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SHARE-TENANCY AND FAMILY SIZE

IN THE BRAZILIAN NORTHEAST

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SHARE-TENANCY AND FAMILY SIZE IN THE BRAZILIAN NORTHEAST\*

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\* This paper constitutes a thorough revision of an earlier attempt to analyze the data collected by the Northeast Brazil Household Pilot Survey, RPO 299, carried out in 1974 by the Department of Agriculture and Supply of the Superintendency for the Development of the Northeast (DAA-SUDENE) in cooperation with the Population and Human Resources Division of the Development Economics Department and with the Development Research Center of the World Bank. The data supplied by the above institutions, the financial support provided by the Ford Foundation and the opportunity to perform this work at the National Bureau of Economic Research-West are gratefully acknowledged.

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Contents

	<u>Page</u>
1. Introduction.....	1
2. Background .....	2
3. Fertility Decisions among Small Land Owners and Share- Tenants .....	8
4. Some Life-Cycle Patterns of Rural Household Behavior in Northeast Brazil .....	13
Figure 1 - Surviving Children in Each Location .....	18
Figure 2 - Surviving Children by Tenure Class .....	19
Figure 3 - Total Live Births by Tenure Class .....	20
5. Conclusions .....	
6. Appendix: Tables 1-19 .....	

## 1. Introduction

Latin America is known for its high rate of population growth and for the very high fertility rate of its rural population. The decline in Latin American fertility with urbanization and economic growth has been attributed to many causes, both economic and non-economic.<sup>1</sup> It is usually argued that new incentives for fertility control are associated with these declines, countering what is called a "traditional", "lethargic", "fatalistic" and otherwise irrational mentality which favors large families in Third World countries.<sup>2</sup>

In this paper it is proposed that high rural fertility in Latin America is a deliberate and rational adjustment to the conditions of agricultural production that prevail in many areas of the continent. The main finding is that sharetenancy, the predominant form of organization of production in the sparsely populated central regions of the Northeast, and a common institution in much of Latin America,<sup>3</sup> contains a set of powerful fertility inducements which are lost when households face a wage-labor situation in agriculture or in cities. Thus, the rapid decline of rural fertility in the past decade in Latin America<sup>4</sup> may be due, in part, to the general demise of sharetenancy and its replacement by sub-family farms (minifundios) dependent on wage labor.<sup>5</sup> These broad implications are discussed in the final section of the paper.

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<sup>1</sup> Frank W. Oechli and Dudley Kirk, "Modernization and the Demographic Transition in Latin America and the Caribbean", Economic Development and Cultural Change, vol 23, April 1975, pp 391-419.

<sup>2</sup> Frank W. Notestein, "Population: The Long View", in Theodore W. Schultz, ed., Food for the World, University of Chicago Press, Chicago, 1945, pp 36-57.

<sup>3</sup> International Labor Office, The Landless Farmer in Latin America, Studies and Reports, New Series, N° 47, Geneva, 1957.

<sup>4</sup> Barry Edmonston, Urban and Rural Fertility Changes in Latin America, The Influence of Migration and Urbanization in Brazil, Colombia and Mexico, Interdisciplinary Program for Population Analysis - ICP - Smithsonian Institution, September 1975.

<sup>5</sup> Alain de Janvry, Carlos Benito and Efraim Franco, Rural Development in Latin America: Three Projects Observed, Department of Agricultural Economics, University of California, Berkeley, 1977, Part I (forthcoming).

The empirical evidence is drawn from one of the most backward and highest fertility areas of Latin America: the Brazilian Northeast. The ecological and economic environment of poor rural households in that region is described and their fertility and economic behavior is presented in a series of life-cycle profiles calculated from a small sample gathered in two representative sub-regions.

## 2. Background

Over thirty million people live in the Brazilian Northeast, a large geographical area (1,600,00 square kilometers), notorious for the occurrence of sporadic droughts which destroy agricultural production<sup>6</sup> and cause masses of the rural population to migrate to cities, to more humid rural areas within the Northeast itself, or to other regions of Brazil. By expelling people in this fashion, the drought-prone central areas of the Northeast have contributed heavily to Brazilian urban population growth problems, while maintaining a moderate rate of increase within their own confines.<sup>7</sup> Steadily drained of prime workers, those who are left behind constitute the poorest segment of the Brazilian population. In 1974, the year to which this study refers, Northeastern rural per capita income was U.S.\$ 200, as compared to the national average of U.S.\$ 800. It is also a population of above average fertility, with child-woman ratios roughly 30% above the national average in 1970.<sup>8</sup>

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<sup>6</sup> Analysis of annual rainfall statistics since 1930 in the State of Rio Grande do Norte shows that critical drought years (annual rainfall less than 250 m.m.) that cause severe crop losses have approximately 20% probability of occurrence: i.e., one year in five. Report Nº 921-BR, Northeast Brazil Rio Grande do Norte Development Project, R DD-ARDD-WB, November 11, 1975, Annex 1 p. 2.

<sup>7</sup> For example, in Rio Grande do Norte, the drought-prone state covered in the sample analyzed in this paper, the average annual rate of rural population growth was only 1.2%, while the urban rate was 5.3% in the same state from 1960 to 1970, according to the National Demographic Censuses.

<sup>8</sup> Based on data presented by Barry Edmonston and Carl R. Zulauf, "Data for Analyzing Rural-Urban Fertility Levels in Brazil, Colombia and Mexico", Food Research Institute, Stanford University, September 1975, Table 4, p. 16.

The rural household survey described below is evenly divided between an out-migration region - the Sertão do Seridó region of the state of Rio Grande do Norte - and an in-migration region in the State of Maranhão. The Rio Grande do Norte part of the sample (85 households), was collected in Caicó and Florânia, two "townships" (municípios), in the hot semi-arid area of the central Northeastern region called the sertão (400-600 m.m. of rainfall per year during 4-6 months and periodic drought; mean yearly temperatures ranging from 23º C. to 27º C.).<sup>9</sup> The region consists of large, flat, rocky stretches interrupted by abrupt mesas and interspersed by fertile valleys where the land is cultivated. Population density is very low (2-24 inhabitants per square kilometer), but the towns are lively and peopled by a population well rooted in distinctive customs, proud and even rowdy, where brawls and shoot-outs are not uncommon. Perennial cotton and cattle are the main cash-earning economic activities. Beans and corn are interplanted with first-year cotton for subsistence. As would be expected under conditions of risky agriculture, large farms (fazendas) rely on sharing labor contracts rather than wage or fixed rent agreements.<sup>10</sup> Sharing occurs both in the form of share-tenancy (parceiros)<sup>11</sup> and in the form of

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<sup>9</sup> SUDENE-DAA, Pesquisa do Tamanho Típico da Unidade de Produção Agrícola do Nordeste: Relatório da Fase I (Versão Preliminar), Recife, December 1975, p. 90.

