same time, the deficiencies detected the full realisation of human potentialities of the low income groups and which will restrict the possibility of improvement of the living standards of each generation.

We shall see (Chapter 7) that the extended family living in the household and the kin living nearby are major resources for nutrition and are much more available in Santa Barbara.

4.21 FINDINGS

No variable, on its own, correlates with nutritional status. It is the conjunction of a set of variables which may lead us to more understanding. The employment status of income earners, the income: expenditure ratio and the dependency ratio in the household together correlate with anaemia and with low protein intake in small children. The importance of stunting in this region denotes the variability of intake, with children eating sometimes more, sometimes less. The health and nutrition services of the state do to some degree support the nutrition of lower income groups.

FOOTNOTES

1. In Appendix III only one example of Stepwise Discriminant Analysis was shown. For all the other SDA only the canonical correlation will be shown due to the considerable volume of computer sheets.

CHAPTER 5

HOUSEHOLD COMPOSITION AND KINSHIP

CHAPTER 5HOUSEHOLD COMPOSITION AND KINSHIP5.01 INTRODUCTION

In previous investigations, comprising women of different ages and from several parts of Costa Rica (Lopez de Piza, 1977), a high percentage of female-headed households was encountered. This was attributed mainly to the availability of seasonal work, associated with monoculture of coffee and sugar cane. The repeated absence of the men placed the burden of family life upon the shoulders of the women who remained in the Meseta Central. Some women were able to find employment in domestic work, either taking one or two of their children with them or leaving them in the care of their maternal grandmothers. This laid the foundations for matri-focal households. The matrilateral line came to be of prime importance in the long absences of the men. Many women were totally abandoned by the fathers of their children, because there was no permanent work in the vicinity. Consequently, a cultural tradition became established of the men not forming permanent attachments to the women (Lopez de Piza, 1977).

5.02 CHANGING HOUSEHOLD STRUCTURE

A variant household structure cycle has been described in which nuclear family households predominate around younger women, female-headed households around middle-aged women and extended family households including the 'queen bee' type, around older women (Lopez de Piza, 1979). The correlation between EGO's age and the household structure encountered in the present investigation is presented in Fig.1. It can be seen that the percentage of extended family households increases with EGO's age. (Since women in their active reproductive years were selected for study on this occasion the female-headed household is not so much in evidence.)

A household structure cycle changing over time from a nuclear to a female-headed or extended family household could be detected in this population: young women frequently live in the parental home, either as single mothers or with their conjugal partners. As their economic conditions improve, they set up independent establishments and become organised into nuclear family households. From 30 years of age onwards, female-headed households begin to appear, due to some women being abandoned by their partners. Towards the end of their lives women are again organised into extended families, this time with their adult children and grandchildren.

Nineteen young women in the study populations lived together with their children in the parental home; 12 of

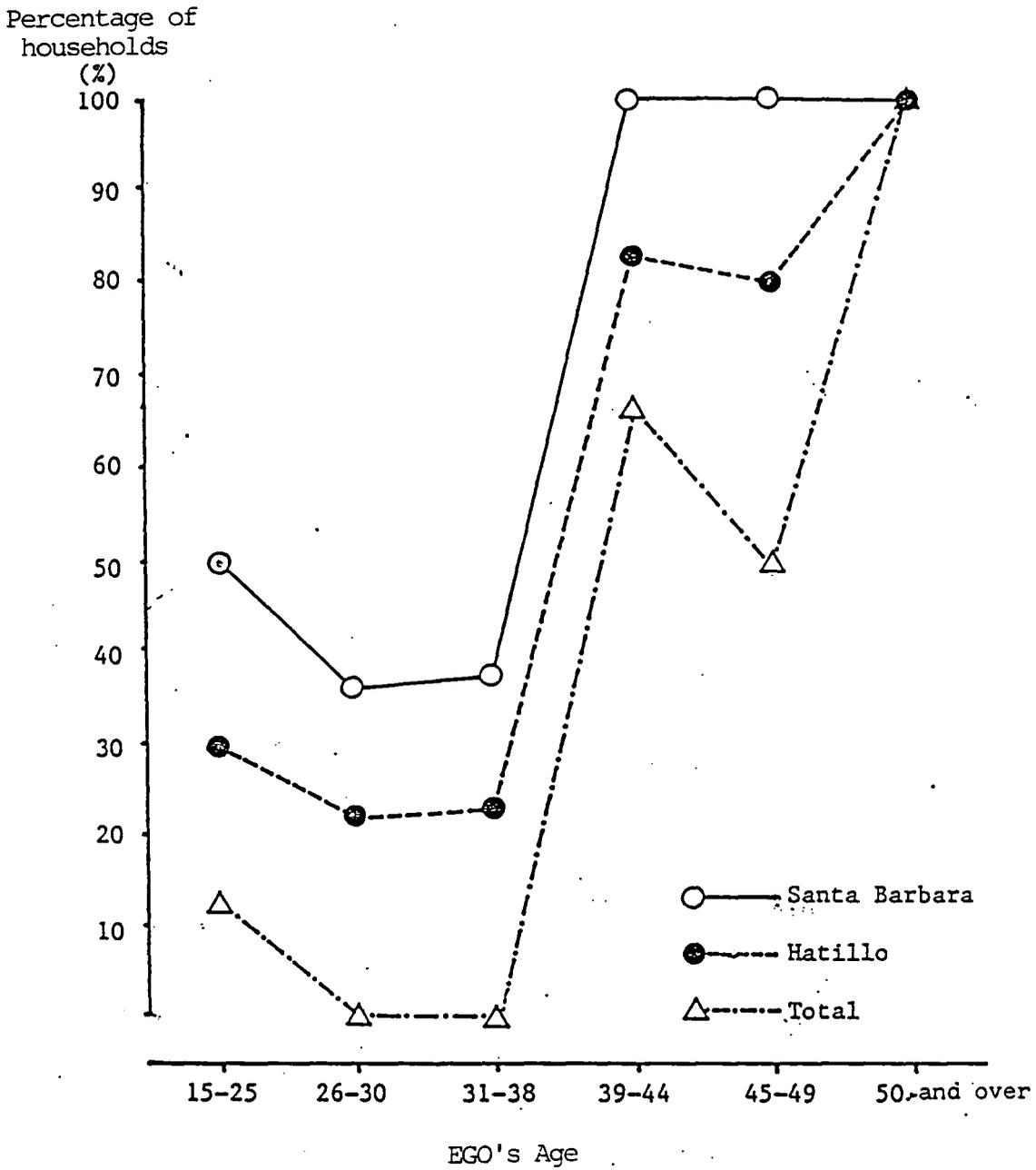


Figure 5.01

Percentage of extended families in households in the study areas.

them as single mothers and 7 with their conjugal partners. Another 3 cases lived with their mothers in 'queen bee' households (Lopez de Piza, 1977) where they undertook paid work in order to sustain the children while the children's grandmother took care of them and did the housework. There were 4 female-headed households consisting only of the mother and her children; all these mothers were aged between 31 and 38 years. In another 11 cases, the senior members of the extended family were EGO as housewife with her conjugal partner, their children and other relatives, usually EGO's sisters.

The structure of the households in Santa Barbara and Hatillo at the time of this study varied. They ranged from those consisting of father, mother and children (or mother alone with children) to those which encompassed unmarried and married siblings and grandparents. Eighty five households were studied, 43 in Santa Barbara (rural area) and 42 in Hatillo (urban area). (Household no.82, from Hatillo, migrated and was therefore excluded from the study.)

5.03 AGES OF INFORMANTS

The average age of the mothers (EGO) in the study was 26.1 years in Hatillo and 24.2 years in Santa Barbara. Because the sample was chosen from women who had at least one child under 2 years of age, over half were between 20 and 30 years of age. Women in Santa Barbara had an average

of 3.0 pregnancies and in Hatillo, 3.6. The average number of living children was 2.9 in Santa Barbara and 3.3 in Hatillo. Infant mortality was 12.7% and 6.7% respectively. (The infant mortality rate for the whole country in Costa Rica has decreased from 61.5 per thousand in 1970 to 11.1 per thousand in 1982 (Health Ministry of Costa Rica).)

5.04 STRUCTURE OF EGO'S NATAL FAMILY (Family of Procreation)

In Santa Barbara, EGO's father had in 28 cases worked in agriculture: 9 as small landholding peasants; 6 as semiproletarians and 13 as wage labourers. During this generation, the process of depeasantisation has almost been completed: now only four persons in this study have access to land. Two are the owners of small parcels of land and the other two rent small plots.

In Hatillo, EGO's father's occupations were more diverse: half were self-employed and the other half were wage earners. In only one out of every five cases (ie 9) had the father formerly owned land. In both study areas, about a quarter of the women mentioned the father having a second occupation. By comparing EGO's fathers in Santa Barbara with EGO's fathers in Hatillo, it can be seen that more fathers (15 of 43) had owned land in Santa Barbara than in Hatillo (9 of 42). People in Hatillo are principally migrants from the provinces of Guanacaste and Puntarenas, where the beef cattle ranches have been expanding for several decades.

5.05 COMPOSITION OF THE HOUSEHOLDS

The relationship of household members to EGO is shown in Table 5.01. In Santa Barbara, 35 women (out of 43) lived with their conjugal partners and 8 had no permanent partner. Of the latter, 2 had an occasional partner and 2 had a permanent partner, who lived elsewhere. In Hatillo, 32 out of 42 had a permanent partner who cohabited with them.

In the Meseta Central the organisation of all the households of low income groups in rural as well as urban situations is based on kin to an exceptional degree and is a striking and characteristic feature of these populations. (In other Latin American countries, household organisation in low income units makes significant use of fictive kin through compadrazgo, which is also important to inter-household relations). The households in this study are composed overwhelmingly of consanguineous and affinal relatives. Only 6 non-relatives (with the exception of companeros, ie sexual partners) were found in these populations; one woman in Santa Barbara had a man who occasionally lived with her and her two children, but she did not refer to him as companero but as 'friend'. In another case, in Hatillo, EGO lived with her sister and one relative of her sister's husband. There were only two 'guests' (non-kin) in the populations under study.

Apart from the nuclear family, there was a greater number of relatives living in the households in Hatillo

TABLE 5.01

COMPOSITION OF HOUSEHOLDS IN SANTA BARBARA AND HATILLO, BY AGE GROUPS

RELATIONSHIP TO EGO	SANTA BARBARA			HATILLO			TOTAL		
	Under 12 yrs	Over 12 yrs	Total	Under 12 yrs	Over 12 yrs	Total	Under 12 yrs	Over 12 yrs	Total
EGO	-	43	43	0	42	42	0	85	85
Conjugal partners	-	35	35	0	32	32	0	67	67
Sons & daughters*	113	7	120	112	6	118	225	13	238
Brothers & bro- thers in law	8	30	38	1	51	52	9	81	90
Nephews & nieces	10	0	10	18	0	18	28	0	28
Parents & grand- parents**	-	22	22	0	29	29	0	51	51
Cousins	0	0	0	1	8	9	1	8	9
Other***	2	2	4	2	1	3	4	3	7

* There are 3 adopted children

** 35 parents 2 step-parents, 3 grandparents, 1 granduncle, 6 parents-in-law, 1 grand parent-in-law, 3 uncles.

*** 1 cousin of the mother-in-law, 1 friend, 2 sons of the friend, 1 relative of a brother-in-law, who also was the head of the household, and 2 guests.

than in Santa Barbara. In the former, not only were there more siblings, nephews, nieces, cousins, and parents of both EGO and her partner, but also grandparents and even one great-uncle (Table 5.01).

Almost half the survey population was under 12 years, but again this was because it was deliberately chosen from mothers in their full reproductive phase who had at least one child under 2 years.

In Hatillo, female relatives were more numerous than male relatives because there were many sisters helping with the domestic tasks while the mother was working and the male relatives were away in seasonal work or temporarily absent from home seeking work, or studying.

The number of people per household was higher in the Hatillo (7.2) than in Santa Barbara (6.3). Both are higher than the average Costa Rican household, which had 5.2 persons per family in 1976 (Quevedo, 1976).

Table No.5.02 compares the household structure to the nutritional status of the children (adequately nourished, at risk and deficient). Half of the 'extended' households and two of the three 'extended female-headed' households were 'adequate', whereas all three female-headed households were 'at risk'. In the nuclear family households the 'deficient' category is the largest and nutritional deficiency is particularly striking in nuclear families in the urban area.

In 'extended' and 'extended female-headed' house-

TABLE 5.02

RELATIONSHIP OF HOUSEHOLD STRUCTURE TO NUTRITIONAL STATUS OF CHILDREN IN
LOWER INCOME GROUPS IN THE MESETA CENTRAL, COSTA RICA

SANTA BARBARA					HATILLO				
Household Structure	Nutritional Status			Total no. of Households	Household Structure	Nutritional Status			Total no. of Households
	A	A-R	D*			A	A-R	D*	
Nuclear	13	8	10	31	Nuclear	4	7	13	24
Extended	4	3	2	9	Extended	8	7	0	15
Female-headed	0	2	0	2	Female-headed	0	1	0	1
Extended Female-headed	1	0	0	1	Extended Female-headed	1	0	1	2
TOTALS	18	13	12	43	TOTALS	13	15	14	42

* A = Adequate
A-R = At Risk
D = Deficient

holds, both in Santa Barbara and Hatillo, there were more people to contribute to the household income (but see Chapter 6 and 5.06 below) and to ease the burden of domestic labour. In nuclear households, differences existed between the rural and urban areas. This may be due to the nature of employment, coupled with the child care situation. In Santa Barbara, the mother of a nuclear household, as well as having her conjugal partner for financial and moral support, could leave her babies in the care of their grandmother who lived locally while she worked in the coffee harvest. Of 31 nuclear households in Santa Barbara, 13 were 'adequate'. The mothers of very young children in Hatillo did not have the same opportunities for child care, as their own mothers did not live locally; nor was there unskilled work for them to do, as domestic servants were not permitted to bring their children with them.

In Hatillo there were more relatives, apart from the nuclear family, sharing the dwelling; the frequency of extended family households (see Fig 5.01) was higher (50%) than in Santa Barbara (30.2%), but Hatillo extended family households rarely contained the maternal grandmother - the potential child minder (see Chapter 6). Thirty extended family households consisted mainly of EGO's relatives, usually siblings rather than grandmothers; in only 4 cases were the relatives those of her conjugal partner. The kinship networks are mainly matrilineal in Costa Rica (Lopez de Piza, 1978).

TABLE 5.03

FAMILY STRUCTURE IN ACCORDANCE WITH NUTRITIONAL STATUS OF
THE CHILDREN OF SANTA BARBARA AND HATILLO

Nutritional Status

<u>Family Structure</u>	<u>Adequate</u>	<u>At Risk</u>	<u>Deficient</u>	<u>Total %</u>	<u>Total No.</u>
Nuclear	30%	27%	<u>41%</u>	100	56
Extended	<u>50%</u>	42%	8%	100	24
Female-headed	0%	<u>100%</u>	0%	100	3
Extended	<u>67%</u>	0%	33%	100	3

In the course of this study, some changes in the household structure were observed: one extended family household divided into two nuclear family households; in other cases, the nuclear family was added to that of the parents' household to form a new extended family household. One female-headed household became male-headed because the mother abandoned her children and their father took over the household.

5.06 HOUSEHOLD STRUCTURE AND NUTRITIONAL STATUS OF CHILDREN

By definition, there is some sense in which the gender division of labour in the household must meet the requirements of social and biological reproduction. If it fails to do so over a significant period, the household will lose members or fragment. Income must be generated, and domestic labour carried out. When these requirements are not sufficiently met, deficiencies will appear in, for instance, child nutrition. The actual division of labour may be achieved by conflict, consensus or bargaining. Neither the division of labour nor the use of resources need be optimal - alcoholism or gambling may consume much income, for instance - but the success of reproduction is one measure of their effectiveness.

It was hypothesised in this study that dependency ratios would influence standards of child nutrition that dependency ratios would improve as EGO becomes older, and would be better in extended than nuclear families. Individuals generating income were labelled 'producers', and other individuals 'consumers'. Only the first of these hypotheses was validated, and only in Santa Barbara. EGO's age is not correlated with improved dependency ratios (Figure 5.02), nor dependency ratios with household structure.

The ratio of producers to consumers is higher in rural Santa Barbara than in urban Hatillo, because in

Santa Barbara there exists the peasant tradition of labour intensive work involving the whole family. In the city, on the contrary, survival strategies depend on obtaining more skilful remunerative work available only to adults. The ratio of producers to consumers therefore contributes to the difference between the deficient and adequate households in Santa Barbara, but not in Hatillo (Table 5.07).

Men, women and children of Santa Barbara help in the coffee harvest, in the same way as their grandparents did when they were land-holders harvesting their own coffee. Coffee harvesting is paid for by 'piece work'; the whole family participates in collecting the beans, in order to fill the cajuela (wooden box), which is the measure for coffee on the fincas (coffee farms). In Hatillo, on the other hand, there was a high proportion of informants under 25 years of age living in the parental home, where there were several members contributing to the household income. These young women had to do most of the domestic labour. An example of this situation can be revealed in the account given by a young married woman to the research worker.

Tila, 26 years of age, now living in Hatillo:

'I didn't marry for love or sex. I married because I was very tired and wanted to get away from my parents' home. I was the eldest and had to do all the domestic work for the whole family - we were twelve. All the rest worked on the land. I started helping my mother when I was just five. Later on my sister helped me, but my father and brothers did nothing and were very inconsiderate. If I hadn't time to starch their clothes they threw them back into the wash water, saying 'You'll have to do them

properly'. My mother didn't support me. She'd just say, 'They're right. You'll have to learn to be a proper woman.' So when I got the chance to marry, I thought 'At least I'll only have one man to work for.'

5.07 HOUSEHOLD COMPOSITION, KINSHIP AND HOUSEHOLD
NUTRITION: CONCLUSIONS

The 87 households in this survey were overwhelmingly formed by close kin. They comprised 55 nuclear, 24 extended, 3 female-headed and 3 extended female-headed families. The extended and extended female-headed households included fewer with poor nutrition than the nuclear and female-headed households; among the nuclear households, nutritional deficiency is greater in the urban area. It is argued here that the critical difference is in the existence of relatives nearby, usually a grandmother; this is far more common in the rural case. Overall, grandmother and other female kin then become an important determinant of household levels of nutrition as expressed in children, whether in nuclear or extended families.

CHAPTER 6

HOUSEHOLD ECONOMY

CHAPTER 6
HOUSEHOLD ECONOMY

6.01 INTRODUCTION

Households in this study are characterized by diversity in their income-generating activities and their use of space over time. Migration had featured in the lives of almost every respondent; life histories include many changes of occupation, and households have many sources of income. This chapter will attempt to record this complexity, and to seek out relationships between income and child nutrition.

6.02 MIGRATION

The number of times that the women under study have migrated (moved residence) in the course of their lives is shown on Table 6.01. The number of moves per respondent is higher for urban than rural women.

6.03 CIRCULAR MIGRATION

The women residing in Santa Barbara have moved chiefly within the same community. Two-thirds of these women were born in Santa Barbara and later on migrated to nearby zones, but tended to return eventually to their place of origin. This circular migration is the general tendency of the rural population of the Meseta Central.

TABLE 6.01

MIGRATION

NUMBER OF MOVES OF EGO
FROM BIRTH UNTIL 1982

Number of moves	Sta.Barbara		Hatillo	
	No.of Cases	%	No.of Cases	%
0	1	2.3	0	0
1	13	30.2	5	11.9
2	6	14.0	7	16.7
3	11	25.6	6	14.3
4	5	11.6	9	21.4
5	7	16.3	14	33.3
9	0	0.0	1	2.4
<u>TOTAL</u>	43	100.00	42	100.00

The different times of coffee harvest in the Meseta Central are due to the variations in altitude, temperature and rainfall.

Santa Barbara's main harvest season is in December and January, but before and after this period the people are conveyed by lorry (owned by the plantation (finca)) to the Valley of Orosi in the eastern region in October, and to the Valley of Atenas in the western region of the Meseta Central in February and early March. As the picking season lasts at least three months and can entail daily journeys of at least four hours, some women prefer to move residence. If they have very small children they try to leave them with their mothers in Santa Barbara and just move with the older children who also work in the coffee plantations. When the coffee season is over, or when they cease to find work, they return to their extended family in Santa Barbara, in particular to their own mothers. The support which some mothers can give to their adult daughters and their families is illustrated by the account given by one of these daughters.

Damaris - from Santa Barbara:

Since I have been living here I have lived close to my Mam. She took the helm ... you know? She helps me with everything for my children. Without my Mam I couldn't work, or else should have to leave them on their own ... you know? ... like what some others have to do. But thanks to my Mam who is at the helm of our ship, I can cope.

6.04 RURAL-URBAN MIGRATION

Another form of migration that takes place is that of

displaced persons from the beef cattle zones outside the Meseta Central, as has been referred to earlier. An example of this is given by Isabel, aged 29 years, who resides now in Hatillo:

At one time we rolled along like a football from the Atlantic to the Pacific and back again. After that we went to the banana plantations and finally to San Jose. We went through much trouble, though at that time life was cheap. Milk only cost 25 cents, but that didn't make any difference to us as we couldn't afford that much ... the problem, you know, is constantly having to change schools, and so you fall behind and never catch up again. This is why I only studied to the third grade of the Primary School and then I had to give it up altogether. ... Another time we went to my father's nephew's home, hoping to stay (she had four children at that time), but his wife was in labour and so we couldn't go inside the house until she was delivered the next morning. So we had to spend the whole night outside in the fields sleeping under the stars.