<sup>10</sup> Much of the mushrooming literature on sharecropping links this form of contractual labor arrangement with risk-sharing between landlord and agricultural worker, under conditions of output uncertainty. See, for example: S.N.S. Cheung, "Transactions Costs, Risk Aversion and the Choice of Contractual Arrangements", Journal of Law and Economics, April 1969, pp. 23-42; D.M.G. Newbery, "The Choice of Rental Contract in Peasant Agriculture", Chapter 5 of Agriculture in Development Theory, L. Reynolds (ed.), New Haven: Yale University Press; and also D.M.G. Newbery, Risk Sharing, Sharecropping and Uncertain Labor Markets, IMSS Technical Report Nº 202, April 1976, Stanford; T.D. Reid, "Sharecropping As an Understandable Market Response: The Post-Bellum South", The Journal of Economic History, vol. 33 nº 1, March 1973, pp. 106-130.

<sup>11</sup> Share-tenants (parceiros) exercise some entrepreneurial judgment and relative autonomy over a given, definite plot of land. Sharecroppers (moradores) exercise no management skills, and do not have a definite plot of land. They receive a share of the output they harvest, as a wage payment in kind. Thus sharecroppers are a mix of share-tenants and money wage workers. Given the absence of fixed rent contracts in the sample, both sharecroppers and share-tenants will be called, simply, "tenants", in order to simplify the exposition.

sharecropping (moradores). Pure wage-labor is practically nonexistent.<sup>12</sup>

In the Maranhão part of the sample (80 households), the surveyed township - Monção - contrasts strikingly with the Seridó. It is a pre-amazonic region to the west of Rio Grande do Norte, also with low population density (3-24 inhabitants per square kilometer), but heavier rainfall (600-2,000 m.m. per year over a 4-6 month period), flat plains, and a shallow topsoil that is easily eroded if the forest is removed. A nomadic population of squatters (posseiros) practices slash and burn agriculture on the forest fringe. Corn, beans and manioc are grown for subsistence and rice is sold to marketing intermediaries who transport and resell it in urban markets. Extraction of babaçu and carnaúba nuts are the main cash earning alternatives<sup>13</sup> to rice. Rapid soil erosion in the space of a few years, plus inability to control the onrush of weeds, push the farmer ever farther into the forest, followed steadily by cattle ranchers whose herds prevent the return of the former vegetation.<sup>14</sup>

Given their surrounding ecological environments, households in both surveyed regions face periodic years of financial stress, either because of the need to move to another location along the forest fringe or because of a drought in the sertão. Since they have rarely been able to save enough to finance the added expenditures, they frequently fall into debt during these critical years. However, unless exceptionally high yields occur during the next inter-crisis years, farmers may not manage to save enough, after paying off their debts, to survive the next drought or to finance the next move without having to borrow again. Under fortunate

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<sup>12</sup> Only one pure wage laborer was found in the present sample.

<sup>13</sup> In fact, as it turned out, many of these farmers are renters, not of land, but of nut trees! This form of contract was not predicted by the questionnaire, and therefore was not adequately recorded in the sample.

<sup>14</sup> P.L. Scandizzo, Land Distribution Tenancy Systems and Target Populations in Northeast Brazil, Report Prepared for the Special Economic Mission to Northeast Brazil, DRC-WB, September 24, 1974, p. 4.3.4.

circumstances, the occurrence in succession of a sufficient number of good crops does allow some households to save enough to buy a small sub-family plot (minifúndio) of their own, typically under 10 ha. in area.<sup>15</sup> This is not an unmixed blessing, since small landowners forfeit their claim to credit customarily extended by land-lords and become more vulnerable than tenants to year-to-year irregularities in output.<sup>16</sup> Moreover, the existence of labor slack during much of the year reduces the dependability of the wage employment alternative when small landowners needs it most. Consequently, small landowners sometimes give up their plots and revert to tenancy in crisis years. There appears to be considerable mobility back and forth among small landowners, tenants and squatters in the Brazilian Northeast. These three types of agricultural labor account for approximately 60% of the northeastern labor force.<sup>17</sup> The remainder are mainly wage laborers and intermediate size owner-operators.

The principal employer of this labor-force, whether on a full or part-time basis, is a small group of landlords who own most of the arable land and virtually monopolize access to water reservoirs in the drought prone areas. Since landlords' agricultural income is dependent on the production of cash crops, their main problem is to elicit from the unrooted, roving and dispersed northeastern population a sufficiently large and sufficiently steady flow of labor devoted to cash crop production.

An unique symbiotic solution to the security needs of landless rural households and to the labor requirements of landlords in the Brazilian Northeast has been the emergence

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<sup>15</sup> From 1960 to 1970, the number of minifúndios in the Northeast as a whole nearly doubled (873,124 to 1,503,280) while the average area of a minifúndio fell from 3.14 ha to 2.72 ha. This reduction in the average size of the plot has occasioned increasing part-time sharecropping or part-time wage work by small landowners. See P.L. Scandizzo, Land Distribution, ..., Table 1.2 p.3.

<sup>16</sup> A.W. Johnson, Sharecroppers of the Sertão: Economics and Dependence on a Brazilian Plantation, 1971, Stanford University Press, Stanford, California, discusses the role of landlords as creditors to their tenants in the Brazilian Northeast.

<sup>17</sup> Fundação Instituto Brasileiro de Geografia e Estatística (FIBGE), Censo Agropecuário de 1970, Total Brasil, Table 12.



of a specific form of share-tenancy arrangement, quite different in many respects from its counterparts in Asia<sup>18</sup> or in post Civil-War Southern United States.<sup>19</sup> Landlords provide tenants with an elastic supply of land, according to household size, food consumption credit, and marketing services (for their cash-crop production as well as for their consumption purchases), in return for a contractually fixed share of their output and the right to be paid in kind for all debts. This agreement protects the tenant household from the extreme distress occasioned by severe droughts and cushions them from the impact of milder climatic variations. Since the debt is paid back at harvest time each year in terms of the cash crop, this system increases the quantity of that crop that the landlord takes to market, above and beyond his own contractual share, in a form similar to that of the crop-lien system of the South of the United States in the post-slavery period.<sup>20</sup>

Aside from the sharing proportion, other features of the Northeast Brazil sharing agreement are not explicitly contracted. In particular, neither the labor obligations of the tenant, nor the credit services of the landlord are formally stated. This contrasts with the painstaking detail of share-tenancy contracts elsewhere<sup>21</sup>; probably reflecting the fact that formal labor contracts are basically unenforceable by absentee landlords and that informal

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<sup>18</sup> Steven N.S. Cheung, The Theory of Share Tenancy, University of Chicago Press, Chicago, 1969.