Both circular migration and commuting result in the diversification of the use of space in the Meseta Central and are important features in these women's lives. The lack of state provision for infant and child care is a limitation for women who, as in Hatillo, do not have a mother living nearby.

Most of the women of Hatillo did not originate from there, but came from other areas of the same city or from nearby zones. One quarter of the total number came from outside the Meseta Central. Most of these people move to Hatillo looking for a permanent home; several were squatting before.

6.05 HOUSING

Housing is an important aspect of the household economy. In Santa Barbara, 43% of the households in the survey owned their houses. In 29% of the cases they lived in a house lent by relatives, usually EGO's parents, and 28% rented houses. In Hatillo, 47% owned their house, 12% lived in a relative's house and 41% rented houses. Housing conditions are compared in Table 6.02. Most of the houses occupied by the informants in Santa Barbara were constructed under government programmes, with wooden walls, corrugated iron roofs and wooden floors. The houses of Hatillo are of a more solid structure, with concrete block walls, corrugated iron roofs and tiled or wooden floors. Other houses in squatter areas around Hatillo were constructed by the people themselves, mostly of wood, cardboard and plywood; these were roofed with sheets of corrugated iron and the windows were covered with plastic sheeting. The squatter householders were all waiting to be rehoused by the municipal authorities (the IMAS programme) but before the shacks could be demolished another family moved in. In effect, they were 'waiting rooms'.

Government or municipal housing schemes provide houses with five or six rooms, including bathroom and kitchen. All are small and as the household enlarges become overcrowded. The number of rooms per house and the level of crowding in Santa Barbara and Hatillo were similar.

TABLE 6.02
 COMPARISON OF HOUSING CONDITIONS OF INFORMANTS IN
 SANTA BARBARA WITH THOSE IN HATILLO

Condition	Santa Barbara	Hatillo
Good	29	23
Fair	7	12
Bad	7	7
	—	—
	43	42

Explanation of terminology:- Good = Roof walls & floor sound
 Fair = Two of above sound
 Bad = All three in poor
 condition

Overcrowding is one of the major problems of Costa Rica (Hall, 1984). In this study, a wide range of differences between households was encountered. Some households, for example, had a bed for every individual; in others, four persons slept in one bed.

All houses in the survey had piped water, electricity and an adequate system of disposal of human excrement. One half of the population of Santa Barbara used a latrine, built outside the house; in Hatillo the septic tank or sewer predominated. In the countryside there was no refuse collection service; one third of the people disposed of refuse by throwing it in the fields; the other two thirds burned or buried it. In Hatillo, only seven households (all squatters) did not have this service, and so disposed of refuse by throwing it in a nearby river.

6.06 EDUCATIONAL LEVEL OF THE POPULATION

Education is another major determinant of the household economy. The 1892 census recorded a rate of illiteracy in Santa Barbara of 71.1%. (There are no figures for Hatillo as it was not built until the early 1950s.) By 1973 the census (Dirección General de Estadística y Censos) recorded that the national illiteracy rate was down to 10.5%; 67.25% had attended elementary school, 15.2% secondary school and 7.0% University. By 1981 the census recorded that 92.2% of school age children now attended elementary school, 51.0%

secondary school and 14.7% the University.

At the time of this study illiteracy was 8.1% in Santa Barbara and 4.8% in Hatillo. The educational level of women and men is the same. Comparing the education of three generations (EGO and her conjugal partners versus their parents and their children) there is a clear improvement in the more recent generations, with less illiteracy and a higher percentage of secondary school attendance. In Hatillo, all children 12 years and older attended high school. The survey for this study found a significant percentage of kin (consanguineous and affinal) who had joined EGO's household to be within easier reach of secondary schools, (Tables 6.03 and 6.04).

The majority of people in both populations, including the parents of EGO, were very positive about education. Education is considered to be the means of improving one's situation in life. The remarks made by Cecilia and Nidia provide examples. These women were optimistic about their children's future. They believed that education would bring with it opportunities for advancement. However, these goals would, in most cases, be abandoned as the children leave school early and find work in order to help to support their families.

Cecilia, 39 years old, from Santa Barbara:

I wish that my children could study; then they could do better than me. They could then get good jobs.

TABLE 6.03

LEVEL OF EDUCATION, SANTA BARBARA

YEARS OF SCHOOLING	EGO	CONJUGAL PARTNER	CHILDREN	PARENTS OF EGO	BROTHERS SISTERS	OTHERS	TOTAL	%	ACUM.%
Illiterate	2	2	0	5	1	1	11	8.1	8.1
I (1-3 yrs)	10	7	1	6	4	1	29	21.3	29.4
II (4-6 yrs)	23	18	3	7	18	1	70	51.5	80.9
III (7-9 yrs)	3	5	2	0	5	0	15	11.0	91.9
IV (10-11 yrs)	4	3	1	0	1	0	9	6.6	98.5
University	1	0	0	0	1	0	2	1.5	100.0
TOTAL	43	35	7	18	30	3	136	100.0	

TABLE 6.04

LEVEL OF EDUCATION, HATILLO

YEARS OF SCHOOLING	EGO	CONJUGAL PARTNER	CHILDREN	PARENTS OF EGO	BROTHERS SISTERS	OTHERS	TOTAL	%	ACUM.%
None	0	0	0	3	2	3	8	4.8	4.8
I (1-3 yrs)	3	6*	0	9	4	1	23	13.8	18.6
II (4-6 yrs)	21	13	0	7	13	4	58	34.7	53.3
III (7-9 yrs)	14	9	4	2	19	2	50	29.9	83.2
IV (10-11 yrs)	4	3	2	0	11	5	25	15.0	98.2
University	0	1	0	0	1	1	3	1.8	100.0
TOTAL	42	32	6	21	50	16	167.0	100.0	

* Includes 3 conjugal partners who have brought children aged 1-3 with them.

Nidia, 35 years old, from Hatillo:

They (her children) had to leave school to help me. You know, I can't afford their education. I wanted them to learn skills - mechanics or electricians. Roberto's very clever. He works for me, selling fruit. He's very good at business. I gave him 100 colones and he turned it into 300. I am sure that he'd be a good mechanic.

Tables Nos 6.03 and 6.04 show the level of education of the members of the households under study in Santa Barbara and Hatillo. In Santa Barbara there were two informants (EGO) and their conjugal partners who are illiterate. There were none in this category in Hatillo. Three times as many informants in Santa Barbara as in Hatillo have only 1-3 years of formal education (10 out of 43 and 3 out of 42, respectively). Their conjugal partners have a similar level of education in Santa Barbara as in Hatillo.

In Hatillo, more women have secondary education than men because in the urban zone women must complete secondary school in order to be accepted at the training school (INA). For men in Hatillo it is easier to find unskilled work, or to get apprenticeships. In both Santa Barbara and Hatillo very few children go on to tertiary education.

Economic necessity restricts children's education. Labour laws restrict wage labour for children under 14 years of age, but it is recognised that work is necessary in that many assist their parents in coffee picking, selling the product of family enterprise and other minor

duties. Costa Rican exports depend largely on the coffee crop, whose price is set in the international market. As the coffee crop requires a large amount of cheap labour, the contribution of women and children is necessary. Since this situation conflicts with the labour law, a compromise has been made. It is not by chance that the school vacations coincide with the coffee harvest season. Another mechanism for getting round the labour laws is that the National Children's Guardianship (Instituto de Proteccion a la Infancia), created to protect children from exploitation, issues work permits for children (Lopez de Piza, 1979).

Very few children in the study areas get the opportunity to go on to higher education and achieve a career. However, six women in Santa Barbara and fifteen in Hatillo had had training courses for their skilled jobs - sewing clothes and shoes, clerical work and electrical assembly. Those women had been trained in the state training school (Instituto Nacional de Aprendizaje, known as INA). When their children arrived and their families started to grow, these women began to work as out-workers (in their own households) for multi-national firms.

6.07 ECONOMIC BASE

One of the characteristics of many urban and rural areas in the Third World is the presence of small scale industries. These 'petty commodity industries' persist and

proliferate under specific conditions (Le Brun and Gerry, 1975; Scott, 1979; Roberts, 1978). Often the enterprise is based on the household or on the kinship network (Long, 1979; Long and Roberts, 1984).

Another common characteristic is the trend towards diversified economic activities. This means that members of the household are engaged in more than one job or means of attaining an income (Comitas, 1973; Smith, 1975; White, 1976; Long, 1970). This diversity has been observed in different social groups: poor urban workers and small farmers, for instance, combine their private businesses with salaried temporary employment, while small entrepreneurs diversify their investments and activities in order to encompass a wide range of operations in production and distribution.

6.08 FORMS OF INCOME

Among the lower income groups (sectores populares), reproduction is obtained through the work of most members of the household. They receive their income as wages, as barter, as reciprocal exchange from relatives and neighbours and from state resources (food, health, education, pensions, housing, health and sanitation, transport, communications etc). To satisfy its needs, the household must have access to resources. When these are not directly controlled household members often resort to many different strategies.

The amount of labour which the working-class home can generate depends on many factors: cost of reproducing and maintaining the household, occupations and vicissitudes of incomes of individual members, the prevailing gender division of labour and the domestic cycle, ie the relationships between the genders and generations, which determine whether and when wives and adolescents are available for 'productive' labour, usually outside the household (Rapp, 1978).

In countries with an agricultural economy based on seasonal crops, the domestic establishment has a fluctuating income. The group under study depends heavily on seasonal workers in both the rural and the urban areas. Many members of the residential unit, often including the children, must participate in activities in order to subsist.

6.09 INCOME IN THE STUDY

Mechanisms for acquiring the necessary income are as follows: multiplicity of jobs, diversification of roles, exchange of goods, barter, cooperation of all members in specific tasks, establishing small household businesses, receipt of state contributions, food gathering in the fields and in the markets (Lopez de Piza, 1977). The latter complement the low wages and help meet subsistence requirements.

The diversity of activities makes it a difficult task

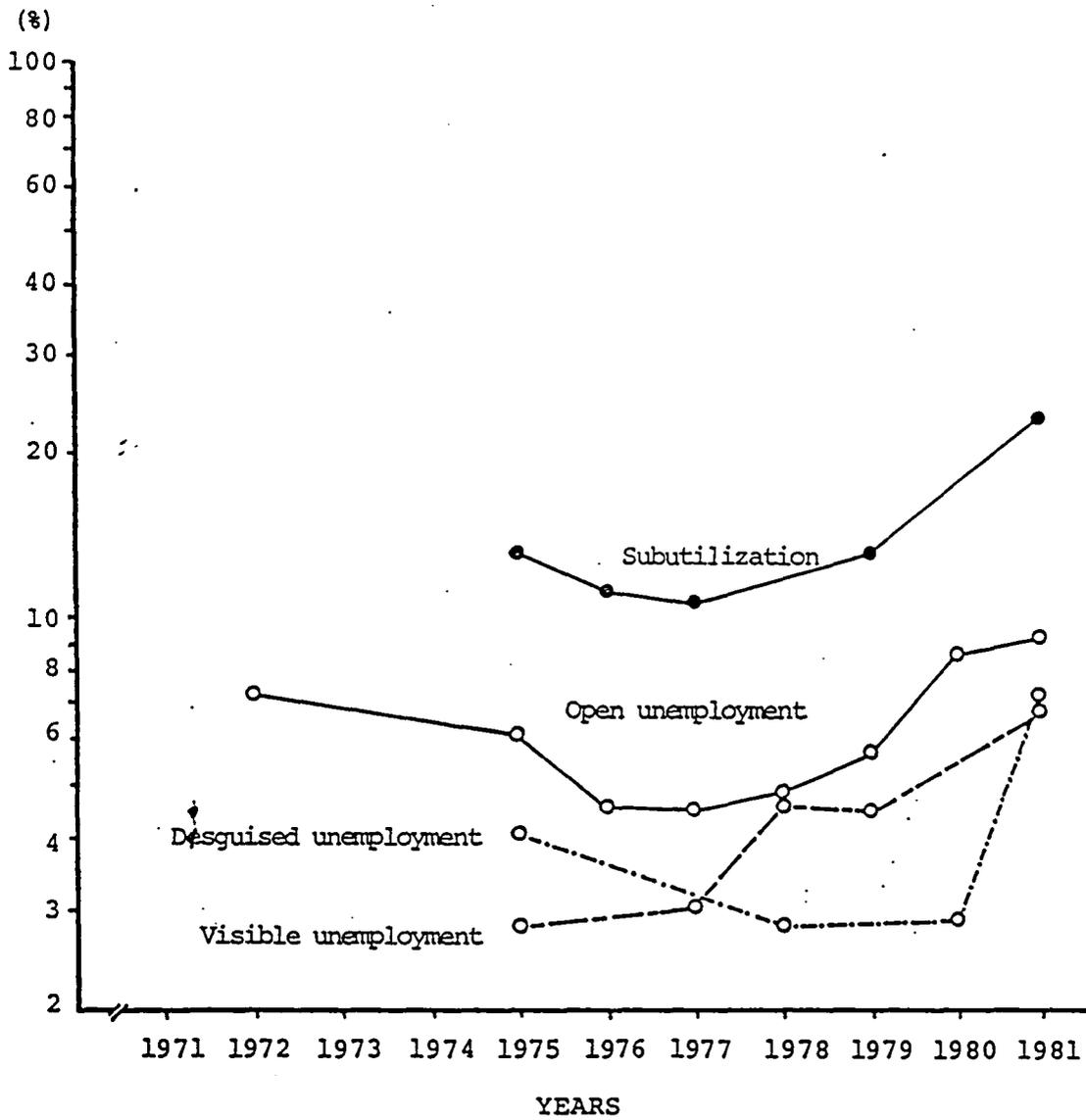
to estimate real incomes. To record income, a questionnaire was employed which included semistructured and open questions (Notebook of family income and expenses, see Appendix 4). The record includes wages, sales, donations etc, as well as bartered or exchanged goods. Emphasis was placed, also, on services received from state institutions. All occupations were recorded, describing the kinds of work, wages or lack of them, compensation in goods or money, employee situation (permanent, seasonal, occasional), place of work, duration of employment or unemployment, number of working hours and whether salaried, self employed or both (Appendix 1, Part 2).

6.10 STRUCTURE OF THE LABOUR FORCE IN COSTA RICA

Towards the end of the 1970s the country's economic crisis began to be felt. It brought with it the devaluation of currency and an increase in unemployment. By 1981, recorded unemployment was 87.%, the highest rate for many years (Direccion General de Estadistica y Censos, 1982). However, this figure did not reflect the real situation because many people were regarded as employed when, in actual fact, they were only part time or temporary workers. A truer picture of the real situation is depicted in Table 6.05 and Fig. 6.01, which differentiate three types of unemployment: Open, Disguised or Invisible and Visible. Open unemployment is the

Figure 6.01

Rates of Unemployment, Costa Rica 1971 - 1982



Source: Ministerio de Trabajo y Seguridad Social Encuestas de Empleo

percentage of persons, over 12 years, who did not work in the week before the census was taken and who were seeking work; Disguised or Invisible unemployment is those people who worked 47 or more hours per week but received less than the minimum wage; Visible unemployment (including seasonal unemployment, temporary and part-time employment) is those persons who worked less than 47 hours per week (47 hours are classed, in Costa Rica, as the minimum working hours per week). Taking these figures into consideration, the unemployment situation is very different from the official census figures for 1981 (see Table 6.05).

TABLE 6.05
UNEMPLOYMENT SITUATION IN COSTA RICA (1982)

Type of Unemployment	Rural	Urban
Open	5.8%	10.7%
Disguised/Invisible	4.7%	2.2%
Visible	5.6%	6.2%
	—	—
Rate of Subutilisation	16.1%	19.1%

Source: Ministerio de Trabajo y Seguridad Social, Servicio de Salarios, 1982.

In 1982, 27.7% of the 'economically active'

population was in agriculture, 15.2% in manufacturing industry, 6.7% in the building industry, 5.6% in basic services (electricity, gas, water, transportation, warehouses); 17.9% in commerce and hotels, 25.9% in other services (social, personal, communal), 0.9% in unspecified activities (Calvo, 1983).

Table 6.06 shows the distribution of the labour force per occupational group and mean salary, 1982.

According to the estimates of the Institute for Social Research of the University of Costa Rica (Calvo, 1983), a professional spent, in 1976, 18.6% of his income on food, whereas a coffee worker spent 89.9%.

The expenditure on food and other household necessities, excluding clothes and furnishings, is assessed through the 'basic basket'. In Costa Rica, the government assessed basic basket (Canasta Basica) is for the average family of 5 persons. For 1982-83, the cost of this basket was ₡3510.0, but this basket did not take into consideration necessities such as vegetables, fruit, coffee, toilet paper, water, electricity or house-rent. The addition of these goods would have increased the value of the basket by ₡1335.0; the total cost would then be ₡4845.0.

At that time the national minimum wage was ₡4363.0 for urban areas and ₡2769.0 for rural areas. The differences between men's and women's pay were more marked in the urban than in the rural areas:- the urban average

TABLE 6.06

DISTRIBUTION OF THE LABOUR FORCE IN COSTA RICA
BY OCCUPATIONAL GROUP

	%	Average Monthly Wage in (Colones)
1. Professionals and technicians	8.9	7794.00
2. Administrative and managers	12.8	8370.00
3. Clerical workers and salesmen	13.6	4440.00
4. Factory workers, artisans, (craftsmen) unskilled workers & manual labourers	48.2	2754.00
5. Service workers (cleaners, night watchmen, messengers etc.)	16.5	2346.00

(Exchange rate in 1982 was 42.0 colones per American dollar.)

Source: Ministerio de Trabajo de Seguridad Social, Servicio de Salarios (1982).

for men was ¢4938.0 and women ¢3787, whereas the rural men had an average wage of ¢2837 and women ¢2701 (Ministerio de Trabajo y Seguridad Social Costa Rica, 1982).

Average income from their main occupation for groups 3 and 4 on Table 6.02 does not provide sufficient for them to purchase the 'basic basket'. There are several possible solutions to this dilemma. They can increase their income by doing additional paid work; more members of the household, including the children, can work; or they can restrict their diet or reduce their food intake, risking malnutrition. Sometimes more than one, or even all, of these measures are necessary, as credit is relatively unavailable to them.

JUAN CARLOS, 35 years old, from Hatillo, was married to Sofia, who was the same age. They had three children, aged 5, 3 and 13 months old respectively. Juan was a permanent worker in a match factory, with a salary of 2759 colones per month. His wage was insufficient to cover all the needs of the household, so they supplemented his income by doing upholstery work at home. As the parents were healthy and good workers, their children enjoyed an adequate nutritional status.

MARGARITA, aged 22 years, had been working as a clerk in an haberdashers for two years. She was an unmarried mother with one baby, which was cared for by Margarita's mother, who also did the domestic labour of the household. The baby had an adequate nutritional status. Margarita's

clerk's salary of 3690.0 colones did not always meet the needs of the household. She said, 'I am looking for a better job with more money. I have a friend who works at San Juan de Dios Hospital, who has promised to get me a better job in his hospital, but he wants me as a girlfriend (for sex), and I don't like him.' Margarita refused on several occasions to go with him, but finally she agreed. 'I was two months behind with the rent of this house, so I had to.' This is enforced prostitution; another way of supplementing the household income.

6.11 OCCUPATIONAL DISTRIBUTION OF THE LABOUR FORCE IN SANTA BARBARA AND HATILLO STUDY GROUPS IN 1982

The survey population in Santa Barbara and the Hatillo study groups was classified according to whether they were occupied in remunerative work, and their relationship to EGO. This is listed in Table 6.07. In Santa Barbara, 43.8% were in paid work, in Hatillo, 30%. More women also worked for pay in the rural area (Santa Barbara) than in the urban area (Hatillo): of the 43 informants (EGOs) in Santa Barbara, 21 (48.8%) worked for pay whereas in Hatillo only 9 out of 42 (21.4%) did so. A majority of EGO's mother worked in both areas, but the difference in the number of children employed was significant: 20 (ie 16.7%) in Santa Barbara and only 1 (ie 0.8%) in Hatillo. This higher number of children in employment in Santa Barbara was due to the fact that work

TABLE 6.07

MEMBERS OF THE HOUSEHOLD WITH PAID JOBS
COMPARED WITH THE TOTAL POPULATION

Relationship to EGO	SANTA BARBARA				HATILLO				WHOLE POPULATION				Total		
	Workers	%	Non- Workers	%	Workers	%	Non- Workers	%	Workers	%	Non- Workers	%			
EGO	21	48.8	22	51.2	43	9	21.4	33	78.6	42	30	35.3	55	64.7	85
Partner	35	100.0	0	0	35	32	100.0	0	0	32	67	100.0	0	0	67
Mother	12	57.1	9	42.9	21	14	63.6	8	36.4	22	26	60.5	17	39.5	43
Children	20	16.7	100	83.3	120	1	0.8	117	99.2	118	21	8.8	217	91.2	238
Brothers/sisters	30	78.9	8	21.1	38	27	51.9	25	48.1	52	57	63.3	33	36.7	90
Others	1	6.7	14	93.3	15	8	21.6	29	78.4	37	9	17.3	43	82.7	52
TOTAL	119	43.8	153	56.3	272	91	30.0	212	70.0	303	210	36.5	365	63.5	575

Note: In Santa Barbara, of the 135 minors aged under 12 years, 15 (11.1%) work for remuneration.
In Hatillo, of the 134 minors aged under 12 years, one (0.7%) works.

for children was available in the coffee 'fincas' and they had been trained and had been expected to do this since they were very small. There was no similar work for them to do in Hatillo; there most of the occupations required skills for which training was not available for young children.