<sup>19</sup> Roger Ransom and Richard Sutch, What was Freedom's Price?, An Economic History of the Post Emancipation American South, Berkeley and Riverside, California, 1977 (forthcoming).

<sup>20</sup> Crop-lien indebtedness occurs when farmers promise to pay back their loans in kind, in terms of a portion of their future harvest. This form of collateral on loans was also typical of Post-Bellum sharecropping in Southern United States. See R.L. Ransom and R. Sutch, "Debt Peonage in the Cotton South after the Civil War", The American Economic Review, Vol. 62, Nº 1, March 1972, pp. 77-86; the critique by W.W. Brown and M. O. Reynolds, "Debt Peonage Re-examined", The Journal of Economic History, Vol. 33, Nº 4, December 1973, pp. 862-871; and the subsequent paper by R. Ransom and R. Sutch, "The 'Lock-In' Mechanism and Overproduction of Cotton in the Postbellum South", Agricultural History, Vol. XLIX Nº 2, April 1975, pp. 405-425.

<sup>21</sup> Joseph Reid Jr., Agricultural History, Vol 49, Nº 2, April 1975, pp 426-440.

credit transactions allow for interest rates typically well above maximum legal rates. Instead of explicit contracts, therefore, the crop-lien system takes over as an expedient device for controlling and eliciting tenant labor. The fact that debt repayment is subtracted from the tenant's share at harvest time increases his chances of indebtedness for the following year, unless he devotes more labor to the cash crop or a particularly good yield happens to come his way. Otherwise, his consumption needs may again overshoot his income and he will incur in further debt. Moreover, if another bad year occurs, or if another dependent member joins the household, then the escape from indebtedness during that year will necessarily require much more labor input into the cash crop. This will reallocate labor effort away from food production and may, in turn, boost food purchase requirements, unless the total amount of labor effort by the household is increased.

Chronic indebtedness is an intrinsic feature of share-tenancy in the Brazilian Northeast and elsewhere.<sup>22</sup> Indeed, given the uncertainty typical of the Northeastern ecology indebtedness itself may be one of the principal motives of both parties to the contract. It causes relatively high specialization of tenant labor in cash-crop production, as well as relatively more labor effort per household, than in the case of wage laborers.<sup>23</sup> In this paper it is proposed that an additional result of share-tenancy indebtedness is that tenants will desire and achieve larger families than other rural households. The argument is presented in the next section.

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<sup>22</sup>See Sources in footnote ( 20 ) above.

<sup>23</sup>See very interesting evidence to this effect in Maria Rita Garcia Loureiro, Parceria e Capitalismo, Zahar, Rio de Janeiro, 1977.

### 3. Fertility Decisions Among Small Land Owners and Share-Tenants

Fertility behavior, to the extent that it is deliberate, reflects the satisfactions that parents expect to derive from their children throughout the remainder of their life-times. This satisfaction may come from the children in and of themselves, or from the income that is expected of them.<sup>24</sup> This expected income, in its turn, may be prized as a boost to parents' incomes while they are still economically active, here called a "labor motive"

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In the first instance (children desired mostly for their own sake), fertility behavior has merited a long and growing literature, focused predominantly on developed countries, e.g., Gary S. Becker, "An Economic Analysis of Fertility" in Demographic and Economic Change in Developed Countries, Universities - National Bureau Committee for Economic Research, Conference Series 11, Princeton University Press, Princeton, 1960, pp. 209-231; Gary S. Becker and H. Gregg Lewis, "On the Interaction Between the Quantity and Quality of Children", Journal of Political Economy, Vol. 81, Nº 2, Part II, March/April, 1973, pp S279-S288; Robert J. Willis, "A New Approach to the Economic Theory of Fertility Behavior", Journal of Political Economy, vol. 81, Nº 2, Part II, March/April 1973, pp. S14-S64; and many others who emphasize the cost of child-services i.e., of the satisfaction derived from children themselves. Warren C. Sanderson, The Interaction Between Aspirations and Resources: The View of Easterlin and Other New Home Economists, CREG Research Memorandum Nº 200, Stanford University, has proposed that the above group of fertility analysts are approximating a large rival group, led by Richard A. Easterlin. "On The Relations of Economic Factors to Recent and Projected Fertility Changes", Demography, Vol. 3, 1966, pp 131-151; Richard A. Easterlin, "An Economic Framework for Fertility Analysis", Studies in Family Planning, Vol 6, Nº 3, March 1975, pp 54-63, and several others, who emphasize parental mobility aspirations, status and other sociological variables in explaining fertility behavior. This literature has been surveyed by Warren E. Sanderson in Economic Theories of Fertility; What do They Explain? NBER working paper series Nº 36, March 1974 and by Harvey Leibenstein, "An Interpretation of the Economic Theory of Fertility: Promising Path or Blind Alley?", Journal of Economic Literature, Vol 12, Nº 2, June 1974, pp 457-479.

for fertility<sup>25</sup> or as a hoped-for means of support during parents' old age, here called a "pension motive" for fertility.<sup>26</sup> In addition, given the conditions that prevail in the Brazilian Northeast, emergency support is required in the occurrence of crisis years, whether due to drought or travel.<sup>27</sup>

There are many controversies regarding whether the net present value of children's future income contributions is positive or negative at their time of birth, over the difference in social versus private rates of discount concerning fertility decisions<sup>28</sup>

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<sup>25</sup> A most stimulating discussion on the "labor motive" is contained in John C. Caldwell, Towards a Restatement of Demographic Transition Theory; An Investigation of Conditions Before and at the Onset of Fertility Decline Employing Primarily African Experience and Data, February 1976, (mimeo). In spite of an excessively early cut-off age (children are assumed to leave home when they are 19 years old), some empirical evidence on net positive "labor-benefits" from children in the Philippines, Java and Nepal are presented by Peter H. Lindert, Child Costs and Economic Development, paper presented at the Universities - NBER Conference on Population and Economic Change in Less Developed Countries, September-October, 1976.

<sup>26</sup> Philip A. Neher, "Peasants, Procreation and Pensions", The American Economic Review, Vol 61, Nº 3, part 1, June 1971, pp 380-389 and Dov Chernichovsky, Fertility Behavior in Underdeveloped Countries; An Investment Approach, Ph.D. Dissertation, City University of New York, 1975, both divide parental life-times into only two periods (Neher's third period is posthumous). This forces pension-benefits to overpower labor-benefits, which come in between procreation and dependency.

<sup>27</sup> This fourth motive was frequently mentioned by respondents in the survey analysed below. But since it was not predicted in the coding scheme, it was not recorded. The other three motives were first discriminated by Harvey Leibenstein in Economic Backwardness and Economic Growth, John Wiley, New York, 1957, p.161.

<sup>28</sup> See the survey on this branch of the fertility literature by Warren C. Robinson and David E. Horlacher, "Population Growth and Economic Welfare", Reports on Population and Family Planning, Nº 6, February 1971, pp 1-39.

and over the extent to which fertility behavior is consciously determined.<sup>29</sup> If it were established that parents in Northeastern Brazil do receive a net positive flow of income from their children, that alternative means of ensuring themselves of future income are available to them, and finally, that there are positive costs to child-rearing as well as to procuring durable income-yielding assets, then it would be valid to examine whether the fertility of those parents may be consciously influenced by the relative costs of children versus alternative sources of future income. In order to empirically test such a hypothesis, however, one must first translate the abstract economic concepts of assets and costs, into their concrete manifestations in the specific Northeastern context.

The main alternative to children as a source of future income in the rural areas of Northeast Brazil is land. Cattle are very risky, since they perish in a severe drought. Cooperatives and banks are unreachable, since they do not extend credit to those who have no collateral. Investments in formal schooling are somewhat pointless in an economy with skill requirements learned through work experience, not in the traditional class rooms of small rural communities. Out-migration holds the nebulous promise of higher paying urban jobs, but also the expectation of long uncomfortable travel on crowded buses to places where cash is needed for every transaction, plus an indefinite period of unemployed adjustment to foreign surroundings. Investment in the future, therefore, narrows down to investment in children or in land. Land provides income even to very small landowners, who frequently sharecrop out their miniscule plots.<sup>30</sup> Old people who at least own their land are therefore assured of "retirement" income even if there are no children to support them.

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<sup>29</sup> Richard A. Easterlin, Robert A. Pollak and Michael L. Wachter, Toward a More General Economic Model of Fertility Determination: Endogenous Preferences and Natural Fertility, paper presented for the Universities - NBER Conference on Economic and Demographic Change in Less Developed Countries, Philadelphia, September-October 1976, propose a typology of "pre-modern", "intermediate" and "wholly modern" populations according to the degree of conscious deliberateness in their fertility behavior.

<sup>30</sup> Gary P. Kutcher and Pasquale L. Scandizzo, Land Tenure, Employment and Farm Performance in Rio Grande do Norte, The World Bank, Development Research Center, Development Planning Division, Working Paper Nº RPO:273/XVII/1, Table 4, p.6.

The cost of land, however, is money, that scarce resource in an economy with a strong subsistence component, where all the principal transactions are effected in kind. Moreover, large landlords are reluctant to sell small plots of land and, when they do so, restrict such sales to low productivity plots far from water reservoirs. This has caused the progressive partitioning of already small plots into even smaller units over time, as mentioned previously, until they are no longer sufficient to support a household without the exertion of further labor elsewhere. Thus, imperfections in the land market have progressively increased the cost of acquiring land in the rural northeast.

The cost of children, on the other hand, is not measured in cash, but in terms of the time and goods devoted to them by the family. In a labor-slack economy, the time-cost of children is quite low<sup>31</sup> and the goods-cost probably predominates. Among the goods consumed by children, the largest component in near subsistence circumstances is food.<sup>32</sup> In fact, child mortality is critically high during the weaning ages, 2-3 years, when children become most vulnerable to food shortages.<sup>33</sup>

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<sup>31</sup>The time-cost of children, especially that of the mother, is a critical variable in deliberate-controlled fertility models such as those cited in the first part of footnote ( 24 ) above. But the availability of grandparents and pre-adolescents to take care of young children, and the lack of employment alternatives for these types of household members, reduces the time-intensity of child-rearing for the household as a whole.

<sup>32</sup>Consumption of non-food items is low, not only for children but for every household member. Bare, unfloored huts, furnitureless except for hammocs, a fire-wood stove and, perhaps, one or two hurriedly procured stools greet the outsider; that is all. Food is the main consumption item and fathers' often joke about the food-cost of young children by answering that their main "contribution" to the household is eating:

"Does (...) help you with your farm-work?"

"(..) helps by eating!"

"(..) ajuda na roça?"

"(..) ajuda é pr'a comer!"

<sup>33</sup>Ruy Laurenti, "Alguns Aspectos da Mortalidade de Crianças Menores de 5 Anos em Três Áreas Brasileiras", Crescimento Populacional (Histórico e Atual) e Componentes do Crescimento (Fecundidade e Migrações), Cadernos CEBRAP Nº 16, São Paulo, 1973, pp. 75-92 finds that malnutrition is responsible for 70% to 80% of child-deaths between 1 and 4 years of age in surveyed rural communities in Brazil.

The cost of food in those surroundings, in its turn, has three components. The first is the land and labor cost of food production by the household itself, there being no capital to speak of. The second is the retail margin of food purchases. The third is the interest-rate charged by the creditor who finances inter-harvest food consumption by deficit households.

The first cost, the production cost of food, can be expected to be higher, and to rise more with growing family size, among small landowners than because of the incidence of diminishing returns in minifundos. This problem is circumvented among tenants, however, is circumvented by landlords' practice of allotting land according to their family size. The second cost, the interest cost of food, is also much higher for small land owners, who have only local usurers to finance their consumption, than for share-tenants who have easy access to the credit extended by their landlords. The third cost, the retail cost of food, is probably about the same for all households, or approximately so. Thus, the food cost of children, in that environment, should be lower for share-tenants than for small land owners.

These considerations lead to the prediction that share-tenants would want and have more children than other rural residents for two reasons. First, because the cost of acquiring child-substitutes (mainly land) is relatively high for them and secondly, because the cost of acquiring children (mainly consumer credit) is relatively low for share-tenants compared to other agricultural households. One would, in fact, expect tenants to be less conscious of the costs of child rearing and more aware of the benefits to be derived from children. Therefore, they may engage in practices which increase their fertility and, more importantly, these practices may even be consciously motivated towards high fertility. Given the common ethnic, regional, cultural, economic background of all these rural households; given the relative mobility between small land owners and of share tenants; given their common contact with relatives who have undertaken the drastic out-migration venture and who have thereby adopted lower urban fertility patterns, then both high and low fertility may be the outcome of deliberate decisions, not of ritual practices performed with no fertility outcome in mind.

This hypothesis differs both from those advanced by controlled fertility advocates as well as by natural fertility advocates for Third World countries.<sup>34</sup> It proposes that a natural fertility outcome may be the result of a deliberate but truncated effort to obtain a more than the feasible number of births. This desire for high fertility may be economically motivated and analysable according to a choice-theoretic decision model that would take into account the specific costs and benefits associated with children, such as those mentioned briefly in the above paragraphs.