6.12 PAID WORK IN SANTA BARBARA AND HATILLO

Tables 6.08 and 6.09 show the type of income generating activity undertaken by members of the households according to sector of employment, type of work, form of payment and security of employment. The tables are of jobs, not workers: some workers have more than one job.

In Santa Barbara, the main source of employment (91 out of 142 jobs) was agriculture, followed by industry (20 jobs). The leading sectors of employment in Hatillo were industry (28) and commerce (28) out of a total of 93 jobs; another 17 jobs were in social services.

The type of occupation which these workers had was principally as manual workers: 110 out of 142 jobs in Santa Barbara, and 32 out of 93 in Hatillo; to this could be added those in the service occupations, as here they were cleaners, porters etc of which there were 24 in Santa Barbara and 37 in Hatillo, giving an overall picture of the majority of jobs in both populations as being at the bottom of the scale for both status and pay.

The majority of the jobs in both populations were paid regularly. They paid weekly, quincena (fortnightly) or monthly. In the rural area, in Santa Barbara, weekly pay is the most usual; whereas in Hatillo it is quincena. The 54 piece-workers (a destajo) in Santa Barbara were coffee pickers: this involves all able-bodied members of the household including children, following the tradition of the peasant family. The Hatillo piece-workers (6) did a variety of jobs, usually in the construction of buildings.

Self-employed workers numbered only 7 in Santa Barbara, whereas in Hatillo there were 21 (out of a total in work of 93). In Santa Barbara, 4 out of 43 households had access to land; two of these had their own small plot ($\frac{1}{2}$ manzana; the manzana is equivalent to 1,700m²) whose production was scarcely a supplement to the wage income; the others share-cropped. The 21 Hatillo self-employed were in home enterprises or in commerce, mainly as craftsmen or skilled manual workers.

Only 54 of 142 jobs in Santa Barbara and 70 of 93 in Hatillo were permanent employment; 30 jobs in Santa Barbara and 21 in Hatillo were temporary. Seasonal work was an important contributor to the household income in Santa Barbara, employing 58 persons, but only 2 Hatillo workers were in seasonal work (also in coffee picking).

In Santa Barbara, 23 persons held two jobs, whereas, in Hatillo, only three persons had more than one job; one of them held three. This was Roberto.

Table No. 6.09
Remunerated work in Hatillo in 1982

WORK SECTOR							TYPE OF OCCUPATION					CONDITION OF REMUNERATION						OCCUPATIONAL TEMPORALITY			
Agriculture	Industry	Construction	Basic Services	Commerce	Social Services	Not well Specified	Housework	Services	Worker Manual	Vendor	Manager	Various	In Kind	Piecework	Salary	Self Employed	Salary and Self Employ	Other	Temporary	Seasonal work	Permanent
								4					1	1	3	1			2	1	1
28								19					2	1	11	5			1	1	1
										5					3						3
																2					2
5								1								1			1		
								3						1	1				1		
												1			1	1					1
5								2							2				1		1
								2	2						2				1		1
										1					1						1
					28			11						1	10				2		8
								2							2				1		1
										14					7						7
																6					6
																	1				1
					17			11						1	8				1		7
																1					1
								4							2				1		1
																2			1		1
									2						1		1				1
						2		2						1		1			1		1
							6	6							6				2		4
TOTAL + 93							37	32	21	1	2		3	6	60	21	3		21	2	70

Roberto had a salary of ₡4400.00 from his job as a clerk in a company office. In addition, at any opportunity, for example when not under direct supervision, during his work hours and after work he sold women's clothing. At weekends he works as a Master of Ceremonies, organising weddings, graduations etc. In this way his family achieves a good standard of living and the children enjoy a good nutritional status.

When both population figures for remunerative work are combined the following picture emerges: the sector employing the highest percentage of workers was Agriculture (39.6%), followed by Services (25.4%), Industry (20.4%) and Commerce (13.6%). The Meseta Central is an area where people are employed in both agricultural and non-agricultural activities; where there is an overlap of the rural and urban environments and types of employment. This situation is not a recent feature in the Meseta Central. In the last century Santa Barbara had its workers employed in all three Economic Sectors - Primary, Secondary and Tertiary, as can be seen from Table 6.10.

For this study unemployment was not recorded in the same way as in the national Official Census (see earlier) but by taking into account visible and 'disguised' unemployment (it may be estimated that 62% in Santa Barbara were under-employed, based on the number of persons having temporary and seasonal jobs). In Hatillo, under-employment was 24.7%.

TABLE No. 6.10

OCCUPATIONAL STRUCTURE OF SANTA BARBARA BY ECONOMIC SECTOR
IN THE NINETEENTH CENTURY

Sectors	1833		1844		1892	
	No.	%	No.	%	No.	%
Primary	250	77.9	385	55.1	440	54.9
Secondary	7	2.2	87	12.4	97	12.1
Tertiary	64	19.9	227	32.5	264	33.0
TOTAL	321	100.0	699	100.0	801	100.0

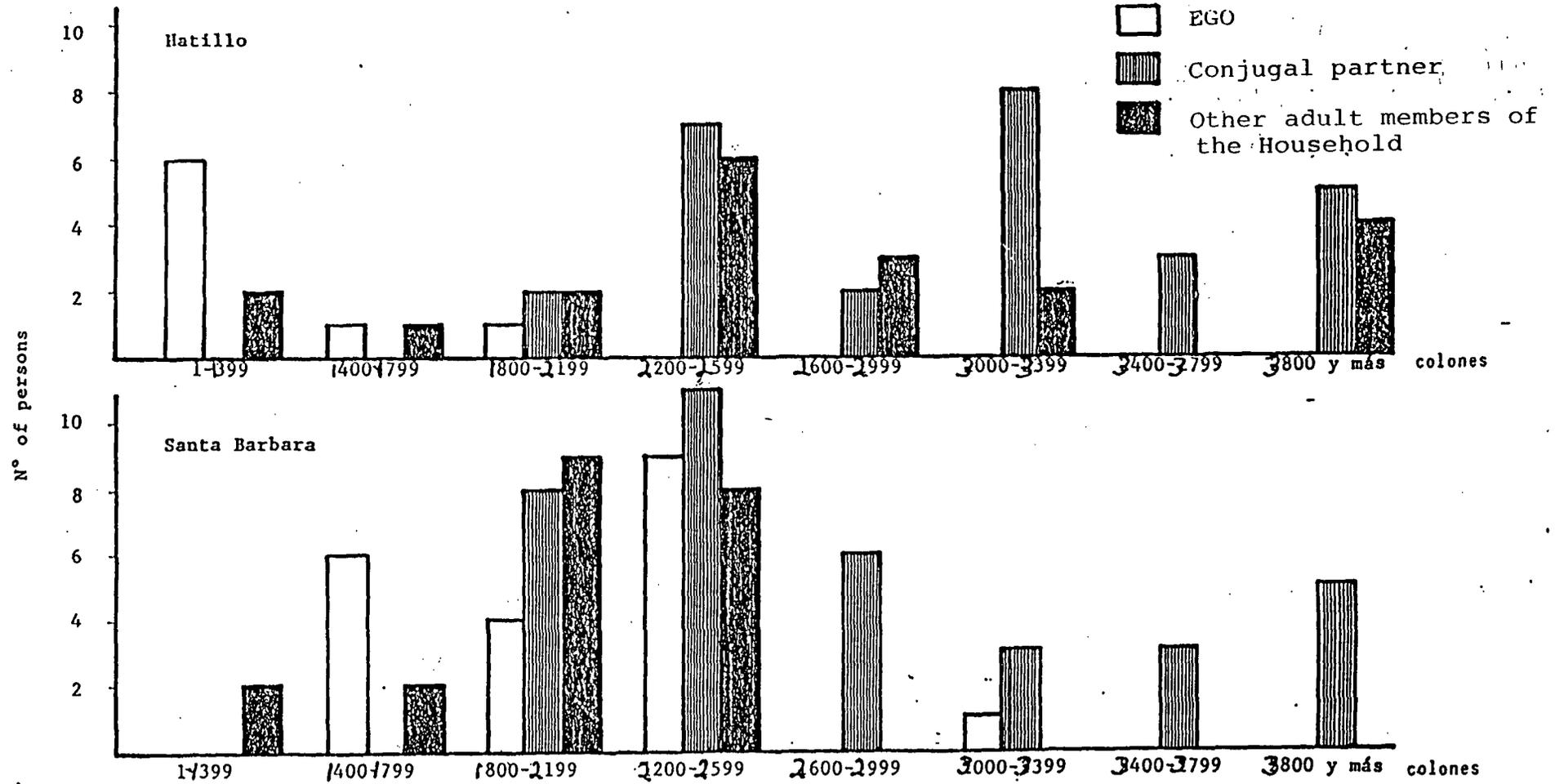
Source: Censo de Poblacion, 1892

6.13 GENDER DISCRIMINATION IN EARNINGS

Discrimination between the remuneration (whether from permanent, part time or piece work) paid to women doing the same type of work as men has long been a matter for contention in industrial society. In Europe it was defined as illegal in 1980, by the European Economic Community; in Costa Rica, the 1950s labour laws also outlawed this type of discrimination. However, the actual situation in Costa Rica is different, due to ways of circumventing the law. Women are legally at a disadvantage, because they cannot work the required hours for overtime (paid by law to people working more than 8 hours per day) due to having to care for their children and their households, and in some

Figure 6.02

Distribution of Earnings in Rural and Urban Zones in October, 1981



N.B. When this survey was done students were still in school.

cases they are illegally deprived of their true payments by a system known as 'escamoteo' (sleight of hand). Fig. 6.02 shows the distribution of earnings in both study areas for October 1981. From this figure a comparison can be made of men's and women's earnings and the amount earned by other members of the households. Men's earnings are higher than those of the women; earnings are also higher in the urban than in the rural area. In both areas there is a substantial contribution made to household income by other members of the household, with higher contributions being made by those in the urban area.

In terms of actual hours worked by women and their conjugal partners it can be seen from Table 6.11 that women, on the whole, worked fewer hours than men for pay, as mentioned above. More women in Santa Barbara worked for remuneration than in Hatillo. Only 5 women out of 21 in Santa Barbara worked more than 8 paid hours per day; none did in Hatillo. Of the conjugal partners, all were working, only one was working less than 8 hours; 13 out of the 35 in Santa Barbara and 9 out of 32 in Hatillo were working more than 9 hours daily in remunerated work. At this time in EGO's life her children were in babyhood and domestic duties prevented her from working longer hours outside the home.

TABLE 6.11
 REMUNERATED DAILY HOURS OF EGO AND HER CONJUGAL PARTNER

No of remunerated hours	Santa Barbara		Hatillo	
	Ego	Partner	Ego	Partner
0 hours	22	0	33	0
1-2 hours	1	0	1	0
3-4 hours	2	0	2	0
5-6 hours	6	1	2	0
7-8 hours	7	21	4	11
9-10 hours	3	6	0	3
11-12 hours	0	2	0	3
13-16 hours	2	5	0	3
TOTAL	43	35	42	32

6.14 EGO'S OCCUPATION

The occupations undertaken by EGO can be ascertained from the Table below (Table No 6.12), and this can be compared with that of EGO's conjugal partner in Table 6.13.

TABLE 6.12

OCCUPATIONS UNDERTAKEN BY EGO

Occupations	Santa Barbara	Hatillo
<u>Unpaid</u>		
Domestic labour in own home	43	42
<u>Remunerated</u>		
Agriculture:-		
Coffee pickers	15	2
Labourers (peonas)	6	
Working with family on own plot of land	2	
Industry:-		
Unskilled factory worker	1	Home enterprise 4
Craftswoman (sewing garments)	1	
Commerce:-		
Selling veg's from home	1	F/T vendors 2
Making/selling children's clothes	1	
Services:-		
School caretaker	1	Waitress (F/T) 1
		Prostitute (...) 1
Domestic service (F/T)	1	2
" " (P/T)	2	
	<u>31</u>	<u>12</u>

Of the women in the above Table, 10 in Santa Barbara have 2 jobs, one of which, in all cases, is coffee picking.

TABLE NO 6.13

OCCUPATIONS OF EGO'S CONJUGAL PARTNER

Occupation	Santa Barbara	Hatillo
Agriculture:-		
Coffee picking (seasonal)	15	0
Labourers (peonas) (F/T)	9	0
" " (P/T)	5	0
Working own land	2	0
Industry:-		
Factory workers (F/T permanent)	3	4
Home enterprises (fireworks, pottery, illicit liquor)	3	(shoemakers, upholsterers) 2
Construction:-		
Building labourers (permanent)	3	3
" " (casual)	2	0
Commerce:-		
Street vendors	2	7
Shopkeepers (own business)	0	1
Shop workers (employees)	0	6
Services:-		
School teacher (of English)	0	1
Civil Guard; watchman;	2	1
Mechanics	2	1
Carpenters	2	0
Plumbers	1	0
Tailor	1	0
Waiter, car driver, watch repairer, painter, fumigator, window cleaner, clerk, car washer, porter in market, MC	0	one in each category in Hatillo 10
TOTAL NUMBER OF JOBS	50	36

There are 15 conjugal partners out of 35 who held two jobs in Santa Barbara, but of the 32 partners in Hatillo, 2 had two jobs and 1 had three jobs.

6.14 EGO'S OCCUPATION

The occupations undertaken by EGO can be ascertained from Table 6.12, and this can be compared with that of EGO's conjugal partner in Table 6.13.

6.15 EXAMPLES OF DIVERSIFICATION AND MULTIPLICITY OF WAYS OF OBTAINING HOUSEHOLD INCOME

RONY, aged 24 years old; Margarita's husband.

Rony and his wife Margarita, who is 17 years old, are the parents of a ten month old baby. Rony is a mechanic, mending electro-domestic appliances, calling from house to house for orders. However, his income from this work is insufficient to support his family. Margarita could not contribute to the household income by going out to work, as she had to look after their child. With the help of her parents, they managed to establish a business retailing vegetables from their own house. The couple worked at this together. The baby had a good nutritional status.

AMALIA, also from Santa Barbara.

Amalia's case reveals how the extended family complements its income by means of contributions from several members. This was a family of 10, of whom 7 are children and 3 are adults. Roberto, the father of her children, worked as an agricultural labourer in temporary jobs, moving from one farm to another, working for short periods in each, due to the seasonality of farm jobs. At weekends and times

without employment he dug latrines. Amalia, EGO, was a seamstress at home. There were 4 children who worked seasonally at coffee picking time, as did both parents. Don Luis, Roberto's father, lived in the same house and made 'moonshine liquor'; this illicit task is called 'saca de guaro' in Costa Rica. Amalia refers thus to the activity:

He has always been a specialist in this since he was very young. It is a way one has of rounding off (complementing income), especially at difficult times. It is very good, excellent. As the situation is nowadays, one buys that kind (of liquor) because the other one is too expensive. Everybody comes here now to buy it, to celebrate the Rosaries of the child (After Christmas family rosary in January or February, before home Nativity Scenes are put away).

In a later visit the research group found out that the Rural Police had discovered 'la saca', the home-made distillery. The rural guards destroyed the still and took the liquor and the vessels in which it is kept. New vessels were donated to Don Luis by a friend. The children had an adequate nutritional status.

ROSA, from Hatillo.

Rosa's husband was an alcoholic and did not work. Her family was made up of ten members, only two of whom were younger than 12 years. Four people contributed to the household income. EGO's mother-in-law did paid housework, Juan, EGO's brother-in-law, worked both in a factory and as a street vendor. Sara, Rosa's sister-in-law, had a clerical job. Domestic chores were done by Rosa and her

aunt. Rosa cared for the children and for Jorge, her husband's grandfather, who was 91 years old. The children were 'at risk'.

RODRIGO

He was the rural guard who took the illicit beverage mentioned above. For Rodrigo, this activity made up his other, complementary income, since the liquor he took was not delivered to his superiors as evidence for the law, but was sold by him. This household did not have any other source of income except for Rodrigo's salary. His children had deficient nutritional status.

JOHNNY

He was a manual labourer in the building industry. Construction workers are hired only until completion of a building. In between building jobs he worked doing temporary shifts in neighbouring farms. His family made fireworks, and he devoted his free time to helping in this household industry. His mother, Maria, worked part time as a maid; she took care of the small children the rest of the time, since making fireworks is a dangerous task. She had to keep the children out of the way and under supervision. The children had a good nutritional status.

6.16. HOUSEHOLD INCOME

The national census records only the salary of the

'main provider'. It does not take into consideration other sources of additional income (in most cases irregular) to the household, which supplement the main income. For this study, these additional sources of income were discovered by direct observation of the activities of the members of the household, whether they were in remunerative work or not. From the income of each household member was deducted the sum each kept to meet his/her personal needs. There was a considerable difference between what was considered as 'necessary' personal needs by men as compared with what needs the women felt essential. Men 'needed' alcohol, cigarettes, to entertain women etc. The women's 'necessary' expenses were mainly children's clothes and children's gifts, with their own clothing needs coming a poor second. This attitude applied not only to mothers, but also to the other women of the household.

After deduction of money for personal needs, the actual money which went to form the household monetary income came from the following sources:

1. Earnings.
2. Household industry and paid housework (domestic service).
3. Secondary occupations of household members.
4. Seasonal work.
5. 'Thirteenth month' Compensatory Salary, paid in December, by law.

(The last two items were computed as a monthly mean,

dividing the total by 12. In the same way, daily or weekly wages were changed to their monthly equivalent and termed 'earnings'.)

To the above total monthly cash income there was added a sum estimated for income in kind (ie goods obtained through exchange, family presents, or goods produced by the members for their own use). Thus a closer estimate of the 'real income' of the household was arrived at than was possible by just taking into consideration the monetary income.

6.17 HOUSEHOLD EXPENDITURE

All expenditure on goods and services by members of the household was recorded. Daily, weekly and monthly expenditure figures were collected by means of open-ended questionnaires and direct observation. The record of expenses was recalculated into an estimated 'monthly expenditure'.

In 28 households (11 rural and 17 urban) expenditure was greater than estimated income. Open-ended interviews, direct observation and gaining the trust of household members made it possible, in some cases, to identify additional sources of income; many of which were illicit or immoral (according to their cultural norms) and included prostitution, theft, sales of home-distilled alcohol and peddling marijuana.

TABLE No. 6.14

AVERAGE MONTHLY 'REAL' INCOME OF HOUSEHOLDS
IN SANTA BARBARA AND HATILLO

Study Area	Cash Income in colones			'Real' Income in colones		
	Min.	Max.	Av.	Min.	Max.	Ave.
Santa Barbara	250.00	5700.00	3065.27	1125.00	5883.33	3543.43
Hatillo	600.00	13021.00	3627.58	1250.00	13021.00	4062.74

In Table 6.14 it can be seen that the minimum cash income of both Santa Barbara and Hatillo households is considerably smaller than the minimum 'real' income. In the case of the average incomes there is a difference between the average cash income and the estimated 'real' income:- nearly \$500 for Santa Barbara and over \$400 for Hatillo.

TABLE 6.15

AVERAGE 'REAL' INCOME AND NUTRITIONAL STATUS
OF THE HOUSEHOLDS

	Deficient households	At Risk households	Adequate households
	colones	colones	colones
Santa Barbara	2915.04	3749.46	3866.41
Hatillo	3736.29	3210.66	5278.81

When comparing real income of households according to our nutritional classification (Table No.6.15), it can be seen that 'adequate' households have higher average incomes than the other two categories in both areas.

Nevertheless, there are 'at risk' households in Santa Barbara which have similar incomes to the 'deficient' households in Hatillo. Even more problematic, 'risk' households in Hatillo have lower incomes than 'deficient' households.

When figures for household per capita income are compared with household nutritional status of children, it becomes obvious that income alone is not an over-riding determinant of household nutrition (Table 6.16).

A further attempt was made to examine the effect of household income on the nutritional status of children, by looking at individual household income (Fig. 6.03). The majority of household incomes fall below the 'subsistence minimum' estimates according to 'canasta basica' (see above in this chapter). It can be seen that the difference between the various categories of households in terms of income is not significant; on the contrary, there are a large number of households in Santa Barbara below the 'subsistence minimum' who have 'adequately' nourished children.