The following section presents evidence of high desired fertility among share tenants and low desired fertility among small land owners drawn from a small sample taken in Northeastern Brazil. Evidence of different relative costs and benefits associated with children among different tenure classes are also presented at the end of the section.

#### 4. Some Life-Cycle Patterns of Rural Household Behavior in Northeast Brazil

The original objective of the small household survey described in this section had been to prepare for a subsequent and larger survey on the fertility and household behavior of small farmers in Northeastern Brazil.<sup>35</sup> The sequel was never carried out, however, and the experimental questionnaires became the only comprehensive source of information on rural household behavior to emerge from the project.

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<sup>34</sup>See footnotes (24,25 and 29) above.

<sup>35</sup>Project RPO 273 of the SUDENE/DRC survey carried out in 1973.



Problems concerning truncation, the unrepresentative nature of the sample inconsistencies among localities surveyed and many others have been discussed in several World Bank reports<sup>36</sup> and need not be enumerated here. In all, considering the flood conditions faced that year by the interviewers, results have turned out to be surprisingly consistent with state and regional figures.<sup>37</sup> The sample is very small: consistent economic and demographic information was obtained for only 165 households in all.<sup>38</sup>

<sup>36</sup> See T. King, D. Chernichovsky and R. Morán, "Economic Aspects of Household Fertility Behavior and Labor Supply, Phase I Report", Population and Human Resources Division, Development Economics Department, Washington, IBRD, June 1976; C. Cavalcan ti, "Pesquisa sobre a Família Rural: Sugestões para um projeto de pesquisa" ("Survey on the Northeastern Rural Household: Suggestions for a Research Project"), Recife, Instituto Joaquim Nabuco, July 1975; A.L. Ozorio de Almeida, "Report on the Northeastern Brazil Rural Household Survey Pilot Project", Rio de Janeiro, INPES, July 1974.

<sup>37</sup> It is perhaps surprising that mean values for key demographic variables do not deviate substantially from the overall pattern for the Brazilian Northeast. However, according to R. Morán, "Socioeconomic Characteristics of Sampled Households: Comparisons with Northeast and Country-wide Samples from Official Brazilian Surveys", unpublished, PHRD-DED-WB, working age women do appear to be somewhat overrepresented, female literacy is higher and fertility and mortality rates are somewhat lower than in the Northeast as a whole, especially among the younger women in the sample:

	<u>Brazilian Northeast</u>	<u>Pilot Survey</u>
Working age proportion (%)	40	60
Female literacy (%)	50	43
Average Live Births per Woman	6.7	6
Child Survival Ratio (%)	72	66
Mean Household Size	6.7	7.6
Proportion of non-nuclear family members (%)	7	16

<sup>38</sup> Thirteen questionnaires, corresponding to households numbered 023, 047, 052, 053, 054, 056, 094, 111, 143, 153, 156 and 157, were removed from the sample due to data omissions critical to the analysis. Differences in means computed here and in other papers using the same data should be attributed to different exclusion criteria. See, for example, Dov Chernichovsky, "Some Socioeconomic Aspects of Fertility Behavior in Northeast Brazil, "PHRD-DED-WB, November 1976.

Because of the many known shortcomings of the data base, it is used in this paper as illustrative support for empirical propositions, rather than as a vehicle for hypothesis testing. The demographic and economic life cycle patterns presented will hopefully be thought-provoking for data-starved students of rural household behavior in the Third World. In addition, some of the findings may prove insightful for those interested in 19th century demographic transitions among countries which experienced a sharecropping stage between slavery, or serfdom, and free wage rural labor.<sup>39</sup>

This section describes several salient features of life-cycle household behavior among tenants, small landowners and squatters living in the environs of two townships in the State of Rio Grande do Norte - Caicô and Florânia - and one township in the State of Maranhão - Monção - in the Brazilian Northeast. As is shown below, tenants are found to have outstandingly high fertility levels compared to the other population groups and even compared to natural fertility populations in other countries. Fertility differentials within the sample appear to be consistent with differences in children's contributions to household income throughout the life cycle in each sample subgroup, as well as with mothers' and fathers' stated perceptions of the relative costs and benefits of child rearing. All tables referred to in the text are in the Appendix.

Table 1 shows the distribution of the sample among age-location-tenure cells. The disadvantage of the small sample is evident by the small number of observations in each cell and by the number of empty cells. Ten-year age brackets would have eliminated empty cells, but they would also have entailed a loss of comparability between the fertility profiles shown here and those presented by other authors.

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<sup>39</sup> The absence of pure wage laborers in this sample is noteworthy, given the rapid demise of tenancy in the South of the country and its substitution by wage contracts. It is said that the switch to wage labor in the South is caused by fear of tenants' claims to land farmed by them over a certain number of years, consonant with recent rural labor legislation. If so, this threat had not yet been perceived by the landlords in the Seridô in 1974.

The largest tenure class in the present sample is composed of squatters; the smallest comprises small landowners. Only three interviewed mothers were under twenty years of age; thirty-eight (the largest age contingent) were over fifty. This heavy representation of relatively older women is somewhat atypical of the region,<sup>40</sup> but turns out to be quite fortunate for the purpose of calculating retrospective fertility schedules, shown in the next table.

Table 2 presents estimated retrospective fertility profiles for the surviving children of all women in the sample.<sup>41</sup> The estimate, however, is heavily influenced by the past fertility experience of older women and may not be representative of the fertility behavior of women currently belonging to each age bracket.<sup>42</sup>

The first impression gained from Table 2 is that completed surviving family size is rather moderate: 5.7 children for the sample as a whole: 5.76 in Caicó, 6.91 in Florânia and 5.10 in Monção. Tenants have slightly larger families than small landowners, who, in turn, have more live children than squatters.

It is known that couples who control their fertility tend to first allow for a given desired number of births and to attempt prevention thereafter. This leads to profiles rather similar in slope to natural fertility profiles (i.e., uncontrolled births) in the early stages of the life cycle, and to flatter profiles

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<sup>40</sup>R. Morán, "Socioeconomic Characteristics..." Table 4.2, p.4.4

<sup>41</sup>Children alive were allocated to appropriate age intervals according to their own and their mothers' ages. Averages were then calculated, based on the number of women who had achieved a given age interval. The number of observations in each column consequently decreases with advancing age: both young and old women are represented in the early age brackets, but only older women are represented in the latter age brackets.