6.18 STATE SUPPLEMENTARY FOOD PROGRAMMES

In addition to the household income from its various sources, there are the State Supplementary Food Programmes in Costa Rica, which form part of the programmes of Health, Food and Nutrition (Ley de Desarrollo Social y

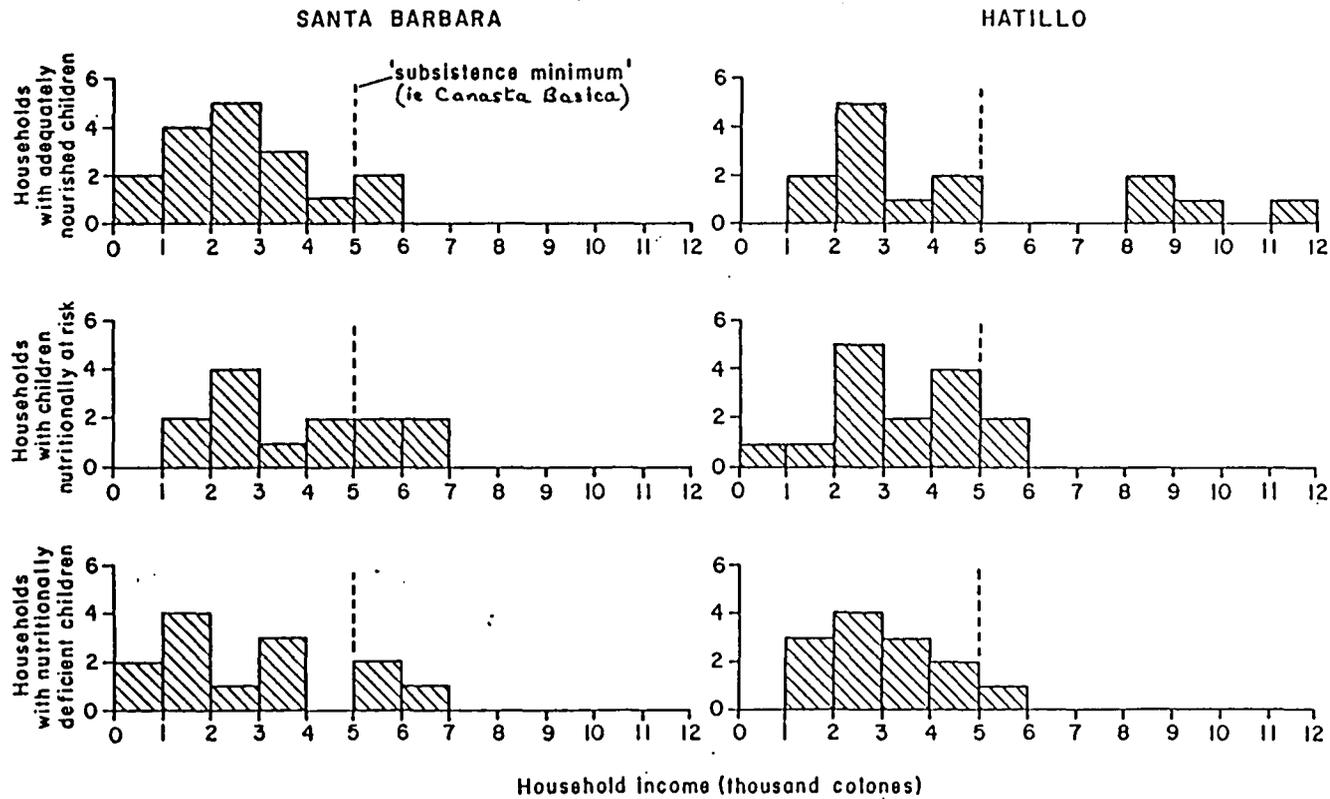
TABLE 6.16

INCOME PER CAPITA AND NUTRITIONAL STATUS OF CHILDREN

	Deficient Households			At Risk Households			Adequate Households		
	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean
Sta									
Barbara	112.50	1197.22	587.32	398.08	1400.00	693.13	234.67	1134.58	698.48
Hatillo	221.88	2485.33	641.24	223.29	840.00	473.32	153.85	2264.00	818.64

Figure 6.03

THE NUTRITIONAL STATUS OF CHILDREN BY HOUSEHOLD INCOME
MESETA CENTRAL, COSTA RICA



Asignaciones Familiares. Those programmes provide food, nutritional surveillance and immunisation.

They are as follows:-

CEN (ie CENTRO DE EDUCACION Y NUTRICION)

This provides:

1. Hot meals (breakfast and lunch) for children under 5 years and for pregnant women.
2. Whole milk powder for children between 0 months and 2 years, and cereal plus milk for children aged from 2-5 years and for pregnant and lactating mothers - 70,192 nationally in 1982.
3. Education on nutrition for mothers.
4. Home visits.
5. Anthropometric control.
6. Organisation of nutritional committees.

CE (ie COMEDORES ESCOLARES (dining halls in schools))

These provide one meal per day for children aged from 7-13 years. 410,000 children were catered for in 1982.

CINAI (ie CENTROS INFANTILES DE ATENCION INTEGRAL (Health Centres with nutritional surveillance and nursery service))

These centres, 500 for the whole country, gave benefits to 26,367 people in 1982. However, although its programmes were good, only a small proportion of needy persons benefitted from them. The present economic crisis

has affected the programmes' budget and the menus have had to be changed and animal protein replaced by increased calories (rice).

Not all the households studied for this survey had received the benefits of food supplementary programmes. This is shown in Table 6.17.

TABLE No.6.17

HOUSEHOLDS RECEIVING SOME KIND OF SUPPLEMENTARY FOOD

Organisation	Santa Barbara	Hatillo
CEN (meals)	8	14
" (milk)	16	18
CE	18	6
	—	—
	42	40

None of the households in the study groups were receiving benefits from CINAI Programmes. The reason for this was probably because these schemes were primarily intended for women with permanent jobs. Only 1962 in the whole country were catered for by the CINAI.

From Table 6.17 it can be seen that the majority of

our study households were receiving benefits from the CEN and CE programmes. In several cases, such as in the households in Hatillo with severely malnourished children, the food provided by these programmes was their only source of meals.

Another state benefit available, on a limited scale, is the provision of low (subsidised) price food shops. These were established in the 1950s and located in urban areas which were 'obviously' poor and in the more accessible rural areas. There were 250 of these shops in 1982.

Another way of supplementing their income available to Santa Barbara households is wood which they can obtain freely from the coffee plantations. This wood was used by the plantations initially, to provide shade for the particular variety of coffee, arabica. When this wood was removed or trimmed, the coffee pickers and other people of Santa Barbara, were allowed to take it away and use it for fire wood. Women and children are the collectors and carriers of the wood.

People in the lower income groups are unable to obtain credit from the banks because they have no form of security; they have no property to mortgage. However, many people in Costa Rica are buying their small houses through the IMAS or INVU Programmes or have electrical appliances on credit:- radio (90% of the study households had radios), television (87%), stereograms (20%),

refrigerators (44%), washing machines (33%), blenders (38%) and electric floor polishers (15% had these, which are a high prestige item). The electrical items are obtained by hire purchase on a weekly payment system. Ownership of these houses and appliances enables them to obtain credit at the pulperia (small grocery shops in the barrio, neighbourhood) on an extended credit system. Records are kept of transactions. Prices are slightly higher here than in other grocery shops.

In the rural area, remunerated housework for other households was second in importance as a mechanism for achieving a minimum income. In urban areas this role was played by the December bonus, which reflects the number of permanent jobs of the members of these communities, since the bonus is proportional to the number of months worked during the year and to salary level (1/12th of total salary of the year). Temporary and seasonal salaries were more frequent in Santa Barbara which means the December bonus was not significant here and therefore does not influence the extent of adequate nutrition or reproduction.

6.19 ENTITLEMENT

Sen's (1981) concept of 'exchange entitlement' summarises the problems which households must solve to survive. The individual or, in this case, the household, controls certain assets, including labour power. The

bundle of commodities (or set of all alternative bundles of commodities) which the household can obtain will be determined by a range of factors, including:-

- 1) whether employment can be found and, if so, for how long, for what wage and for how many members of the family (Tables 6.07, 6.08, 6.09, 6.11, 6.12, 6.13). If work for women tends not to be available, this will depress family income possibilities, as in Hatillo (Table 6.12); the same applies to work for children (Table 6.07). Or women's wages may be less and/or their hours shorter (Figure 6.02, Table 6.11).
- 2) What other sources of cash income can be identified and exploited: self-employment (Tables 6.08, 6.09), sale of assets, access to land, state support (Table 6.17). 1 and 2 will largely determine household income (Table 6.14).
- 3) Prices of goods and services purchased.
- 4) Prices of goods and services sold.

The bundle of commodities can be stretched by extra domestic labour if

- 1) use values can be produced within the household such as wood (see below) and
- 2) the mother or other carer has time available to produce them and
- 3) the mother or other carer has the 'adaptative technology' or skills required (see below).

Family structure will also affect outcomes through

1) the requirements of consumers in the household (Chapter 5).

2) internal and external support (Chapter 5).

Not all determinants of household consumption can be quantified; this list nevertheless serves to illustrate the complexity and synergy of the quantifiable components. It is then social factors, as we shall see, which are of the first importance in determining how effectively the bundle of commodities can be used for household welfare, including child nutrition.

6.20 NUTRITION EXPLAINED

The monthly cash income was not the most important factor in household nutrition. A comparison was made between households with high income but poor nutritional indexes, with those households which, even with their lower income, showed a tendency to keep their children well nourished. This analysis revealed a number of non quantifiable characteristics, common among both groups of well fed children which, nevertheless, had different levels of income.

'Adequate' households have, as their most characteristic trait, their members coming from the same region; the Meseta Central. The author of this study postulates that they have developed survival strategies or 'adaptive technology' transmitted from one generation to another which allow for a better adaptation to traditional

labour conditions in the area, taking greater advantage of state services and other resources of the area to compensate for their low incomes. These households are 'typical' of this region.

Households characterised by a diminishing capacity to obtain the necessary goods and services for an adequate reproduction are here labelled atypical families. These families have migrated from other regions outside the Meseta Central.

The Meseta Central has child-rearing patterns which allow the families with scarcer resources to maintain their children in an adequate nutritional condition, in spite of their poverty. These patterns include concentration on hygiene in the home, good feeding habits and positive attitudes to education which have been internalised by generations adapting to the dependent conditions of the social historical process.

In this region development was strongly marked by scarcity of workers. Every child became a potential labour resource, and thus cultural traditions were developed for his/her protection. The state decreed child protection mechanisms which culminated in positive policies for education and health. These policies have allowed for a relatively adequate reproduction up to the present, in spite of the devaluation of currency and inflation.

Atypical families more frequently allocate resources to the purchase of unnecessary and even luxury items. This

kind of consumption is propitiated by mass communications and door-to-door salesmen. Perhaps the most important factor, determining the atypical character of a household, is the loss of social networks, whose composition is strongly made up of matrilateral kin. In Costa Rica ritual co-parenthood (compadrazgo) ties are very weak. Children's godparents are usually chosen among relatives from the mother's side. It is not a mechanism to enlarge networks through fictive kinship as in Peru, Mexico and in most parts of Latin America (Wolf, 1950).,

In atypical households, nuclear families cannot attach themselves to the extended family network which would give them the usual support until they become stable. Those who come from outside the Meseta Central become, in turn, the hosts to relatives who migrate here later on. Each new relative who comes into the household is more a burden than a source of help (Arizpe, 1980). Atypical families are not skilled in the work technologies offered by the Meseta Central, whereas in the typical families these technologies are learned from childhood onwards as part of cultural patterns.

The following examples illustrate the above statement:

VIRGINIA, from Hatillo.

Virginia's household, of eight persons, had a very low monetary income (¢600 monthly); but outgoings added up

to \$1317 monthly (ie. more than twice their stated income). Nevertheless, the two children had a good nutritional record. (Only Virginia's (EGO's) income and her conjugal partner's Gerardo were computed as household income, since she stated: 'I cook separately, in my own stove, since my mother has hers.')

This family was from the rural sector of the Meseta Central; they had lost their land and migrated to the city. They had acquired a house with ample backyard, through a housing programme (IMAS) of low cost dwellings. In this house resided Virginia's and her mother's parents as well as brothers and sisters.

This household preserved an extensive network of relations on the mother's side of the family:- Virginia's mother and mother's brother 'When I cook I only give my mother from my cooking, I don't give the neighbours. She gives to me also.' Do you get anything from relatives? 'From my uncles, yes, on my mother's side, they visit us, they bring me food, things to my mother, they give her money and everything. My father's brothers have never come here, only my mother's.' Even though she had said initially that her stove was separate, she stated later that her mother shared food with her and her children: 'I have lunch here with my mother.'

MARTHA's mother, Janina, referred to the care of the children in this way:

'I got up as 4.30 in the morning to prepare milk bottles afterwards I bathed the children, clothed them and sometimes I took them out in the sun.' I used to wash and iron other peoples' laundry, to earn money for the children because a mother likes to see her children with pretty dresses on, nice little shoes and everything.' Referring to Martha, she said: 'Martha took care of the children, but I did the washing and ironing of diapers (nappies) and their clothing. I used to leave them cooked beans and soup, and I would tell her what she should give the kids, I used to instruct her before I left and after that I always worried, trying to get back home as soon as possible.' Martha in turn said: 'Because when one marries and has children, then one cares more. Because the most important thing are the children, one has to bathe them, prepare their bottles and all of that. If they don't have something, one has to go to buy it. If there isn't any money, one has to go to get it somehow.'

NANCY, 28 years old, lived in Santa Barbara with her husband and 4 children. The analysis of the nutritional state of the children showed that this was a deficient household, in spite of the fact that father was a permanent worker, for 8 years, in a brewery, with a monthly income of \$5826.00 (\$971.00 per capita). Nancy came from the Pacific Coast, where she lived with both parents and nine brothers. Her father had lost an arm in an accident, he therefore could not work. Her mother made tortillas and did laundry to support her and her brothers, with the help of the children. Her older sister, then 12 years old, took care of the house.

Nancy tells of an unhappy childhood, mistreated by her father and with lots of work to do. When she was 6 years old she got burned on the lower half of the body. Her mother's family did not get help from her relatives,

but

'occasionally from some good neighbours, that is, they didn't give to us, but let us earn. I went to that house to clean, to do laundry, to sweep yards.,, Because Dad never had money almost all his family have money.. all have a good plot where they can grow things, they have their houses as well, but they never help Dad.'

When she was 12, Nancy started to work as a maid, in temporary jobs. Later she worked in a restaurant for 7 or 8 years, then in Heredia (as a maid) for 3 years. She left this last job to get married, at age 24 years. Initially her husband worked for a shoe-making shop but lost his job. Nancy's former employers found him a job in a brewery. Soon after her wedding she quit working 'because, frankly, as I told you, I couldn't leave the children with anybody'.

This case shows the loss of the maternal kin network since neither she nor her mother got any help; the loss of the tradition of child care, since her mother had to leave them with their sister, due to her husband's (Nancy's father's) condition. Nancy's family came from outside the Meseta Central and, therefore, did not have the adaptive technology of local women to be able to take advantage of local opportunities, which would be available for lower income groups, and other resources to supplement her low monetary income.

MARIA ANTONIETA, from Hatillo, 20 years old, was the oldest of nine children, 5 of whom died. Her father

abandoned them; her mother had to raise them alone while working as a maid. Maria Antonieta had lived in several homes and frequently had to take care of her brothers who begged and scavenged for food in the markets. Later her mother became a prostitute and the children were taken to a Children's Refuge.

At 14 she escaped, went to work as a maid and was raped by her employer; by then a younger sister was already in prostitution, and a policeman had raped her. From then on, the three women were in prostitution; they also stole and sold stolen goods. She has 4 children and sister has 2, all of them are nutritionally deficient, even though some income is relatively high.

... This is an extreme example of an atypical family, in which there is no support network, even though it is a non-migrant group. On the other hand, several women in the atypical families, whose children were adequately cared for, practised covert prostitution as an additional source of income which permitted them to obtain the necessary amount to maintain their family.

The above examples reveal the necessity of having a network of support relatives (extended family) if a woman, particularly one with children, falls on hard times. Those women who have been reared in the Meseta Central and have learned the adaptive technology of the area since childhood, are better able to maintain their families than

immigrants due to having acquired skills. One of these is in the care of children. Even very young children are trained to care for their younger siblings. When these girls reach maturity they are able to combine child rearing, in which by now they are skilled, with coffee picking and/or domestic service. Their forebears have been doing this for more than a century.

6.20 HOUSEHOLD ECONOMY; CONCLUSIONS

Life histories and household economies in the study settlements are diverse and complex, punctuated by migration, job changes and multiple occupations. It seems as if each household is striving to maximize income against considerable odds. Yet, when income is compared between households, whether on a global or per capita basis, it does not account for observed differences in nutrition. It is therefore argued that cultural components are more important than household income, and that poor nutrition is related less to income than to behavioural patterns. Specific adaptive strategies have developed on the Meseta Central which give high priority to reproduction, even in the face of scarce resources. It is argued that families which are less nutritionally successful at a given income lack these adaptive skills, many of them being in-migrants from regions with a different traditional dynamic.

CHAPTER 7

BEYOND ECONOMICS: DOMESTIC LABOUR

CHAPTER 7BEYOND ECONOMICS: DOMESTIC LABOUR7.01 DOMESTIC LABOUR AND HOUSEHOLD ECONOMY

In Chapter 6 the economy of the households was analysed with respect to exchange values, or activities undertaken by groups in Costa Rica in order to obtain a monetary income. This chapter will examine those activities which produce a use value and contribute significantly to social reproduction, without payment of a wage. These are the activities which are performed mainly by women.

In all known societies, domestic labour is considered to be women's work. This derives in part from her role in biological reproduction which cannot be substituted and which has formed the basis for her association with child care. This is in addition to any other activities related to the maintenance of the work force from day to day. This work is not remunerated, so does not enter into the market and, therefore, is not considered as an economic activity (Beneria, 1981).

Domestic labour is centred on a set of activities essential for the day to day reproduction of the labour force. The basis of all reproduction is the maintenance of human life in the working population in order to ensure the continual supply of labour. The maintenance

(reproduction) of the labour force is the mainstay of any economy, and this means that the satisfaction of basic needs to reproduce human life should be the basic consideration in the construction of any social or economic theory (Evers, Clauss and Wong, 1984).

Domestic labour is commonly heavy, tedious, monotonous work, continuing day after day. It is an activity to which there is no end. It includes picking up wood, lighting the fire, cooking, as well as other tasks destined to cover the basic needs of the family, by providing clothing, promoting hygiene, health care, food processing, washing and ironing garments and cleaning the house (Dinovster, 1978; Swanson, 1977; Lopez de Piza, 1981). This production/consumption is described by some as a 'subsistence economy' (Bennholdt-Thomsen, 1981).

Household labour must be seen in relation to existing cultural norms and values concerning the sexual division of labour, the obligation of marriage and the expectations of family and kin (Mackintosh, 1979). In order to understand domestic labour and the situation of women in the household, it is necessary to study all these aspects.

The social ideology of the group shows us the interconnections between sex role stereotyping with its sexual division of labour, and institutionally structured access to crucial resources. It is particularly well suited for documenting the ways the sexual hierarchy is perpetuated.

(Bourque and Warren, 1981)

Whitehead (1981) pointed out that differences between men and women can only be explained by reference to

specific socio-cultural and historical factors associated with particular forms of household organisation and sexual division of labour.

7.02 WOMEN'S ALLOCATION OF TIME TO DAILY ACTIVITIES

As domestic labour is an activity whose product is an invisible, direct service, it was examined for this study by study of the time women spend on various activities. The main object was to determine the timetable of the mothers who have the main responsibility for domestic labour in its relation to their children's care. How far they were successful in the latter case was evaluated by assessing the nutritional status of their children.

The following account is of a typical day's work performed by a housewife in a 'typical' rural household in the Meseta Central of Costa Rica:

Marlene was a 34 year old woman, who lived in Santa Barbara with her husband, Jose Antonio, 33 years old, and her five children. He was born in Rio Grande Atenas and she in Jerico de Desamparados, both on the Meseta Central. Jose Antonio worked mainly as a bricklayer, self employed in small constructions; in addition, he had worked as a tailor for the last 15 years. The couple and their two older children picked coffee during harvest time and they also owned a 300m² parcel where they farmed their own coffee trees. The children gathered wood and fruit from the fences. Their cash income was c 3.550 per month (c

504.30 per capita); in spite of this scanty income they had managed to save up to c 10.000.

Their children were Gloria, 12, Oscar, 11, Maria, 7, Tania, 3 and Dunia, 19 months. The eldest daughter attended the first year of high school and the following two children were at the elementary school. Gloria also helped her mother with the domestic labour, for 2 to 3 hours a day. Two children received their lunch at the school (CEN).

Their house was built by Jose Antonio with the help of the family. It is a typical peasant home of the Meseta Central, built of wood and painted pink. At the front is a verandah with tiled floors and many flower pots hanging on the walls. Inside are 3 bedrooms, kitchen, living room, dining room and one bathroom. Outside the house there is a latrine. Marlene had all the locally popular electric appliances, but kept a wood stove.

Marlene's day started at 5am, when she got up to light the fire. Ten minutes later she was preparing the breakfast and awakening the children. At 6am she breast-fed the baby, then served the breakfast; at the same time she was preparing the feeding bottle for Tania. Between 6 and 6.45am she plaited Maria's hair; then she took her own breakfast, washed the dishes and prepared the school uniforms. At 7.30 the older children left for school and she started bathing the small ones, served them juice and took them out to the sunshine. At 9am she was

washing the nappies (diapers); at 9.30 she made the beds and swept the floors until 10.30. Then she ground corn, made tortillas and prepared lunch for Jose Antonio who came in at 11.30 and sat down to eat. She also served lunch to Tania, Dunia and herself. At 12.30 Gloria came home and Marlene gave her lunch, washing the dishes at the same time. At 1pm Marlene took a shower, changed her clothes, changed the baby's nappies, breast-fed her and put her down to sleep. Between 1.30 and 3.00pm she washed the family's clothes and had a cup of coffee, then bottle fed one of the babies and changed the other's nappy. From 4 to 5pm Marlene helped her husband by stitching the turn-ups of some trousers. At the same time the corn was being cooked. At 6pm she started to prepare dinner, then served it, fed the babies and herself. At 6.30 she put the corn to soak until the next day; at 7 she put the babies to bed, at 8 she went to bed herself, breast-fed the baby and she fell asleep at about 9pm.

Once a week Marlene attended a sewing course at the Instituto Nacional de Aprendizaje. This day she did not help her husband in his tailor's work. She had to wake up one hour earlier in order to complete the domestic labour.

During harvest time Marlene woke at 4am because she had to prepare the breakfast and also lunch had to be taken by her husband, two children and herself to the coffee plantation. She also had to feed and change the babies, as well as preparing the tortillas, before leaving for the farm at 6.20am. She worked picking coffee from 7am

to 3pm. Then she delivered the harvest to the farm before returning home at 4pm. She took a cup of coffee, had a shower and later rested while she gave the breast to the baby. At 5.20pm she prepared dinner with the family. At 6.45 she fed the babies and put them to bed and by 7.30 she was sleeping.

Marlene's only recreation was to attend Sunday mass at the Catholic church in Santa Barbara and to make occasional visits to her mother in Alajuela (a nearby town).

Marlene's Time-Table: Average Hours

Sleeping:	8 hrs 50 mins
Travelling:	35 mins
Domestic labour:	10 hrs 46 mins
Personal Care and eating:	1 hr 25 mins
Rest:	35 mins
Remunerated work:	1 hr 52 mins

7.03 RECORDS OF TIME SPENT ON DIVERSE ACTIVITIES

Domestic labour, as well as the extra domiciliary activities, was measured by recording the time allocation of informants (EGO) to the diverse activities performed throughout the day. This was obtained by means of 7 interviews, each one on a different day of the week, at the beginning, in the middle and at the end of August, in order to obtain data which was representative of the usual activities of these women; at a season when there was no coffee harvest or other seasonal work.

Initially, the timetable and activities were recorded as they were reported by the women. Later these activities were reduced to the following standard categories, which were registered as variables:

V01:	Cooking
V02:	Serving food to the family
V03:	Eating meals
V04:	Maintenance of the house (cleaning floors, making beds, washing dishes etc.)
V05:	Maintenance of clothing (washing, ironing etc.)
V06:	Child care
V07:	Personal care
V08:	Remunerated work done in the home
V09:	Remunerated work outside the home
V10:	Reception of visitors (non-relatives)
V11:	Resting at home
V12:	Resting outside the home
V13:	Sleeping
V14:	Travelling time (bus or foot)
V15:	Shopping
V16:	Other activities

From these variables, the following new variables were created, which summarise the information:

- | | | |
|----|-------------------------------|---------------------------------|
| 1. | OFIDOM (Domestic labour): | V01+V02+V04+V05+V06
+V15+V16 |
| 2. | PERSONA (personal care): | V03+V07 |
| 3. | DESCANSO (rest & recreation): | V10+V11+V12 |

4. TRABAJO (remunerated work): V08+V09
 5. SUENO (sleeping): V13
 6. TRANSPORTE (travelling time): V14+V15+V16

These items give a resume of the information about the whole 24 hours of the day. They were originally computed in minutes and their addition summed up to 1440 minutes, but because of inaccuracies in the information and variations introduced during the reduction of the information from 7 days, the sum of the items varied between 1348 mins (22 hrs 28 mins) and 1593 mins (26 hrs 33 mins); from -6.4% to +10.6% in 24 hours. These data were standardised to 24 hours.

TABLE 7.01
 TIME BUDGET OF MOTHERS

	SANTA BARBARA			HATILLO		
	max hr.min	min hr.min	av hr.min	max hr.min	min hr.min	av hr.min
Domestic labour:	13.8	4.41	10.02	12.30	3.41	9.46
Personal care/meal taking:	2.31	0.44	1.25	2.10	0.48	1.22
Rest (including watching TV):	6.28	0.06	2.15	5.18	0.12	2.28
Remunerated work:	5.04	0.0	0.47	5.23	0.00	0.45
Sleeping:	11.12	7.38	8.47	11.13	7.20	8.52
Travelling:	2.16	0.00	0.43	2.13	0.90	0.46
TOTAL				23.59		23.59

Time distribution of EGO was similar in Santa Barbara and Hatillo. Those who worked for remuneration devoted less time to domestic labour. In general there was little time dedicated to remunerated work, because these women had children of less than 2 years of age. In Costa Rica, women had to give up earning in order to take care of the family. All of them worked before and during the first months of their conjugal union and had abandoned work when their first child was born.

The amount of domestic labour depends on many factors; therefore, a simple one-to-one relationship could not be established with any one of them alone. Women who had several children devoted a longer time to work (remunerated work plus domestic labour) - Figure 7.1; nevertheless, there were several women who had only one child and who also worked longer than the average. Single mothers who lived in their parents' house frequently assumed all the domestic labour of the household, taking care of their children and also of their brothers and sisters. On the other hand, other people often also participate in household activities, mainly EGO's mother, her sisters and her older daughters. Where kin could be relied on to contribute, this permitted some women to devote more time to other activities or to rest.

In Santa Barbara, those women whose children were adequately nourished did a higher proportion of remunerative work than did those of the deficient

households. But there was no similar trend in Hatillo for several reasons, including lack of necessary skills to obtain jobs. The study demonstrated that the rural population tended to increase their monetary income by increasing the volume of work: increasing, as well, the length of their working day and the size of the work force. The urban population, on the other hand tended to augment its income through better qualifications (ie. skilled training) and, therefore, obtained a better wage per unit of time. In spite of the fact that in Santa Barbara most of the population lived on wages (only 4 households had access to land and 2 of those were small holding peasants) its inhabitants preserved the peasant tradition of long hours of work as their main adaptive strategy.

7.04 TIME SPENT IN DOMESTIC LABOUR

In Table No.7.02 an itemisation of the domestic labour is presented. This was the most important activity of the mothers and consumed an average of about 10 hours a day.

Again, the time distribution is similar in the rural and urban zones. In Hatillo, a little less time was devoted to cooking, serving food, house cleaning and care of the clothing; these women had more facilities (electrical appliances) to assist them with these tasks. More time was dedicated to child care and other activities; more time was devoted to errands and women

TABLE 7.02
TIME DISTRIBUTION OF DOMESTIC LABOUR

ACTIVITY	SANTA BARBARA			HATILLO		
	max hr.min	min hr.min	av hr.min	max hr.min	min hr.min	av hr.min
Cooking	5.50	0.50	2.34	3.25	0.47	2.14
Serving food:	2.24	0.35	1.24	3.25	0.37	1.19
House cleaning:	3.42	0,35	1.54	3.10	0.14	1.47
Care of clothes:	3.12	0.36	1.54	3.12	0.18	1.40
Children's care:	3.01	0.30	1.36	2.46	0.37	1.46
Shopping and other errands:	1.26	0.00	0.37	2.14	0.03	0.45
Other activities:	0.48	0.00	0.04	5.21	0.00	0.15
TOTAL			10.03			9.46

went more often to the shops themselves instead of sending their children. (The distance to the shops is shorter in the city than in the country.)

An important factor is the availability of electrical appliances to enable certain housework to be done more efficiently and in a shorter time (Table 7.03).

TABLE No.7.03
ELECTRICAL APPLIANCES IN THE HOUSEHOLDS

APPLIANCE	SANTA BARBARA	HATILLO
Cookers	c. 38%	c. 70%
Washing machine	c. 34%	c. 32%
Refrigerator	c. 29%	c. 58%
Blender	c. 25%	c. 62%
Television	c. 78%	c. 92%
Radio	c.90%	c.90%

The level of domestic appliances, except for washing machine, is higher in Hatillo than in Santa Barbara. Television is bought in preference to other apparatus destined to alleviate the domestic labour, such as the refrigerator, the washing machine and the blender, but on the other hand, it is the leading source of recreation and entertainment for most of these households.

All the women had long working days devoted to domestic labour, with very little resting time. Cooking consumed the longest time (an average of more than 2 hours per day); in second place, serving food (1-2 hours); cleaning the house, clothes washing and the direct care of children were all time-consuming.

As well as the work of EGO, there were many other people participating in domestic labour. In these 85

households, there were at least 132 other persons helping with domestic labour. In this respect there were important urban-rural differences which were a consequence of the differences in the household structure; in Santa Barbara the main additional participants in domestic labour were EGO's mother, her daughters and sometimes, when EGO was ill, her conjugal partner. In Hatillo, there was more help from other relatives, mainly EGO's sisters, sisters-in-law and even other consanguineous and in-law relatives. Domestic labour consumed a much greater time than that which was computed for EGO alone.

7.05 WOMEN'S TIME BUDGETING AND NUTRITIONAL STATUS OF CHILDREN

In Stepwise Discriminant Analysis, 8 variables were selected in Santa Barbara and 5 in Hatillo. There was an important difference between the time allocation of mothers of 'deficient' and 'adequate' households.

In Santa Barbara, three domestic tasks showed discrimination: V15 (time spent in errands), V04 (cleaning the house) and V01 (cooking). Women of 'deficient' households devoted less time to these activities than those of the 'adequate' households. (Canonical Correlation Function = 0.7521). In Hatillo, two domestic labour variables showed discrimination. One was the reverse of the Santa Barbara situation, for in Hatillo women of 'adequate' households devoted less time to errands. In

Hatillo, women of 'adequate' households also dedicated more time to care of clothes than did others (V05: CC = 0.4457); personal appearance was more important in the city. In order to obtain a job, for instance, a woman had to look well cared for.

In general, the variables which show, in Santa Barbara, the greatest differences between adequate and deficient households refer to those activities which seem less important in domestic labour (ie. the activities concerning EGO's personal well-being: day-time rest, personal care, sleeping). In Hatillo, EGO's time dedicated to eating differentiated the households. In both areas entertaining visitors and going on errands (ie. time taken to get there plus time spent in actual shopping) acted as differentials. To go shopping is more often the only opportunity these women have for personal discourse and for establishing relationships with other women. The pulperia (grocery store) is the meeting place for the women in the lower income groups.

In Santa Barbara, there was a difference in time devoted to cooking, because most of the women of deficient households cooked on wood stoves or on hearths which require a longer cooking time. Cooking time included the need for gathering and carrying home the wood, usually from the coffee plantations. (This was done with the collaboration of the children.)

In Hatillo, the time devoted by EGO to remunerated

work was discriminant. This again portrays one of the most important differences between city and country life. In the city, the most important strategy was to secure an adequate qualification to obtain a better salary. In Santa Barbara, the main strategies were firstly, to increase their working hours (including participation of more members of the households in domestic and remunerative work, including very young children) and secondly, to maintain extended family networks.

The cash income of these households was clearly not enough to permit an adequate reproduction without the contribution of domestic labour (Chapter 6) even taking into consideration all the possible sources of incomes detected by prolonged contact with these households. This may be the reason why, in the previous chapter, a direct relationship between the nutritional status of children and the cash income could not be demonstrated. In other words, the reproduction in low income groups depends on many factors which, taken together, explain the economic insecurity and instability of these sectors.

Self-exploitation performed by the members of the household compensates for the low wages for each job.

All the women studied worked for a wage before their conjugal union. While their children were small, they confined themselves to the domestic 'enclosure' (sphere), often becoming a reserve labour force called upon mainly at coffee harvest-time and paid as piece-work. Work in the

domestic enclosure is so exhausting that it does not allow them time to obtain the necessary qualifications for a better paid job. Thus, their possibilities of work remain limited to so-called 'feminine work', which is undervalued. Whenever they have the opportunity to work again, they obtain only the poorest paid jobs, which extend the domestic sphere into extradomestic activities

Part-time work means not only a low wage, but also no creche facilities, no insurance, no sick-pay nor other social service allowances, no membership of workers' organisations such as trade unions. This is all advantageous to the capitalist system as it enables wages to stay low and provides a docile work force. Skills which these women use to the advantage of the system have cost it nothing: domestic labour has trained them in domestic skills, such as food processing and sewing. Sewing is useful, not only for the garment industry, but because the dexterity they have learned makes these women highly suitable for fitting components in the electronic industry.

7.06 THE DOMESTICATION OF FEMALES (MAKING FEMALES INTO 'WOMEN')

When observing, hearing and analysing the life stories of women in Santa Barbara and Hatillo, certain questions spring to mind:- 'Why is domestic labour assigned exclusively to women?' and 'Why do women accept

this role which has been assigned to them?'. .

The reproduction of each individual human being is part of the reproduction of society as a whole. Daily life consists of those particular activities which mark the production and reproduction of individuals. When woman's activities are described, they reveal her to be in charge of the production and reproduction of the labour force in her own and for future generations.

The production of goods within the household is rewarded by the satisfaction of making use of them. The use of these goods involved preparing them prior to consumption, and requires that the woman is willing to undertake this task and sacrifice her needs to the needs of other-members of the household. These psycho-cultural characteristics of women are presented by society as though they were a woman's natural vocation. Women acquire these characteristics from childhood.

Domestic labour for the women in this study is internalised from babyhood to be synonymous with womanhood. From the first time that they become aware of their surroundings they observe their mothers and the other females of the household in their domestic labour. As they mature, they are instructed in 'women's work', so that by the time they are about five years of age they can assume some of these tasks with reasonable efficiency. They start first with house cleaning, washing dishes and then washing clothes. (The latter task requires more effort and skill). Then comes child care, by dressing,

washing and feeding their own, younger brothers and sisters and caring for them in the absence of older (female) relatives. Finally, they take on the household cooking and ironing; tasks which require more skill, strength and concentration in order to avoid personal injury.

The time taken to acquire these practical skills is about two years, so that by the time they reach seven years they are reasonably proficient in domestic labour. During these two years their mother, when available, and other, older, female relatives have supervised their training.

Two examples of women, one from Santa Barbara and the other from Hatillo, who had to take on domestic labour very early, are given below:

Lucia is 36 years old and comes from Santa Barbara:

'I spent four years at primary school. I wanted to go on studying and then go into a hospital to study nursing, because I liked it, but my mother said to me, "You can't study, you have to help me, I've got a lot of children." There were eight of us children, and I was the third of them, so I had to leave school. I had to leave during my fourth year of school so that I could start helping her, because she washed the clothes from the house of a woman who had twelve people in her family, and they paid her two colones for every dozen articles of clothing washed and ironed, so, of course, I had to help her do the work at home. And I would get in from school, you know, and put my exercise books down on a table and she would say to me, "The irons are there ready on the fire - get up on a bench or on a box (because I was too small to reach the table) and help me iron the small clothes." I'd take the bundle of clothes and I would iron and iron and iron, and very often I couldn't manage the irons because they were made of cast iron and very heavy, and sometimes I could not grip the iron and it would turn over in my hand and burn my arm, and then she would grab me by the hair and shake me and say, "You have to learn to be a woman."'

Maya, from Hatillo, 35 years old, tells us:

We all had our duties, but I had more than the others as I was the oldest. My brothers and sisters were very small and I was the oldest, and from the age of five I used to climb on to a box to cook and to wash, because my mother took in a lot of sewing ...

The second phase in domestic labour for women from Santa Barbara and Hatillo is when they go to work as domestic servants in other people's households. Their earlier training in their own homes makes them particularly suitable. They start, on average, from 9 to 11 years of age. They related being paid both in kind (clothes or food) and money to buy school requisites when they went to work for 'richer people' living in the neighbourhood. Later on, some would go to work in urban areas, and ultimately in San Jose.

Nidia, (35 years old,) from Liberia (Guanacaste), now living in Hatillo, explains:

I spent most of my childhood on my grandfather's land. It was very unhappy. I was beaten all the time for the smallest thing, not only me but my brothers and sisters as well. When I was 10, I started working in other peoples' houses to help my mother; three years after my father had left, my mother started to travel around seeking work - my mother would sell anything she had to help keep us, there were nine of us brothers and sisters ...

7.07 WOMEN'S DOUBLE WORKING DAY

The female head of a household, who has to provide all the household income herself, has a double duty (ie she has to work outside the home, sometimes doing more than one paid job, and to perform domestic labour). Those women whose children are very are unable to obtain help

from them and so must perform all the domestic labour themselves, or with minimal assistance from the eldest of the tiny children.

Isabel, from Santa Barbara, is a good example of a single parent who has had to perform dual roles since her husband abandoned her and her three children. Isabel, 26 years old:

I wake up very early, about 4.30, and light the fire. Then I prepare breakfast for everybody. I wake them up and push them into the bathroom to wash while I prepare lunch and iron their school uniforms. We have breakfast together, then I put the washing to soak in soapy water. Then I go to work in order to start at 7.30 at the finca. The children come with me; I drop the baby at mother's and the other children at school. I work until 3.30, and then return home and collect the baby on the way. I take my bath and prepare the supper and drain and rinse the clothes to be hung out next day. Then we have supper together. My eldest daughter (7 years) helps me to clear up the kitchen, then I have to look after the children's homework, but I don't always have time to do this, not even to watch telly... most nights when I switch it on I fall down asleep like a sack of potatoes.

Other examples of women's double duty of domestic labour and work outside the home come from Maria Helena from Santa Barbara, Carmen, now living in Hatillo, Teresa from Santa Barbara, and Velia from Hatillo.

Maria from Santa Barbara, 27 years old:

I had to leave school because when I was 12 my father took us out of school to help him work: cutting down the undergrowth with a machete, picking coffee, clearing sugar-cane, all that sort of thing. It's a man's work, but there's no other kind of work there in fine houses and we're all very poor... the children grow up and they set them to work, and that's why they hardly study anything, as they are so poor. Men or women, they all get set to work on the land so that they can learn to work.

First of all, when they are about 12, they pay

them half wages as they learn to use a machete, because we start off like that. I got a job earning 2.40 at that time. That put me on the same level as the older women, because I and the rest of us that were new would go together in pairs and between us we had as much as the older women who were earning 4.50. That gives you a voice with the manador (to speak to him) to say that a young girl is no different from an older woman. We would be working from 6 in the morning till 2 in the afternoon. They made up teams of men and of women and we would get on with the clearing the sugar cane. We would take a break at midday, as we had started at 6 in the morning, and clearing cane is very hard work.

Carmen, 29 years old, from the Meseta Central and now living in Hatillo:

When I was a little girl, really little, I remember we used to eat very badly; we were very poor and there were lots of us, and then my granny died and she left my mother nothing. We were penniless. Dad used to drink a lot - he would go out and try to buy a paper and would lose his jacket and everything, and we would be left at home, hungry and waiting for him to get back: when I was very young they taught me how to work. At three in the morning I would go to collect blood from the slaughterhouse to feed the pig, and we got a sow instead and then we got a cow
...

Teresa, 30 years old, a countrywoman from Alajuela, gives an instance of the double work shift (salaried employment and work at home):

Ah yes, when I had the chance, and I used to help a lady. I used to help Mother as well; I used to love to see the boards all clean and I would wash the walls and clean them, and the clothes - when she had little children, babies still, I would be the one to wash the nappies. Cooking too, I used to enjoy making sweet things like candy rock and condensed milk, and I'd make something different every day. But there was the work in the fields to be done as well, and I've worked hard there, planting cane and manioc, little coffee plants: they need tying up. And I'd plant yam and weed it, and take those little threads off the coffee plants that you have to pick off with a stick. I knew what it was like to use a machete, to haul the rubbish away, to carry firewood on my shoulder so that they could get it on to the cart. Yes, and I worked very hard like that.

Velia, (37 years old,) living in Hatillo, thinks of herself as being a 'housewife', and yet shows in the following paragraphs that she has a wide knowledge of farm work:

So we worked for a long time, when there was a lot of cane to be cut. Afterwards, when all the cane had been cut, we set to work raking up all the leaves. That meant tidying up all the rows of seedlings and taking care not to damage the young plants so that the cane will be able to grow, while others had to chop the cane and a number of other jobs, like taking cuttings from the coffee bushes and getting rid of the large suckers that were turning yellow, and removing the threads that cover the coffee, because that damages the roots of the coffee plant, and you have to get rid of it so that the coffee bush stays healthy. There's a special sort of fertiliser that you have to scatter on the ground around the bush, and the fertiliser was very strong, so what you have to do is to clear the ground in a circle around the bush so as to apply the fertiliser, and the foreman will tell you how much of it you have to put on. Someone else comes along behind you with a machete, covering it over, and while one person worked clearing and putting on the fertiliser, someone else would follow along behind covering it over with the machete.

My father taught us how to sow beans and maize, how to haul firewood and perform various tasks, how to sow potatoes as well, because he liked to show us how to do things, so that we would be able to look after ourselves, you know? Even though it's just working in the fields, he thought we might be in need some day and we could go to some farm and if you can do that sort of work and you know what you're doing, you won't go hungry. After that, to carry on with what I was saying, we learned to work the land, and my father taught us all that, but I came over here to San Jose when I was 14 and I worked here for three years. I learned how to cook and how to do housework. While I was living in Pejivalle I never cooked anything and never did any housework, because we were doing piece work, 120 rods, or 120 boxes, as the people in charge used to call them. The foreman would go along measuring with a long rod, and would note down what you had done in a notebook, labourer so and so, so much, and it would go on like that until you got to the 120 rods, and then you had earned your wage. And, you know, we would have a real pain in the back after all that, very painful, and we would get home to have something to eat and relax a while and then it was

time to help my mother, washing clothes and ironing. That was the only thing we helped her do. I'm no good at grinding flour, although I can make pasties or a little cake, as long as it's simple... but thank God I have nothing to complain about, and God has helped me to learn all the things I know, isn't that so?

Velia is not good at domestic labour but at that time she had the assistance from her two sisters who were living with her. Consequently, they had well nourished children.