<sup>42</sup>One possible test for the significance of possible differences between younger and older cohorts within each age bracket, precluded due to the time constraints on this paper, would be to regress observed fertility on (0, 1) dummies for women under, and over, 30 years of age.

in later years. One possible test for the presence of active birth control in a given population, therefore, is the degree to which fertility profiles flatten out relative to the maximum births attainable (natural fertility). In order to better interpret the figures presented in Table 1, its first four rows are graphed in Figure 1 and compared to Henry's average natural fertility profile.<sup>43</sup>

All profiles in Figure 1 lie well below the natural fertility case (H), except for children born to Florânia women when they were 20 to 25 years old. The Florânia schedule (F) is so much higher than the schedules for Caicó and Monção (C and M) that one suspects that differences in subsample composition may be at play. Accordingly, after regrouping the sample according to tenure classes in Figure 2, one sees that tenants have uniformly higher child survival rates; small landowners and squatters cross in the 30 to 35 age bracket.

The fact that these profiles lie everywhere below Henry's may either indicate widespread birth control - an unlikely supposition for the Brazilian Northeast - or higher child mortality than in the control group. In order to correct for child mortality, estimated age-specific child death rates<sup>44</sup> were added to the surviving birth rates, yielding an estimate of age-specific total live births. The results are presented in Table 3 and Figure 3.

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<sup>43</sup>Louis Henry, "Some Data on Natural Fertility", Eugenics Quarterly, Vol. 8, Nº 2, pp. 81-91, Table p. 84.

<sup>44</sup>An approximation to age-specific child mortality rates was calculated in the following way. Total deaths reported by women in each age group were divided by duration of marriage and then regrouped into five-year intervals. These fractions were added in succession, with increasing woman's age. Thus, contrary to the case of surviving births, the child deaths estimated are more heavily weighted by the child mortality experience of younger women. This approximation was made necessary because information regarding age at death was not adequately coded for children who were more than one year old when they died.