7.08 THE VALUE OF CHILDREN (LOS CHIQUITOS)

Women, in both the Santa Barbara and Hatillo study areas, had no free time for recreation. They recalled, nostalgically, the time when they were single; when they used to enjoy themselves (afterwork, during the coffee picking season) by dancing, drinking and having sex. Unfortunately, this resulted in many girls becoming pregnant. Afterwards, the pregnant girls, as mothers with children, had to live in the parental household, doing all the domestic labour. A tacit agreement existed between themselves and their parents that this was their punishment for their 'sin'. This pattern is reproduced from one generation to another. Nevertheless, the children are always welcome, for themselves and as a 'potential labour force'. Their perception of children, 'los chiquitos', (the little ones), is illustrated by the following example:

Nena, aged 40 years, from Hatillo: when asked if she was tired, she replied,

I'm exhausted and bored, but my children console me. They are too many, but they bring me happiness. I don't blame anyone, on the contrary, I am thankful to God for helping me and giving me this great happiness - many children. All are good sons, without vices; the girls are very good daughters.... Of course I had to buy uniforms and books for the school and my income was not enough. I needed one to help me in the house, the other girls to go to do domestic work (paid) and the boys to earn money to help me., therefore I had to take 'los chiquitos' out of school.

7.09 THE PERSISTENCE OF CULTURAL PATTERNS OF FEMALE SUBORDINATION

Female subordination is reinforced by cultural patterns which specify that a woman's role in life is to care for her children and look after her man. This conflicts with the economic necessity of her having to work to obtain money to support her household. Therefore she suffers from a guilty conscience for neglecting her traditional role and, also, has to spend all her waking hours trying to accomplish not only what is required of her as a mother, but also the obtain sufficient income to enable her to sustain her children.

These women always recognised their obligations but never claimed their rights as human beings, as women or as workers. Their constant worry was not being able to be able to take good care of 'los chiquitos' (the children). This cultural pattern is repeated generation after generation. When they are beaten by their conjugal partners they hide the fact from their children, because they do not want their children to be worried. They feel

themselves responsible when their partners beat them for 'abandoning' their domestic labour by going out to work, even if their partner cannot provide all the economic necessities for their home. During the field work, many examples were noted of women being beaten by their conjugal partners, but, yet, many of these women stayed with them, making excuses for their partners' behaviour, eg. 'When he's not drunk he's very sweet to me, and works', (Luci, married for ten years). A more extreme example is the case of Ofelia, (about 40 years old,) from Hatillo:

My destiny is to have a bad husband. For many years I lived in a 'shower of blood' (a colloquial term for being beaten so hard that blood is drawn), not 'cos my husband was 'in drink' but because he used to be desperate for women. He was terrible; he didn't respect the family ... my cousins or my nieces. Some days when he was working alongside me he would run across to another woman, and hug and kiss her. ... afterwards I found out that she was a prostitute ... Now he seems to be changing.

Their justification for remaining with these violent partners was that they felt that, in some way, they were to blame for not keeping themselves 'pretty' so as to please their conjugal partners: 'Perhaps I spend too much time looking after the children, the house and working and not enough making myself nice and pretty for him'.

Some of the women, probably most of them, do feel that they are badly treated in their paid work, but they do not feel that they have a right to have the situation remedied, or that there is legislation regarding the 'minimum basic wage'. They live in fear of losing their

jobs if they come into conflict with their employers. The following is a typical example of the attitudes met with during the field work for this thesis.

Cecilia, 36 years old, a countrywoman living in Heredia, Santa Barbara, explains that she had no knowledge of the minimum basic wage. When asked 'But did it never occur to any of you to ask whether you were getting the correct wage?':

It never occurred to me. I'd like to ask the one who oversees our work, the inspector, to see whether this is what our wages have to be or if we should be earning more. It seems a very low wage to me, just 133.00 a week.' ('Do you have a colleague called Marie..?') 'Ah no, it must be someone else... I don't know...they fire them every three months there.' ('What do you mean, they fire them every three months?') 'Well, it's like this ... for example, there are different sections in the factory, you see. For example, some of the girls send all the merchandise to those who are going to deliver it, and for example, in order to classify the clothes, they make piles of only one kind of article. Well then, I'm in the classification section but ... I don't know, one month they just fire me, and then they call me back and send me to a different section. Or I'm in one section and they just transfer me, you see? It makes me feel uncomfortable, because when they call us in, we can't say no, I don't want to resign, because when we start working there they tell us that we'll have to hand in our notice after three months, just a verbal resignation, you understand. Then later they call us in. I think it is because they had a problem there one time, when one girl had been working there for a long time and they fired her, and a few other people as well... and then they did not want to have to pay compensation. So they were arguing and all. I think that's why they fire us every three months.

Maria, aged 22 years, living in Hatillo; sister of EGO; when questioned about her earnings:

Well, I earn 80 colones a week. for instance, 3.25 an hour. But it always works out at 80 colones a week, even for more or less hours.' ('It seems to me that you should establish how many hours you work

each week and multiply it by that sum, because it really seems very little.') 'Yes, but there's so little time. You're set to work as soon as you arrive, and you're very tired when you finish. And when you get home it's nothing but trouble and more work.'

The pressures of domestic labour have an adverse effect on the women in this study when it comes to establishing their legal rights as workers, because they have not sufficient time to organise themselves into unions, or the physical energy that this would require after they have done their domestic labour and their work as employees.

All the pressures placed on these women by the existing system undermine their health and this deters any desires which they might have to change the system. They continue as their mothers and grandmothers have done, facing up to and enduring any adverse situation.

Many women claim to suffer, or have suffered from, 'nervios'. This is synonymous with depression, anxiety, sense of hopelessness, overtiredness or exhaustion and inadequacy as partners, mothers and daughters; though these explanations are not put forward; take for example:

Virginia, aged 30 years, from Hatillo:

Each month before my period I get that (nervios). Because my problem is that, if I have to take a bus, I go up and down about eight times. I got a terrible state of 'nervios'. I felt as if I was going over a precipice and we would crash. This is why I try to sit close to the door, but I don't start coming back home and beating los chiquitos. This is only my nervios. I cure it by going for a while into a quiet place. It is like a calm spot is the eye of a hurricane. The boss (at work) is very good. He lets me hide it.

These women have very few outlets for their feelings. The traditional outlet for men is alcohol, but the women cannot take this due to lack of time to go out drinking, lack of the necessary money and the traditional barrier 'it is something men do'. None of the women in this survey, in either Santa Barbara or Hatilleo, were alcoholics.

Women channel their feelings, in order to get relief, into their intense love for their children and religious or magical beliefs.

7.10 WITCHCRAFT AND SPELLS (MALEFICIO)

A working woman called Margarita, 25 years old, refers to the existence of magic:

We were able one day to go and consult a witch. She's good, you know, very, very good. Last time she said that if I took a photo of my husband and a hair or something, a bit of his clothing, but I said it wasn't possible to have a photo as they were too expensive for him to have taken. So I said no, and then she said any of his clothes would do, and underwear would be best. That's a pity. She's very good when people have curses put on them by others, and she cures us: she makes us form chains and makes us stand like this, you see? ... and then she tells us to let go of each other. Sometimes everyone feels frightened and cold and all, and later they're cured, and sometimes there are dolls with pins in them and everything! You know, I had a curse on me once because my hair - you know, it used to be long and very pretty - and they had to cut it for me because it was falling out. It was a curse that that woman put on me when she was going with Juan (her husband), and the lady told me I should have it cut so as to get rid of the curse. It worked, she cured me, and it doesn't fall out any more. The curse was so that I would lose all my hair, so that I would die or be left really ugly, because she wanted to have Juan for herself. He was going with her, but that stopped later on.

When she was asked, 'Did you really see the

'maleficio' (the evil spell)?', Margarita answered:

Yes, because the witches show you the thing. It was a bottle with a long hair of mine coiled in a piece of cloth inside it. It stinks awfully.' ('Are you sure that the clothes and hair was yours?') 'Well, it was very dark. But yes ... she (the witch) told me that it was mine. But, you know, it was true. I hang out my clothes where people walk through, and I noticed that something was lost. My husband's mistress must have stolen it.' 'What kind of clothes did you lose?') 'Panties ... The hair was like mine - long and blonde.' ('Where was the maleficio?') 'It dropped from the sky. Very strange, because all us women were sitting hand in hand in a circle, and I was sitting in the middle. The lady (the witch) I guess was communicating with the spirits. Suddenly a horrifying sound came from above and that bottle dropped into the middle of all of us.

Some women are very religious (Christians, both Roman Catholics and Nonconformists) and reconcile themselves to their churches' teaching, that in the next world you will be compensated for the troubles you have endured in this world.

In all cases, it is in the household situation that the beliefs and cultural patterns relating to the role of women in this society are encapsulated. Women, encouraged by their extended families, perpetuate this situation. The household enclosed these women against external pressures which could change or radically affect the traditional pattern of female subordination.

CONCLUSION

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This study has examined social and biological reproduction in the sectores populares (low income groups) of two areas in the Meseta Central, Costa Rica: Santa Barbara (rural) and Hatillo (urban). The household was employed as the unit of analysis (see Chapter 1) as it is here that the basis of reproduction is to be found.

The basis of all reproduction of any socio-economic formation is, after all, the maintenance of human life - of the working population, to ensure the continued input of labour (Evers et al, 1984). Reproduction has two facets, primary and secondary. Primary reproduction is biological reproduction. It is connected, directly, with production and consumption and takes place in the domestic sphere. Secondary reproduction is reproduction of the social and economic order, in such a way 'as to ensure either its continued existence as a definite social formation or its propitious transformation' (Evers, *ibid*). Primary and secondary reproduction are interdependent. Therefore, in order to study reproduction as a means of understanding a particular social formation, both aspects of reproduction must be studied.

This required a multidimensional approach (see Chapter 3). The basic propositions were derived from Marx and from those Marxists who developed the theories of 'Dependency' and 'Capitalist Accumulation Process': Cardoso and Faletto, 1972; Amin, 1974; Bujarin and

Luxemburg, 1980; and Hinkelammert, 1983). Marxists who studied household economy were considered: Long and Richardson, 1978; Meillasoux, 1981; Safa, 1982; and Evers et al, 1984; as were those who developed feminist theories: Gardiner, 1975; Secombe, 1975; Young, 1978; Bennholdt-Thomsen, 1981; Harris, 1981; Jelin, 1984; and Redclift, 1985.

A Marxist approach directs attention to the forces of production and the relations of production which in capitalism link labour and capital. The thesis therefore addressed the historical process by which capitalist penetration has brought a partial decomposition of the peasant economy but has reconstituted it in urban conditions. Capitalist penetration is exemplified in the study areas by some plantation ownership of coffee and by the proletarian urban economy, but proletarianization is very incomplete. The research has found very similar forms of production in the rural and urban case studies: the relations of production were much more similar than had been expected. When examined in classical Marxist terms, the rural community (Santa Barbara) exhibits submerged elements of the peasant formation which appear to have resisted total displacement. It is then difficult to explain the similarity of relations of production in the urban community.

To appreciate fully the survival strategies deployed by low-income households, the analysis has moved beyond

the classical Marxist level (see Chapter 7 and women's biographies, *passim*) and examined also the relations of production within households and between the sexes. The internal structure of households has been investigated. The thesis does not seek to establish the dynamic which determines these relations of production, but rather examines the consequences. Therefore it has not entered the debate as to the maintenance of peasant forms (whether this is because of or in spite of capitalist penetration). The relations of production are constantly reinforced by ideology, which in these cases reflects women's subordination and ensures that despite their exhausting work routine, they are effectively denied the possibility of improving their conditions.

Certain differences may be identified between urban and rural groups. Urban households seek to secure better paid, higher status employment within the wage sector. Few can achieve this. This option is less open to rural households, which must exploit all opportunities for temporary employment. Nevertheless, relations of production (in the traditional sense) remain comparable in Santa Barbara and Hatillo, and both localities depend on co-operation within the extended family to guarantee their children's nutrition. Both have recourse to intra-family, intra-household and female-male relations to secure reproduction.

The work of Karel Kosik, 1967 - 'The Dialectic of the Concrete' must be singled out as having a primary

influence on the theoretical framework to this thesis. Kosik pointed out the need always to locate the particular (in this case the low income sector in the region studied) in relation to the general (here the conflict between classes); together, he claimed, they encompass a greater area of knowledge than is possible when studying the particular and general as two separate entities and combining the results. Theory and practice must meet in concrete reality. The 'concrete reality' of the sectores populares of Santa Barbara and Hatillo was the focus of this study, in the context not only of the wider system but of theory. When it was decided to use the nutritional status of children, determined by physical tests, as one indicator of well being and standards of reproduction, it became necessary to examine the life circumstances of the children; their environment, the geography and historical development of the region and its capitalist economy, their housing conditions, the economic status of the household and the domestic labour of their mothers.

In the Meseta Central, capitalism developed with coffee production (see Chapter 2) as the primary export crop: there were strong interconnections with other regions of Costa Rica in which production concentrated on banana and beef production. The coffee crops were grown on fincas (commercial farms) using capital advanced by overseas banks. These fincas were, initially, small in terms of occupation of land, but gradually occupied larger and larger areas at the expense of the peasantry. (see

Chapter 2). The displaced peasants moved to the periphery of the Meseta Central but came back to the fincas for the harvest season. Others moved outside the Meseta Central to the banana plantations, or to the suburbs of San Jose, thereby extending the city.

The selection of Santa Barbara and Hatillo as suitable areas for study (see Chapter 3) was on grounds of type of economy. The former is representative in character of a rural area of the Meseta Central with seasonal work in coffee and (to a lesser extent) sugar. The Hatillo district of San Jose as an urban area of low cost housing was similarly representative of a number of other urban areas.

The household, as the unit of analysis, was selected because it is the basic unit for production and reproduction (Chapter 1). Specific households were selected on the basis of having a child/children under the age of two years. A method was evolved which would summarize child nutrition at the household level.

When undertaking studies involving human beings, account must be taken of the variety among individuals and that the individuals themselves vary with time. They respond to certain stimuli and these in turn affect the test situation. In both Santa Barbara and Hatillo, the mothers of the case-children reacted to their being tested by increasing their food intake; the children became better nourished, even overweight. This biased the results and, therefore, the testing was extended to all the

children of the household, so as to gain an insight into the real situation, assuming that it was economically impossible for the mother (EGO) to increase the food intake of all members of the household.

In both Santa Barbara and Hatillo, contrary to the findings in other underdeveloped countries, such as Guatemala (Valverde, 1979) and India (eg Prentice et al, 1981) mothers did not differentiate between girls and boys when they allocated the food. Lopez de Piza (1984) noted that there was no discrimination between gender of children in her two studies in Costa Rica, namely, those in the peasant community of Cot and the suburban community of Tres Rios.

When nutritional status was first being examined, Waterlow's classification (see Chapter 3) was used. However, this applied to individuals, and when it became necessary to test all the children of the household, Waterlow's classification had to be modified to treat the set of children constituted in each household as a single unit. This new index classified the households into three groups: 'Adequate', 'At Risk' and 'Deficient'. The average/mean nutritional status was determined by biochemical analyses of the children's blood, anthropometric measurements and food intake analysis.

In order to find an explanation for the variations in nutritional status from household to household, an examination was made of sources of income for the household, whether in money, kind and/or state assistance

(Chapters 2 and 6); household structure was ascertained, number of household members who were contributors to household income, employment patterns (whether household members had more than one job per person), expenditure and all other activities related to consumption.

In addition to these studies, EGO's (the mother's) timetable was recorded, ie how she allotted her time between tasks. The reason for this was not only to collect data on domestic labour, but also to see if a relationship existed between the mother's domestic labour and the children's nutritional status.

The problems which had to be resolved in the methodology were:

- 1 Heterogeneity of data to be collected (biological and social).
- 2 How to take into account both social and biological variables in a single model.
- 3 What unit of analysis of socio-economic and cultural data could be compared with the anthropometric data.
- 4 Temporal change (some children had changed their nutritional status during the study period).

The following solutions were attempted:

For 1: the heterogeneity of data, a multidisciplinary approach was used and a multivariate model for statistical analysis.

For 2: a simple model was selected to combine biological and social variables.

For 3: an index was created based on Waterlow's classification of individuals, to serve for the classification of households using Principal Component Analysis and Stepwise Discriminant Analysis.

For 4: instead of taking the nutritional status of one child to indicate household nutritional classification, all the children of the household, under the age of 13 years were studied (see above).

After examining the status of the children the households and analysing the results, malnutrition could be seen to be attributable to a variety of causes.

Seasonality

In the Meseta Central the money available for purchasing food and artefacts varies according to the season (see Chapter 2). In the coffee season (October, November and December) labourers in Santa Barbara receive the bulk of their income and the increase in the money supply is translated into an increase in quantity and quality of food consumed. In Hatillo, household income also increases at this time,

from commercial establishments and products of household industries. For the rest of the year, people have to cope with the uncertainty of unemployment due to seasonal nature of work, linked with coffee and sugar crops (Santa Barbara) and the temporary contracts and part time work in the urban setting (see Chapter 6). At this time households are short of money and the food supply is reduced.

A fluctuating food supply directly affects the nutrition of the households. When the food intake of the households was examined (see Chapter 4) however, differences were noted between them. Though most of them were in terms of monetary income 'subsistence level', child nutrition varies from the state of being 'adequate' to 'at risk', and from 'at risk' to 'malnourished'.

Diets were low protein and high carbohydrate in both Santa Barbara and Hatillo for the same reason, ie they were cheaper than high protein diets. The women are instructed at the health centres in the value of good diets and how to achieve them, but they are unable to afford to prepare them. In the rural area of Santa Barbara four households in the survey had access to land, but instead of increasing their food supply with home grown food, they grew commercial crops: coffee and flowers.

Blood analyses reveal that there are more children in Hatillo with low levels of iron, than in Santa Barbara. Ferritin, which is a long term indicator of iron reserves had similar low levels in Santa Barbara and Hatillo, showing that both areas have a diet low in meat, proteins

and green vegetables. However, more children are severely malnourished in the survey group in Hatillo, the urban area. This could not be attributed solely to the low level of income but had other contributory factors, namely lack of childcare, children unable to get employment at an early age (as they can in rural areas) also their mothers' lack, in some cases, of the 'adaptative technology' for living in urban areas; some are only recently settled in Hatillo and not acquainted with the social services and other resources.

Breastfeeding is a 'lost habit' in Costa Rica, the main reasons being the tradition of mothers leaving their babies at home when they go to pick coffee etc, lack of nursery provision by the state, or creche facilities at their workplaces, and the fact that although social security is paid for four months after the birth, this is only applicable to fulltime working mothers.

In both populations, malnutrition is linked to problems of seasonality, income (which means low wages; temporary and part time work) low food intake and low protein diet.

Stunting was found to be the main problem of both populations and is related to the seasonality of income. The results obtained showed a relatively low frequency of severe malnutrition, wasting and stunting, in both Hatillo and Santa Barbara, which is proof of relatively good reproduction in these populations. At the same time, deficiencies detected show weaknesses in reproduction

which do not permit the realization of full human potential in these low-income groups of the sectores populares, and will restrict the improvement in living standards of each generation.

When studying the many migrations made, by the women, throughout their lives, as revealed in their biographies (see Chapter 5) one can see two phenomena: 1) Circular migration and 2) depeasantization in the Meseta Central region. The former is due to the different harvest dates, owing to the variations in the micro-climate (see Chapter 2). The extended harvest-season ie September to February, gives the people of Santa Barbara, especially the women and children, opportunities to earn money during nearly six months of the year taking advantage of earlier and later crops elsewhere in the region. (During the first month and in the last month of the coffee harvest earnings are small owing to the low output.) Such circular migration about the region and commuting result in the diversification of the use of space in the Meseta Central and are important features in the lives of these women. In addition, these features increase the importance of the extended family - very young children are left, where possible, with grandmothers. The impact of depeasantization can be seen throughout this study. The peasants lost their land little by little, but they remained peasants, by ideology.

The proletarianisation process has been retarded, because peasants could supplement their earnings with a variety of non agricultural jobs, in particular, in manual jobs in the services and factories in the rural areas. This reduced the necessity for many of them to move to the urban areas. People in Hatillo were, principally, migrants from the provinces of Guanacaste and Puntarenas, outside the Meseta Central, where the cattle ranches have been extending for several decades. These ranches absorb little labour and, therefore, the peasants have to seek employment elsewhere, accelerating the rate of proletarianization in these cases.

In terms of the education of the people of Santa Barbara and Hatillo, it can be seen that the former, on average, spend fewer years at school. The incentive for better training in Hatillo is that higher skills are necessary in order to obtain employment. In both study areas men and women had similar levels of education, though more women than men, in Hatillo, have secondary education because, ironically, women must complete secondary school in order to be accepted at the training school (INA) while men can be apprenticed direct. Gender subordination is obvious in employment. There are also more job opportunities for unskilled work for men, in Hatillo, than there are for women.

Households in Santa Barbara and Hatillo are composed almost exclusively of close kin. In the Meseta Central the organization of all households of low income groups, both

rural and urban, is based on kin, to an exceptional degree, and is a characteristic feature of the population.

In Costa Rica in particular in the Meseta Central, the system of compadrazgo where godparents are selected from non relatives so as to form ties of obligation and cooperation with people who are non kin, (Wolf, 1950) does not exist. Godparents in Costa Rica are selected from kin and have relatively minor importance; the custom is fulfilled in most cases simply to meet the requirement of Roman Catholic ritual. A cycle in which household structure moves from a nuclear to a female-headed or extended family household was detected in the study populations. Young women frequently live in the parental home, either as single mothers or with their conjugal partners. As economic conditions improve, they set up independent establishments and become organized into nuclear family households. From 30 years of age onwards, female headed households begin to emerge, due to some women being abandoned by their partners. Towards the end of their lives, women are again organized into extended-family households, this time with their adult children and grandchildren. The importance of the extended family in relation to nutrition is very striking, for children in both populations. For it is here in extended family households that the largest percentage of 'adequate' households are encountered. It is among the nuclear households that 'deficient' households are significant.

The higher the ratio of producers to consumers, the

more likely are the children of the household to be adequately nourished. The ratio of producers to consumers in Santa Barbara is higher than that of Hatillo due to availability of work for women and very young children in the coffee plantations. In Hatillo paid work is unavailable to small children.

In both populations the majority of jobs available are at the bottom of the scale of money and status. The majority work for pay. In Santa Barbara many are employed in 'piecework', and paid according to the number of cajuelas which are filled by the coffee pickers. This work involves all members of the family, with the exception of the youngest children, following the tradition of the peasants. In urban Hatillo, pieceworkers do a variety of jobs, usually as peones in construction.

Land, in the rural area, is an additional source of income, in the very few cases where peasants still own or have access to land for their own cultivation. Permanent jobs are more common in the urban area; whereas in Santa Barbara seasonal and permanent work are equally prevalent. Temporary work availability increases in the non-harvest season.

The Meseta Central is a region in which people are employed in both agriculture and non-agricultural work and there is an overlap between rural and urban environments and type of employment. The growth of the secondary and tertiary sectors of employment has been rapid since the last century and these have provided jobs in the coffee

and sugar cane 'off season'. The permanent jobs are insecure due to the system of employing workers on a 'three month' basis and then reemploying them, thereby avoiding the national insurance payments which are obligatory for full-time workers.

Differences between the wages obtained by people in Santa Barbara from those of Hatillo are explained by the availability of permanent full time, as compared with temporary and part time work. The variations in both places between the earnings of men and women relate not only to the availability of the jobs, but also because women, due to having to take care of their children and engage in domestic labour, do not in most cases have time in which to undertake full time employment and so take part time or temporary work; the few who do obtain permanent work are unable, for the same reason, to claim their legal right to overtime. Though the law states that men and women shall have equal pay for equal work, nevertheless, the law is not enforced.

Diversification and multiplicity of jobs, diversification of roles, exchange of goods, barter, cooperation of all members in specific tasks, home industries, food gathering in the fields and markets and receiving food from state supplementary food schemes; these are the ways in which people from the sectores populares both rural and urban situations strive to achieve subsistence.

The state supplementary food programmes and low price

food shops are state programmes which provide food to compensate for the low incomes. The programmes came into being after the revolution of 1948 and were meant to 'help' the low income groups. However, contrary to their original intention, they are not available to all the needy because they are expensive to administer, processing of applications is slow and many of the people, who could benefit from them, are not aware of the procedure for so doing. In this period of economic recession, these programmes and social security facilities have deteriorated or been curtailed. Nevertheless such programmes were the only source of food in the whole day, for some of the households.

When comparing individual households with the nutritional status as defined by the three categories: 'Adequate', 'At Risk' and 'Deficient', it can be seen that most of them fell below subsistence level as defined by the canasta basica (basic basket of goods).

The minimum wage is itself below that required for the canasta basica. The remarkable fact is that most of the Santa Barbara households even with adequately nourished children, fell below the level of the canasta basica. Adequately nourished children had, as their most characteristic trait, mothers who originate in the Meseta Central. It has here been argued that these mothers (EGOs) developed survival strategies, or 'adaptive technology', transmitted from one generation to another which allows for a better adaptation to traditional labour conditions:

extended family in the neighbourhood; skills in coffee tasks from an early age and knowledge of access to state supplementary food programmes. These are 'typical' households in the Meseta Central. 'Atypical' households are characterized by diminishing capacity to obtain the necessary goods and services for an adequate reproduction. It was generally found that EGO had in such cases originated from other regions outside the Meseta Central.

This research concluded that good child-rearing patterns allow families with scarcer resources to maintain their children in an adequate nutritional status, in spite of their poverty.

The early stages of economic and social development of the Meseta Central were marked by scarcity of workers. Every child became a potential labour resource and, so, a cultural tradition was established for his/her protection; positive policies were developed at state level for health and education. These policies have allowed for an adequate reproduction. The state is inextricably bound up with the capitalist system and performs its role of providing security, only to the level necessary to guarantee a supply of wage labour.

Domestic labour is centred on a set of activities essential to the day to day reproduction of the labour force. It is tedious, monotonous work, continuing day after day, in fact, never ending. In recording EGO's timetable (see Chapter 7) the aim was to discover how she allotted her time among various tasks and to see what

relationship this had to the nutritional status of her children. That is, did the mothers with adequately nourished children have more time to spend on them than the mothers of inadequately nourished children?

In both populations there was little time dedicated by EGO to remunerative work, because of their having children less than two years old. All these mothers had done remunerative work before the birth of their children, but stated that they had to give up all or most of it after their child was born. Female-headed households were found to have a 'double-working day' (ie combining a full-time job with domestic labour) and their children were more at risk of malnutrition.

Women devoted less time to personal care, including taking their meals, than to their other activities. From Table 7.01, the average time spent, during the day, resting and watching television was two hours. However, from direct observation the women were seen during these 'rest periods' to perform numerous household tasks such as cleaning and sorting the beans, cleaning vegetables, ironing and repairing clothes and breastfeeding their babies. Therefore, 'rest time' is a misnomer.

Cooking is a time-consuming business requiring more time than other tasks (see Tables 7.01 and 7.02). In Santa Barbara cooking took up almost twice the time it did in Hatillo. The reason for this lies with the cooking apparatus. The Santa Barbara stoves are woodburning, therefore time has to be spent collecting the wood,

cleaning the stove and rekindling the fire. They have, also, to cook, grind the maize and make the tortillas (maize cakes). In Hatillo most of the stoves are electric and easier to clean. The tortillas are purchase from a shop. This makes them more dependent on a cash income. In Hatillo, EGO spends more time ironing than her counterpart in Santa Barbara. This is because the urban people consider it more essential to have the family's clothes ironed as this increses their employability. Each shopping trip is more time-consuming in rural areas than urban due to the distance to the shops. So shopping is, usually, a once a week task in Santa Barbara, but in Hatillo, people shop almost every day. It is argued that the pulperia (corner grocery shop) in Hatillo serves as a social centre to compensate for lost kin networks.

Apart from these differences, women both in Santa Barbara and Hatillo have similar exhausting days with very little rest time. Weekends are devoted to church services and catching up on those tasks unfulfilled during the week. The church in Santa Barbara fulfils a comparable social role to the pulperia in Hatillo.

With the exception of the case where EGO was ill or giving birth in the hospital, when her conjugal partner made meals for the children and himself, no conjugal partner or any other male in the household performed any domestic task inside the home, though the smaller boys were sent on errands. Domestic labour is women's labour in these populations. Discriminant analysis of domestic

labour in comparison with children's nutritional status, showed that in Santa Barbara three activities of domestic labour were predictive of nutritional status: time spent on errands, cleaning the house and cooking. In all these activities, women of 'deficient' households devoted less time than they did in 'adequate' households. In Hatillo, different components of domestic labour show discrimination: women of 'adequate' households spent less time on errands than did those in 'deficient' households, (the opposite to Santa Barbara); women in 'adequate' households in Hatillo spent more time in the care of clothes. In Hatillo, therefore, domestic labour was much less directly related to the nutritional level achieved.

In general the variables which show, in Santa Barbara, the greatest differences between 'adequate' and 'deficient' households refer to those activities which seem less important in domestic labour: EGO's personal care, daytime rest and sleeping ie if EGO spends more time on herself the children suffer from poor nutritional status. In Hatillo, the time dedicated to meals, going on errands (to the Pulperia) and entertaining visitors, is negatively related to the nutritional status of children; which means that if EGO devotes more time to these activities, in turn less time is available for the children. Therefore, as EGO's time is limited, by the length of the day, the more efficient she is at performing her tasks and the more self-sacrificing she is, the greater the chances of her children being well care for and adequately nourished.

Early training of EGO in domestic tasks is of paramount importance in this society if her children are to reach a good nutritional status and the society is to achieve good reproduction. In Chapter 7, the biographies of the women show that this training in domestic labour begins as early as five years of age and after only two or three years more, the little girl can wash, cook and care for children (see biographies of Lucia and Maya in Chapter 7): she is now equipped to put these skills, at a later date, to monetary advantage for the household; she can go into paid domestic service (see Nadia's biography).

In addition to the training in domestic labour, the children of the Meseta Central learn to work outside on the family small-holdings and to do paid work in the coffee harvest (see the biographies of Maria Helena, Carmen and Teresa). Therefore, in terms of twentieth-century Western civilization, childhood for the children of the Meseta Central, in particular for the little girls, is very short. In spite of the drudgery recalled by some of the informants, there were others who looked back on their single status as a time of freedom (see Chapter 7, biography), but for most of the mothers, the children, no matter how numerous, are the compensation for the burden of the 'double working day' ie domestic labour and full time remunerative work outside the home.

Good reproduction depends in the Meseta Central on the degree of subordination of the women. Cultural patterns help the women to cope with the situation, but at

the same time, cultural patterns reinforce their subordination.

Marx, as stated earlier, (see Chapter 1) never considered the value of domestic labour of women. However, in the capitalist economy of underdeveloped countries, such as Costa Rica, it is the domestic labour of the women which reinforces the system. The wages of the workers are insufficient to maintain the household in adequate reproduction. Therefore, the women must resort to other means of assistance in order to reach an adequate nutritional status of the children. These are: help in running the household from the girl children and older female kin; goods and services from the women of the extended family; working within and outside the household (waged and non-waged).

The reproduction of adequately socialized, adequately nourished labour is a condition of existence of any social system (Harris and Young, 1981). The forms in which labour is reproduced depend on the development of different social formations; Costa Rica presents certain characteristics related to its geographical position and others related to specific historical circumstances which determine the development of its productive forces (Chapter 2).

At a time of economic crisis, which derives from several causes including the Central American and the external debt, thirty years of a 'benefactor state' have been ended. In this low wage economy, state assistance is

critical for low income groups to feed their children adequately. According to the 1985 census, almost 40% of families are female-headed: how will these women meet their children's nutritional requirements? One outcome has been women's increased politicization and consciousness.

This thesis called attention (Chapter 1) to three social contradictions, generating profound conflict of interest, between the centre and periphery in the world system, between social classes and between the genders as they are socially constructed. The thesis has examined the survival strategy in the Meseta Central - a strategy which centres on the women and makes extremely heavy demands on them. By examining rural and urban populations, it has been established that cultural patterns are the most powerful explanation of the differences between adequately fed and deficient households.

The production and reproduction of labour emerges as central to the Costa Rican economy, and women's part in this is exceptionally salient. In a sense, men become marginal to the process and to the household. Heavy demands are made of women at all stages of the life cycle: domestic labour and diversified household enterprise prove the keys to the survival of low income groups in Costa Rica.

It is by studying the lifestyle of the women in relation to childcare and analysing the nutritional status of the children, that the 'concrete reality' of the situation, with regards to reproduction in the sectores

populares of the Meseta Central, is to be seen.

Only from an adequate appreciation of the concrete reality can we move towards political praxis and a greater equality in this unequal world and a unity of action from people divided by the disparate realities of disparate localities. Overwork and the double day unite women everywhere.

APPENDIX I

Contents

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FORM NO.1

FIRST PART

Anthropological Investigations
Sociobiology Unit

1. Relationship between the mother's distribution of her time and the nutritional status of her children.

NAME of CASE-CHILD _____ RECORD No. _____

N D

NAME of INFORMANT _____

ADDRESS _____
Province Canton District

DATE of INTERVIEW Year _____ Month _____ Day _____

Began _____ Finished _____
Hour Minutes Hour MinutesColumn Code
No.Column Code Migrations
No.

1-4 form no

1. None

5-6 case no

2. One

7 file no

3. Two

4. Three

5. Four or more

Type of Interview

8 1. Codified

2. Regular

3. Reinterviewed

10

02

Migratory Direction

1. None

2. Rural-rural

3. Urban-urban

4. Rural-urban

5. Urban-rural

6. 2 & 3

7. 2 & 4

8. 2 & 5

9. 3 & 4

10. 3 & 5

11. 4 & 5

9 2 Migration
How many places
have you lived
in since you
were born?

FORM NO.1 cont'd.

Column	Code	Parental household structure	Column	Code	Structure of the Informant's household
12	2	Do other members of your family live with you, such as father, mother and siblings? 1. No 2. Yes	20-21	02	Space in time between the case child and the next oldest child 1. Less than 1 year 2. 1-2 years 3. 2-3 years 4. 3-4 years 5. 4-5 years 6. 5-6 years 7. More than 6 years 8. Only child 9. Is eldest child
13	2	Land tenure Did your family own land? 1. Did not have land 2. No 3. Yes	22	02	Space in time between case child and the next younger child: 1. Less than one year 2. 12-13 months 3. 14-15 months 4. 16-17 months 5. 18-19 months 6. 20-21 months 7. 22-23 months 8. Only child 9. Twins 10. Youngest child
		Family structure of the informant	23		
15	10	Number of pregnancies she had:			
17-18	08	Number of live children: 1. one 2. two 3. three 4. four 5. five 6. six 7. seven 8. eight 9. nine 10. ten 11. eleven or more	24	1	Is the informant pregnant? 1. No 2. Yes
19	3	Number of dead children 1. none 2. one 3. two 4. three 5. four 6. five 7. six 8. seven 9. eight or more	25	07	Where were the children born? 1. At home 2. State Clinic 3. Private Clinic 4. Hospital 5. 1 & 2 6. 1 & 3 7. 1 & 4 8. 2 & 3 9. 2 & 4 10. 3 & 4 11. Other _____ (indicate)
			26		

FORM NO. 1 cont'd.

Column	Code	Structure of the informant's household	Column	Code	Structure of the informant's household
27	8	Birth in the home attended by: 1. No births at home 2. The doctor 3. Conjugal partner 4. No one 5. 1 & 2 6. 1 & 3 5-7. 2 & 3 6-8. Other _____	33	1	Do you live with other members of your parental family? 1. No 2. Father 3. Mother 4. Siblings 5. cousins 6. Affinal relatives 7. Partner's siblings 8. Non-relatives 9. As temporary guest only Indicate combinations of the above _____
28	4	Type of Social Security: 1. None 2. Direct 3. Family 4. State 5. From voluntary social services 6. Mixed 7. Other _____	34	1	Family Structure in the household: 1. Nuclear 2. Extended 3. Matrifocal 4. 'Queen Bee' (extended matrifocal) NB: Information to be obtained by direct observation.
29	1	Partner/husband: 1. No 2. Yes	35	9	(Only if the informant is employed outside the household) Who takes care of the children while informant works? 1. No work 2. Partner/husband 3. Informant's parents 4. Her other relatives 5. Neighbours 6. Children not needing care 7. Children left alone 8. Nanny/Mother's Help 9. Other persons _____ Indicate combination
30	2	Does anyone live with you? 1. No partner 2. No 3. Yes 4. Occasionally			
31	5	Time since partner left: 1. No partner 2. Still with her 3. Days 4. Weeks 5. Months 6. Years			
32	6	Why did he leave? 1. No partner 2. Still with you 3. No answer 4. For work 5. For study 6. Other reasons _____			

FORM NO. 1 cont'd.

Column	Code	State of House	Column	Code	State of House
36	3	1. Good 2. Average 3. Bad	41	2	Total number of rooms (excluding bathroom) 1. Only one room 2. Two 3. Three 4. Four 5. Five 6. Six 7. Seven 8. Eight 9. Nine or more
37	4	Material of floor: 1. Timber 2. Tiles 3. Cement 4. Earth 5. Mixture _____ (Indicate) 6. Other material _____ (Indicate)	42	2	Number of bedrooms: 1. Only one room 2. One bedroom 3. Two 4. Three 5. Five 6. Five 7. Six 8. Seven or more
38	1	Material of roof: 1. Metal sheets 2. Clay tiles 3. Asbestos cement 4. Mixture _____ (Indicate)	43	2	Total number of beds (including cots and each bed of bunkbeds) 1. One bed 2. Two 3. Three 4. Four 5. Five 6. Six or more
39	1	Material of exterior walls: 1. Timber 2. Adobe 3. Reinforced c'crete 4. Blocks 5. Mixture _____ (Indicate) 6. Other _____ (Indicate)	44	1	Source of potable water: 1. Pipeline to house 2. Shared pipeline 3. Well 4. River 5. Mixed _____ 6. Other forms _____ (Indicate)
40	4	Tenure of House: 1. Owner 2. Mortgage ¢ _____ monthly 3. Rent ¢ _____ 4. Borrowed 5. Squatting 6. Other _____ (Indicate)			

FORM NO. 1 cont'd.

Column	Code	State of House	Column	Code	Contents of House
45	1	Elimination of excrement: 1. Latrine, solely for household 2. Latrine, shared 3. Septic tank, just for household 4. Septic tank, shared 5. Main sewerage 6. Disposed on land/river 7. Mixed _____ 8. Other form _____ (Indicate)	50	1	Lounge suite: 1. No 2. Yes
46	2	Elimination of refuse: 1. Municipal dump 2. Burned 3. Buried 4. Thrown away 5. Mixed _____ 6. Other form _____ (Indicate)	51	1	Sideboard: 1. No 2. Yes
47	2	Contents of Household	52	1	Iron - coal: 1. No 2. Yes
48	2	Wardrobe: 1. No 2. Yes	53	1	Iron - electric: 1. No 2. Yes
49	2	Dining set/table & matching chairs: 1. No 2. Yes	54	1	Radio - transistor: 1. No 2. Yes
			55	1	Sewing machine: 1. No 2. Yes
			56	1	Floor polisher - electric: 1. No 2. Yes
			57	1	TV - Black & White: 1. No 2. Yes
			58	1	TV - Colour: 1. No 2. Yes
			59	1	Washing machine: 1. No 2. Yes

FORM NO. 1 cont'd.

Column	Code	Contents of House
60	1	Refrigerator: 1. No 2. Yes
61	1	Blender: 1. No 2. Yes
62	1	Rice pot (automatic): 1. No 2. Yes
63	05	Cooker: 1. Electric 2. Gas 3. Kerosene 4. Charcoal 5. Wood 6. Other _____
64		
		(Indicate)
65	1	Stereo gram: 1. Yes 2. No
66	1	Radio - electric: 1. Yes 2. No
67	1	Telephone: 1. Yes 2. No
68	1	Pressure cooker: 1. Yes 2. No

FORM NO. 1 cont'd.

OBSERVATIONS: _____

Interviewer: _____

Approved by: _____

Date: Year _____ Month _____ Day _____

SECOND PART

Name of Informant: _____

Address: _____
Province Canton District

Interviewer: _____

Accomplished: Year _____ Month _____ Day _____

Commenced: _____ Finished: _____
Hour Minutes Hour Minutes

Number of children: _____

N

M

OBSERVATIONS: _____

Occupation List all types of work done	Remunerated and non- remunerated work	Nature of Occupation a)Permanent b)Temporary c)Seasonal	Inside the home or outside	How long have you been in paid work?	How many hours do you work? Remunerated and non- remunerated	Occupational categories: a) Salaried b)Self- employed c)Mixed	Time without work (paid work)
1. _____	1. _____	1. _____	1. _____	1. _____	1. _____	1. _____	1. _____
2. _____	2. _____	2. _____	2. _____	2. _____	2. _____	2. _____	2. _____
3. _____	3. _____	3. _____	3. _____	3. _____	3. _____	3. _____	3. _____
4. _____	4. _____	4. _____	4. _____	4. _____	4. _____	4. _____	4. _____
5. _____							
6. _____							
1. _____	1. _____	1. _____	1. _____	1. _____	1. _____	1. _____	1. _____
2. _____	2. _____	2. _____	2. _____	2. _____	2. _____	2. _____	2. _____
3. _____	3. _____	3. _____	3. _____	3. _____	3. _____	3. _____	3. _____
4. _____	4. _____	4. _____	4. _____	4. _____	4. _____	4. _____	4. _____
1. _____	1. _____	1. _____	1. _____	1. _____	1. _____	1. _____	1. _____
2. _____	2. _____	2. _____	2. _____	2. _____	2. _____	2. _____	2. _____
3. _____	3. _____	3. _____	3. _____	3. _____	3. _____	3. _____	3. _____
4. _____	4. _____	4. _____	4. _____	4. _____	4. _____	4. _____	4. _____
1. _____	1. _____	1. _____	1. _____	1. _____	1. _____	1. _____	1. _____
2. _____	2. _____	2. _____	2. _____	2. _____	2. _____	2. _____	2. _____
3. _____	3. _____	3. _____	3. _____	3. _____	3. _____	3. _____	3. _____
4. _____	4. _____	4. _____	4. _____	4. _____	4. _____	4. _____	4. _____

FORM NO. 1 cont'd.