Figure 1  
Surviving Children in Each Location

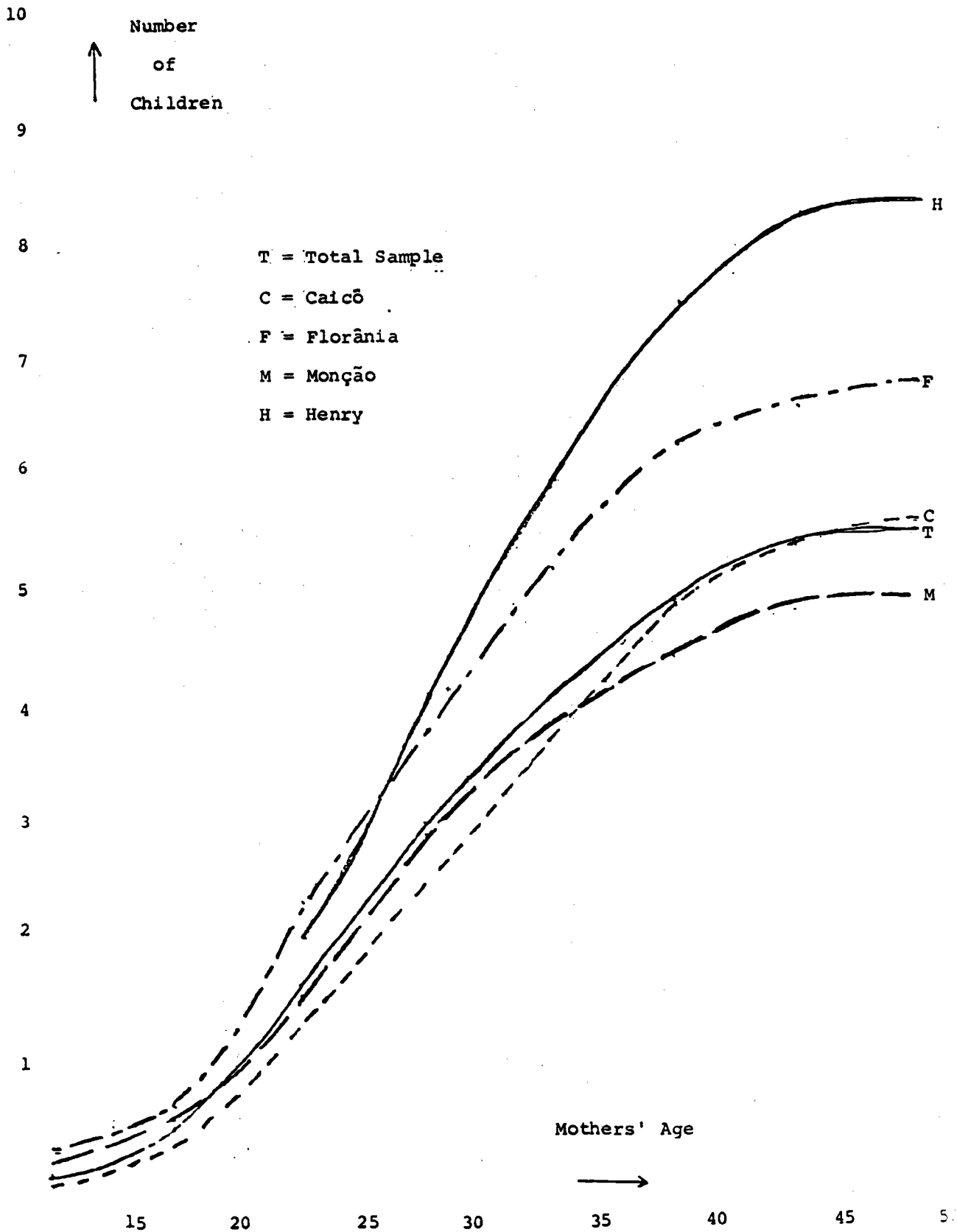


Figure 2

Surviving Children by Tenure Class

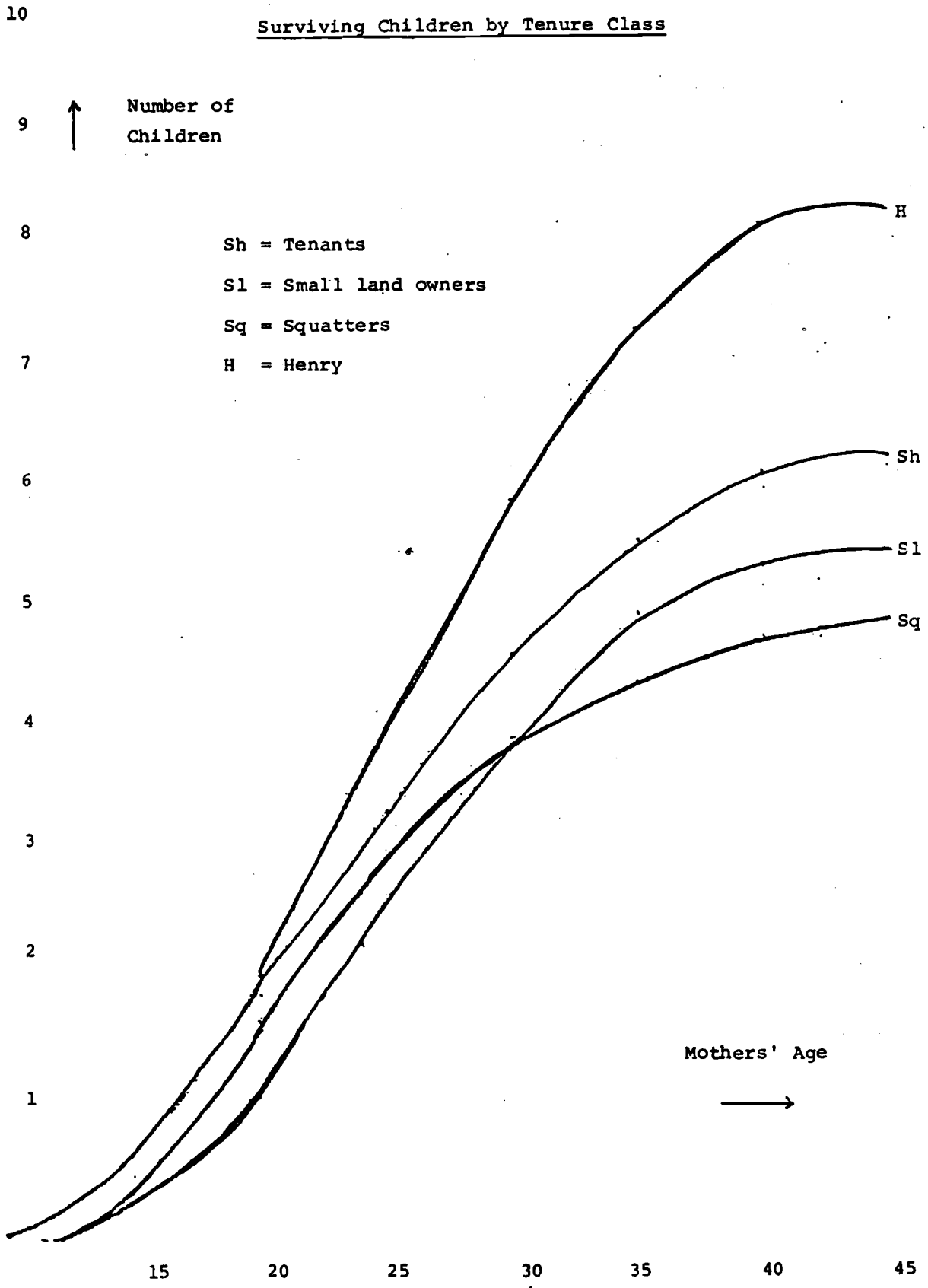
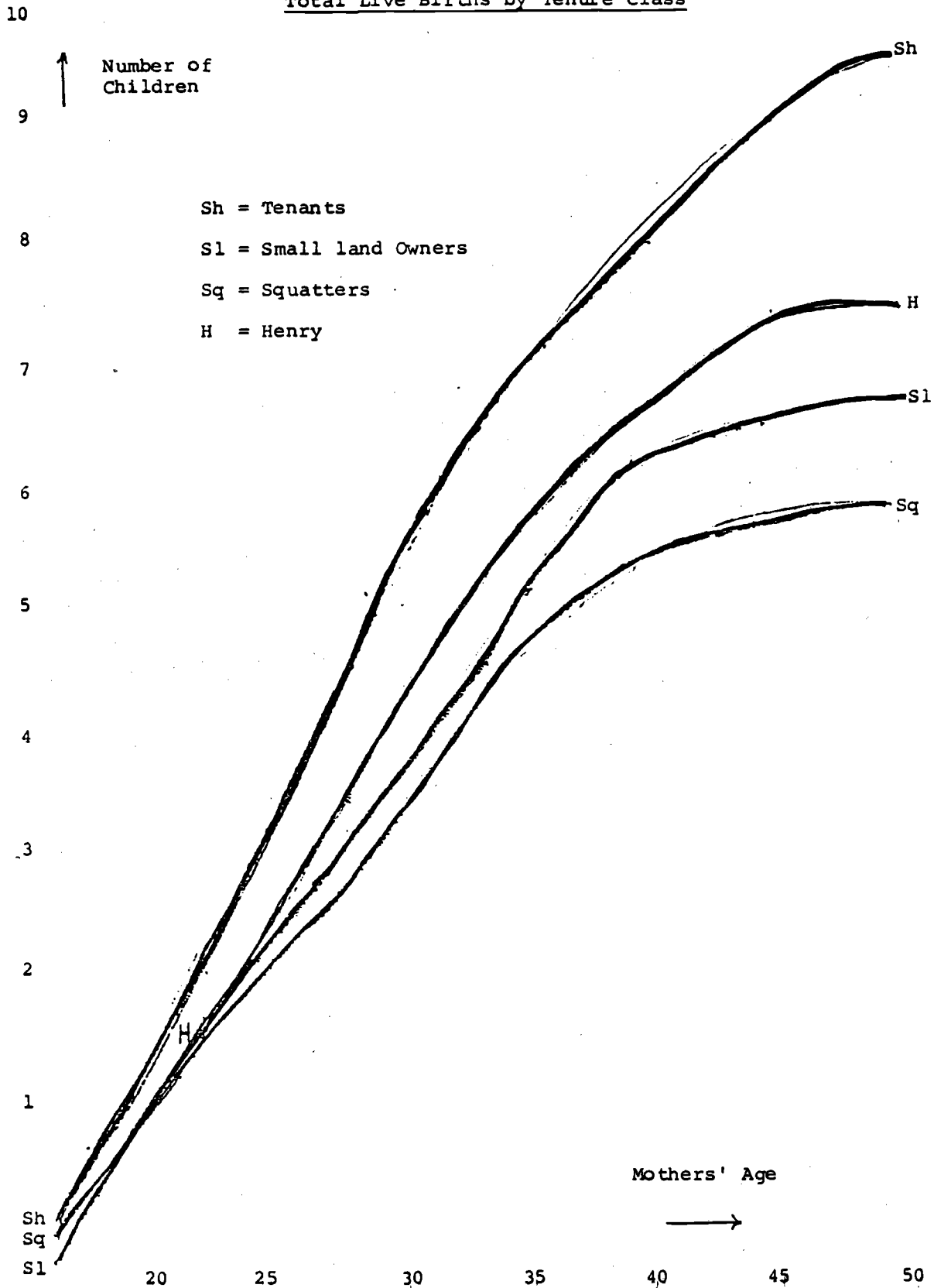


Figure 3

Total Live Births by Tenure Class



Even though appropriate confidence intervals have not yet been estimated for the profiles in Figure 3, their appearance is suggestive of several important implications. First, fertility among tenants is outstandingly high by any standard.<sup>45</sup> Secondly, the fertility profile for small landowners is apparently quite similar to the natural fertility case (H); i.e., small landowners do not seem to control fertility either. According to the estimated profiles, squatters are the group most likely to be exercising some form of control, though they need not be conscious of doing so. Their nomadic life-style in itself may cause frequent separation among spouses and other unintended restraints to the number of births per woman.