Work Place:- home, itinerant, establishment, finca.	Were special skills/ training necessary for your job? Yes ___ No ___ Of what type?	Monthly Salary	Do you read and write? Yes No	Education: If studying, to what level; if not, what level reached?	Other Courses Apart from formal education
1. _____ 2. _____ 3. _____ 4. _____ 5. _____	1. _____ 2. _____ 3. _____ 4. _____ 5. _____	1. _____ 2. _____ 3. _____ 4. _____ 5. _____			
1. _____ 2. _____ 3. _____ 4. _____	1. _____ 2. _____ 3. _____ 4. _____	1. _____ 2. _____ 3. _____ 4. _____			
1. _____ 2. _____ 3. _____ 4. _____	1. _____ 2. _____ 3. _____ 4. _____	1. _____ 2. _____ 3. _____ 4. _____			
1. _____ 2. _____ 3. _____ 4. _____	1. _____ 2. _____ 3. _____ 4. _____	1. _____ 2. _____ 3. _____ 4. _____			

FORM NO. 2

STUDY OF TIME AND MOVEMENT OF WOMEN

Inside and Outside the Household

Daily Time Table

Name of Woman _____

Name of Child _____

Clinical Record No. _____ N Mn

Place _____

Urban _____ Rural _____ No. of Persons in Household _____

Address _____

Interview: Days M T W T F S Sun

FORM NO. 2 cont'd.

1. Day _____

Household No. _____

From 0.00 am to 12.00 pm

Where are the other members of the household at this moment?

Use a separated sheet for each member of the household.

Hour	Movement			Time Taken		Observations
	A	R	M*	Start	Finish	Task performed
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						

* A = Active

R = Resting

M = Moving to or from a place

FORM NO. 2 cont'd.

2. Day _____
From 0.00 am to 12.00 pm

Household No. _____

Hour	Movement			Time Taken		Observations	
	A	R	M*	Start	Finish	Task performed	Who helps with this and other tasks?
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							

* A = Active R = Resting M = Moving to or from a place.

**PAGINATION
ERROR**

FORM NO. 3

FOOD PATTERNS

1. Actual Food: (Mark with a cross (X) all food which was given to the child yesterday)

FOOD	TIME	CODE
Milk		
Bean Soup		
Egg yolk		
Vegetable puree		
Banana		
Beef broth		
Soup (packet)		
Meat		
Rice		
Vegetables		
Macaroni		
Plantains		
Gerber (Processed)		
Bread		
Cereals		
Milk pudding (made with cornflour)		

Name of Health Centre:

Name of Interviewer

BREAST FEEDING (After how many months did you stop breast feeding?)

If you are still breast feeding, state how many months you have been doing so:

Months:- 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, more than 12.

FORM NO. 3 cont'd.

3. FAMILIAR FOODS

(Mark with cross (X) those foods which you consume frequently.)

Food	Frequency of food consumed			Consumers			Produced by Household	
	D'ly	Wkly	Mthly	All family	Only adults	Only children	Totally	Partially
Rice								
Vegetables								
Fats								
Macaroni								
Sugar								
Bread								
Coffee								
Tortillas								

Fruit

Canned juice

Fresh packed

Juice (natural)

FORM NO. 3 cont'd.

4. GENEALOGIES

NAME	PARENTS	Marital Status	Place of Birth	Place of Residence	Last Occupation	Present Occupation	Education	Living with EGO	How long?
------	---------	-------------------	-------------------	-----------------------	--------------------	-----------------------	-----------	--------------------	--------------

FORM NO. 4

DIETARY EVALUATION

Case child _____

Form No. _____

Household No. _____

_____ N _____ UN

Address _____

Province

Canton

District

Date of Evaluation year _____ month _____ day _____

FORM NO. 4 cont'd.

PERSONS						
		Head of Household	1	2	3	4
Name						
Sex	Male					
	Female					
Age	Years					
	Months					
Weight	Kg					
Height	Cm					
Physio- logical State	Baby breast feeding	1	1	1	1	1
	Lactating mother	2	2	2	2	2
	Pregnant 1st Sem.	3	3	3	3	3
	Pregnant 2nd Sem.	4	4	4	4	4
	Pregnant 3rd Sem.	5	5	5	5	5
	Preschool	6	6	6	6	6
	School child	7	7	7	7	7
	Adolescent	8	8	8	8	8
	Adult	9	9	9	9	9
	Aged	10	10	10	10	10

FORM NO. 5

RELATIONSHIP BETWEEN THE MOTHER'S TIME TABLE, CARE OF THEIR CHILDREN
AND THE CHILDREN'S NUTRITIONAL STATUS

Name of the child: _____

Name of the interviewer: _____

Name of the informant: _____

N MN R U

Case No. _____

1. Weight and height of the parents of the case child and the rest of the children in the household under the age of 13 years.

	Weight		Height	
	K	Gms	M	Cms
Father	_____	_____	_____	_____
Mother	_____	_____	_____	_____
1.	_____	_____	_____	_____
2.	_____	_____	_____	_____
3.	_____	_____	_____	_____
4.	_____	_____	_____	_____
5.	_____	_____	_____	_____
6.	_____	_____	_____	_____
7.	_____	_____	_____	_____
8.	_____	_____	_____	_____
9.	_____	_____	_____	_____
10.	_____	_____	_____	_____
11.	_____	_____	_____	_____

FORM NO. 5 cont'd.

Col	Code	WATERLOW'S INDICES OF GROWTH & DEVELOPMENT
-----	------	---

51-52	--	Weight /height (percentile)
-------	----	--------------------------------

53-54	--	Age/height (percentile)
-------	----	----------------------------

55-56	--	Skin fold
-------	----	-----------

57-58	--	Cephalic perimeter (percentile)
-------	----	------------------------------------

FORM NO 6

RELATIONSHIP OF MOTHER'S TIMETABLE
TO THE NUTRITIONAL STATUS OF THE CHILDREN

MEMORANDUM OF THE FAMILY INCOME & EXPENDITURE

Name of case-child: _____

Record number: _____

Name of informant: _____

Interviewed: _____
Year Month Day

Started _____ Finished: _____
Hour Hour

FORM NO.6 cont'd.

EXPENDITURE

1. DAILY:

List of daily expenditure on: food for the whole household, transport, medicines, pocket money for the children and others.

	Quantity (in Colones)	Shopping place
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		
17.		
18.		
19.		
20.		
21.		
22.		
23.		
24.		
25.		
	<u>Subtotal</u>	

FORM NO. 6 cont'd.

1. cont'd...

Donations	Quantity of Money	Quantity in Kind

Note if the children collect fruit or other food in the countryside or in the market or if they gather in fields or in mountains: (frequency, how much time and how many involved).

Countryside _____ Market _____ Fields _____
 Mountains _____

OBSERVATIONS:

FORM NO. 6 cont'd.

HOUSEHOLD EXPENDITURE

2. WEEKLY: Food, washing and cleaning the house, pay for childcare,
clothes, shoes, things for the house.

Expenditure on: cinema, lottery, raffles, football, disco, parties,
newspapers, cigarettes, matches, alcohol, beer etc.

Product	Quantity	Where Bought
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		
17.		
18.		
19.		
20.		
21.		
22.		
23.		
24.		

FORM NO. 6 cont'd.

2. cont'd....

Donations	Money	Kind
SCHOOL		
CHURCH		
CHARITY		
OTHER		

OBSERVATIONS:

FORM NO. 6 cont'd.

3. EXPENDITURE PER MONTH:

Rent or mortgage, electricity, water, fuel, clothes, school subscriptions, college, books, stationary, expenses for study, transport, medicines, doctors, healers, osteopaths, Social Services, Social Security insurance for the employed, workers bank, invalidity insurance, insurance for pension and death etc.

SALARY A	QUANTITY (COLONES)
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	
11.	
12.	
13.	
14.	
15.	
16.	
17.	
18.	
19.	
20.	
21.	
22.	
23.	
24.	

FORM NO. 6 cont'd.

3. DEBTS: Loans to institutions and persons.

Debts for purchasing clothing, furniture, domestic electric appliances, bail payments, hire purchase, other debts etc.

PRODUCT	QUANTITY	TO WHOM IT IS OWED
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		
17.		
18.		
19.		
20.		
21.		
22.		
23.		
24.		

FORM NO. 6 cont'd.

5. ANNUAL/TWICE YEARLY EXPENDITURE:

Clothes, tools, shoes, December clothing (annual renewal of major items), gifts, etc.

PRODUCT	AMOUNT	FREQUENCY
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		
17.		
18.		
19.		
20.		
21.		
22.		
23.		
24.		
		<u>SUBTOTAL</u>

FORM NO. 6 cont'd.

1. INCOME

The salary of each person who works and contributes to the household income.

NAME	SALARY (weekly)	Amount contributed to the household
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
		<u>Subtotal</u>

2. Second Occupation

NAME	SALARY (weekly)	Amount contributed to the household
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
		<u>Subtotal</u>

FORM NO. 6 cont'd.

3. OTHER FORMS OF TEMPORARY INCOME & SEASONAL INCOME

Amount from remunerated work

Family business (outside the household) - picking coffee, raffle tickets
etc.

NAME	SALARY	AMOUNT TO HOUSEHOLD
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
		<u>Subtotal</u>

4. REMUNERATED WORK INSIDE THE HOUSEHOLD

Family enterprise (business) selling ice-cream, food, sewing garments,
washing and ironing for other people, etc.

NAME	EARNINGS	AMOUNT TO HOUSEHOLD	RECORD THE TYPE OF JOB
1.			
2.			
3.			
4.			
5.			
6.			
7.			
			<u>Subtotal</u>

FORM NO. 6 cont'd

6. INCOME FROM LOANS OR HIRE PURCHASE

SUBTOTAL

Land Tenancy:

1. Less than one h²2. Land (in h²)Value of crops going to household
during each season

Amount

3. Value of amount retained for
household consumption

4. Domestic animals

Amount from sales

Consumed by householdSUBTOTALTOTAL INCOMETOTAL EXPENDITURE

SANTA BARBARA

PRINCIPAL COMPONENTS 8 COSINES²

(The value for each household is shown below and the results plotted in Fig 3.01, Chapter No.3)

CODE	SUP	S-COS	1	2	3	4	5
1		COMP	-3.031	-1.158	-0.000	-0.166	-0.279
	1000	CCS2	1.511	1.126	-0.000	0.147	0.086
2		COMP	-1.502	-1.102	-0.000	-0.147	0.086
	1000	CCS2	1.502	1.102	-0.000	0.147	0.086
3		COMP	-1.502	-1.102	-0.000	0.000	-0.000
	1000	CCS2	1.502	1.102	-0.000	0.000	-0.000
4		COMP	-2.992	-2.044	0.414	0.964	-0.200
	1000	CCS2	1.661	1.001	-0.211	-0.114	0.108
5		COMP	-1.774	-0.958	-0.000	-0.114	0.108
	1000	CCS2	1.774	0.958	-0.000	0.114	-0.108
6		COMP	-2.333	-0.000	-0.000	-0.233	0.020
	1000	CCS2	2.333	0.000	-0.000	0.233	-0.020
7		COMP	-2.499	-0.088	-0.000	-0.139	0.091
	1000	CCS2	2.499	0.088	-0.000	0.139	-0.091
8		COMP	-0.722	-0.144	-1.774	-0.000	-0.020
	1000	CCS2	0.722	0.144	1.774	0.000	0.020
9		COMP	-1.222	-1.322	-0.000	-0.100	0.100
	1000	CCS2	1.222	1.322	-0.000	0.100	-0.100
10		COMP	-1.019	-0.206	-0.000	0.072	-0.054
	1000	CCS2	1.019	0.206	-0.000	-0.072	0.054
11		COMP	-2.555	-1.820	-0.111	-0.312	0.095
	1000	CCS2	2.555	1.820	0.111	0.312	-0.095
12		COMP	-1.233	-0.029	-0.000	0.029	-0.021
	1000	CCS2	1.233	0.029	-0.000	-0.029	0.021
13		COMP	-0.333	-0.058	-0.000	0.017	0.074
	1000	CCS2	0.333	0.058	-0.000	-0.017	-0.074
14		COMP	-2.877	-1.064	-0.000	1.000	0.221
	1000	CCS2	2.877	1.064	-0.000	-1.000	-0.221
15		COMP	-2.733	-1.501	-0.000	-0.329	-0.274
	1000	CCS2	2.733	1.501	-0.000	0.329	0.274
16		COMP	-0.722	0.219	-0.000	-0.329	0.106
	1000	CCS2	0.722	-0.219	-0.000	0.329	-0.106
17		COMP	-2.522	-0.175	-0.000	-0.240	-0.047
	1000	CCS2	2.522	0.175	-0.000	0.240	0.047
18		COMP	0.988	-0.344	-1.000	-0.217	0.047
	1000	CCS2	-0.988	0.344	1.000	0.217	-0.047
19		COMP	-2.133	0.475	-0.000	-0.121	0.008
	1000	CCS2	2.133	-0.475	-0.000	0.121	-0.008
20		COMP	-1.333	0.583	-0.000	-0.209	0.083
	1000	CCS2	1.333	-0.583	-0.000	0.209	-0.083
21		COMP	1.333	1.562	-0.000	0.000	-0.166
	1000	CCS2	-1.333	-1.562	-0.000	0.000	0.166
22		COMP	0.666	0.430	-1.000	0.017	-0.086
	1000	CCS2	-0.666	-0.430	1.000	-0.017	0.086
23		COMP	2.922	0.427	-0.000	0.000	-0.000
	1000	CCS2	-2.922	-0.427	-0.000	0.000	0.000
24		COMP	-0.288	-0.757	0.444	-0.317	-0.144
	1000	CCS2	0.288	0.757	-0.444	0.317	0.144
25		COMP	1.177	0.283	-0.000	0.302	-0.051
	1000	CCS2	-1.177	-0.283	-0.000	-0.302	0.051
26		COMP	1.211	0.352	-0.000	-0.449	-0.072
	1000	CCS2	-1.211	-0.352	-0.000	0.449	0.072
27		COMP	-0.444	0.588	-0.000	0.407	0.060
	1000	CCS2	0.444	-0.588	-0.000	-0.407	-0.060
28		COMP	1.444	0.167	-0.000	0.051	-0.041
	1000	CCS2	-1.444	-0.167	-0.000	-0.051	0.041
29		COMP	0.333	0.433	-1.000	0.120	-0.067
	1000	CCS2	-0.333	-0.433	1.000	-0.120	0.067
30		COMP	2.666	-1.005	-0.000	-0.061	0.106
	1000	CCS2	-2.666	1.005	-0.000	0.061	-0.106
31		COMP	-0.811	-0.471	-0.000	0.119	0.131
	1000	CCS2	0.811	0.471	-0.000	-0.119	-0.131
32		COMP	-0.633	-0.127	-0.000	-0.119	-0.130
	1000	CCS2	0.633	0.127	-0.000	0.119	0.130
33		COMP	-1.188	-2.507	1.774	-0.507	0.062
	1000	CCS2	1.188	2.507	-1.774	0.507	-0.062
34		COMP	-0.577	0.572	-0.000	-0.115	0.138
	1000	CCS2	0.577	-0.572	-0.000	0.115	-0.138
35		COMP	1.322	0.326	-1.000	0.108	0.050
	1000	CCS2	-1.322	-0.326	1.000	-0.108	-0.050
36		COMP	-1.733	3.527	1.000	0.287	-0.050
	1000	CCS2	1.733	-3.527	-1.000	-0.287	0.050
37		COMP	2.333	0.535	-0.000	0.462	-0.054
	1000	CCS2	-2.333	-0.535	-0.000	-0.462	0.054
38		COMP	0.622	-0.297	-0.211	-0.139	0.064
	1000	CCS2	-0.622	0.297	0.211	0.139	-0.064
39		COMP	-0.233	1.301	-0.000	-0.192	0.000
	1000	CCS2	0.233	-1.301	-0.000	0.192	0.000
40		COMP	1.333	-0.234	-0.000	-0.072	-0.006
	1000	CCS2	-1.333	0.234	-0.000	0.072	0.006
41		COMP	0.999	0.485	0.000	-0.014	0.046
	1000	CCS2	-0.999	-0.485	-0.000	0.014	-0.046
42		COMP	3.000	0.444	1.000	0.199	-0.034
	1000	CCS2	-3.000	-0.444	-1.000	-0.199	0.034
43		COMP	1.769	0.105	-0.000	0.111	-0.020
	1000	CCS2	-1.769	-0.105	-0.000	-0.111	0.020
MAXI			3.189	3.527	1.779	1.003	0.223
MINI			-1.033	-2.507	-1.771	-0.507	-0.274

HATILLO

PRINCIPAL COMPONENTS 8 COSINES²

(The value for each household is shown below and the results plotted in Fig 3.02, Chapter No.3)

CODE	SUP	S. COS	1	2	3	4	5
1		COMP	0.326	-0.602	-1.162	-0.098	-0.060
2	1000	COS2	0.021	-0.137	-0.117	-0.395	0.069
3	1000	COS2	0.021	0.410	-0.224	-0.017	0.128
4	1000	COMP	1.398	-1.952	-0.167	0.020	-0.031
5	1000	COS2	0.021	0.647	-0.167	0.020	0.031
6	1000	COMP	-2.056	-2.177	2.141	0.211	-0.148
7	1000	COS2	0.191	2.345	0.117	-0.4	-0.281
8	1000	COMP	0.29	-2.648	-0.117	-0.2	0.022
9	1000	COS2	-2.116	1.007	-0.195	-1.6	0.126
10	1000	COMP	-2.553	0.517	-0.117	0.6	0.126
11	1000	COS2	-2.622	1.846	-1.3	1.0	-0.14
12	1000	COMP	-2.517	0.255	-0.2	0.0	0.105
13	1000	COS2	-2.422	0.365	-0.4	0.2	0.131
14	1000	COMP	-3.202	-0.980	-0.7	-0.0	-0.3
15	1000	COS2	0.060	-0.79	-0.7	-0.1	-0.06
16	1000	COMP	-0.787	-0.141	-0.17	0.0	0.14
17	1000	COS2	-0.886	-0.828	-0.7	-0.0	-0.03
18	1000	COMP	-0.016	-0.513	-0.1	0.2	0.03
19	1000	COS2	0.031	0.228	-0.1	0.1	0.04
20	1000	COMP	0.031	0.337	-0.1	0.1	0.04
21	1000	COS2	-3.424	0.594	-0.0	0.0	0.167
22	1000	COMP	-3.177	0.017	-0.7	0.1	0.00
23	1000	COS2	1.666	-0.342	-0.7	0.1	0.00
24	1000	COMP	0.591	-0.901	-0.1	0.0	0.03
25	1000	COS2	0.389	0.223	-0.7	0.0	0.15
26	1000	COMP	1.611	-0.685	-0.6	0.0	0.00
27	1000	COS2	0.660	0.143	-0.6	0.0	0.00
28	1000	COMP	0.660	0.841	-0.5	0.17	0.09
29	1000	COS2	-0.29	0.420	-0.3	-0.2	0.03
30	1000	COMP	2.444	0.684	-0.2	0.3	-0.05
31	1000	COS2	2.077	0.435	-0.2	0.3	-0.06
32	1000	COMP	1.478	-1.072	-0.1	0.0	0.07
33	1000	COS2	-1.478	1.232	-0.6	-0.0	0.15
34	1000	COMP	2.130	-0.512	-0.6	0.0	-0.00
35	1000	COS2	2.689	-0.454	-0.6	0.0	-0.14
36	1000	COMP	0.701	1.467	-0.1	0.0	-0.04
37	1000	COS2	0.111	-0.240	-0.7	-0.0	0.01
38	1000	COMP	-1.697	-1.182	-0.7	-0.0	0.02
39	1000	COS2	1.984	1.268	-0.1	-0.1	-0.08
40	1000	COMP	-2.000	0.411	-0.2	-0.1	0.128
41	1000	COS2	4.111	-0.070	-0.2	0.3	0.08
42	1000	COS2	0.111	0.540	-1.3	0.3	0.08
MAXI			4.153	2.648	2.141	1.012	0.167
MINI			-3.447	-2.177	-1.422	-1.429	-0.388

SANTA BARBARA
ANALYSIS OF INDIVIDUALS IN SPACE

NUMBER	1	2	3	4	5
INERTIA	3.278	1.079	0.539	0.094	0.010
PERCENTAGE	65.566	21.584	10.774	1.872	0.204
VARIABLES					
1	0.490	0.084	0.552	0.889	0.028
2	0.363	-0.679	0.267	0.575	0.068
3	0.322	0.717	0.396	0.469	-0.072
5	0.516	0.016	-0.473	0.040	-0.713
6	0.508	0.129	-0.493	0.022	0.694

N.B. 1st Plane = 87.15% of explained inertia (65.566 + 21.584)

CORRELATION BETWEEN COMPONENTS AND VARIABLES

AG COMP	F2	1	2	3	4	5
VARIABLE	1000	887	-68	405	205	3
2	1000	652	-706	196	-176	7
3	1000	583	745	291	-144	-7
5	1000	935	-16	-347	12	-72
6	1000	920	134	-362	7	70

HATILLO
ANALYSIS OF INDIVIDUALS IN SPACE

NUMBER	1	2	3	4	5
INERTIA	3.346	1.014	0.512	0.113	0.019
PERCENTAGE	66.922	20.282	10.246	2.259	0.291
VARIABLES					
2	0.385	-0.548	0.588	-0.447	0.078
3	0.314	0.788	0.159	-0.500	-0.078
5	0.508	-0.193	-0.424	0.007	0.728
6	0.503	-0.067	-0.527	-0.063	0.679

N.B. 1st Plane = 87.2% of explained inertia (66.922 + 20.282)

CORRELATION BETWEEN COMPONENTS AND VARIABLES

NO	COMP	F2	1	2	3	4
VARIABLE	1000	901	195	296	248	
2	1000	704	-552	421	-150	
3	1000	274	-793	-114	-168	
5	1000	429	-195	-303	-3	
6	1000	920	67	-377	-21	

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