Table 4 shows the percentage of each tenure group - tenants, small landowners, others (squatters plus part-time sharecroppers) - who justified their family size preference in terms of cost, in terms of benefits, or in terms of other considerations regarding children. Health costs are taken to be a response that either explicitly refers to the physical health strains of child bearing or that refers to "psychic costs" such as pain, fear of childbirth etc. Economic costs occur when the interviewer says

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Given the method by which Tables 2 and 3 were calculated, one should bear in mind the possibility that the slopes of the profiles will be overestimated if:

- i) presently older women had, in the past, relatively more surviving children than younger women within each age bracket; or, alternatively,
- ii) presently younger women had, in the past, more child deaths than older women within each age bracket.

Neither appear to be the case in this sample or in other Brazilian rural regions. The city of São Paulo, in the South of the country does seem to have very high infant mortality rates for teen-age mothers compared to older mothers, but this seems to be related to specifically urban problems. See Dr. Ruy de Laurenti, "Alguns Aspectos...", Table 7, p. 88.



he or she is too poor to have a large family. Labor benefits are recorded if the respondents say they want children for their labor ("para trabalhar"). Pension benefits refer to the expressed wish for security in old age. "Enjoyment" refers to interviewees who wanted many children because "its nice to have them". Fatalistic allusions to God's will and all other responses are added together in the "Others" column.

The importance of Table 4 is that fathers and mothers were interviewed separately, by male and female enumerators, respectively. This led to a high incidence of omissions for fathers, apparently due to the male interviewers' forgetfulness, and possible hidden distaste about such "women's questions". Nonetheless, Table 4 presents valuable evidence of different views concerning children by mothers and fathers, as well as systematic tendencies among tenure classes.

The majority of respondents have clear conceptions of the costs or benefits associated with having children. It is noteworthy that the pension motive is almost entirely absent and, when cited, concerned only women. Tenant parents refer to benefits more than three times as frequently as any other. Tenant fathers mostly want children's labor, while tenant mothers frequently say they just like to have children. Tenants perceive child cost much less frequently than small landowners or squatters do. The economic costs of children are perceived most frequently by squatter mothers. The health costs of child bearing are most emphasized by small landowner mothers. Nontenant fathers seem to be rather indifferent to children.

These responses are in accordance with the fertility profiles seen above. Tenants apparently have more children because they want more children than do small landowners or squatters. Moreover, tenants apparently expect to benefit more from child labor and to have fewer economic constraints to child rearing than nontenants.

'If expectations are formed by surrounding

example<sup>46</sup>, then Tables 5-8 suggest that tenants indeed are realistic in counting more on their children's contribution to household labor than do other tenure classes. Older tenant families have more resident children (Table 5) and, consequently, more workers (Table 6) than the other two groups. In addition, tenant children put in longer hours than the children of the others (Table 7) and contribute proportionately more to household income (Table 8).

The poor showing in Table 4 of the "pension motive" for wanting children is also justified by prevailing practices. In economies characterized by a large proportion of subsistence consumption (Table 9), inter-household remittances are too cumbersome and inter-generational income transfers in kind are effected primarily within the household. Accordingly (Table 10), gifts, pensions and other forms of income not produced by household members are a small percentage of total family income. They appear to be primarily a matter of local institutional availability (e.g. of rural workers' unions,) rather than a matter of age or tenure. No significant life cycle pattern in the relative ages of non-nuclear family members was found, even though a vaguely "U" shaped pattern discerned in Table 10 may indicate that young wives frequently live in households where there are older pensioners.

The preceding set of tables was intended to be illustrative of the economic contributions of children to the distinct groups of parents interviewed in the sample. However, as noted earlier,

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<sup>46</sup>The formation of expectations about children is a complicated matter that depends on mobility aspirations, former experiences, the choice of peer group and many other factors frequently discussed in the literature on fertility. In the U.S., adolescent experience may be crucial in setting up the aspirations of future parents, for themselves and/or for their children, thereby influencing their subsequent fertility behavior. Rural-urban migrants in Latin America, on the other hand, ususally move before marrying and may then experience neighborhood effects and copy the fertility behaviour surrounding them in urban areas.

in presenting Table 4, parents explain desired family size not only with regard to expected benefits from children, but also from the point of view of expected costs. The fact that tenants de-emphasize child costs, while small landowners and squatters stress them, suggests that children may be "cheaper" for tenants than for nontenants.

As discussed in section 3 above, the main child-cost to parents, in the bare subsistence conditions of rural areas in the Brazilian Northeast, is the cost of food. Food, in its turn, may be relatively cheaper for sharetenants - due to the availability of consumer loans extended by landlords - than for others, whose ties to the local "credit-worthy" elite are weaker. Accordingly, "cheaper" children for tenants would imply that they borrow more for food consumption than do others. This expectation is supported in Tables 11 and 12.

Table 11 shows a strikingly different pattern of indebtedness between tenants and small landowners. Whereas tenants exhibit a constant ratio of indebtedness throughout the life cycle, small landowners concentrate their debts in the period when child-dependency is greatest. Table 12 shows another important difference in the indebtedness patterns of tenants and nontenants. Nontenants have a relatively balanced "portfolio" of creditors, including banks, while tenants are highly dependent on landlords for credit and have no transactions with banks whatsoever. Table 12 also indicates that tenants borrow proportionately more for consumption purposes than nontenants.<sup>47</sup>

Thus, landlords seem to be financing the consumption requirements of their tenants' large families. Moreover, to the extent that fertility is food-cost-elastic, landlords appear to be creating an incentive for their tenants to have many children, by cheapening the interest-cost of food. Finally, aside from having many children and putting them to work, their seeming ineligibility to institutional credit presents a serious obstacle to tenants' accumulation of productive assets, other than children.

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<sup>47</sup>Consumption loans in Table 12 cover food, medicine, general household and travel. Food was the most frequent case.

However, if tenants are credit-worthy enough to repetitively merit so many loans from their landlords, their lack of bank-credit becomes suspiciously suggestive of collusive activity in the local credit market. Perhaps landlords derive special advantages from the credit monopoly they enjoy vis-à-vis their tenants. This advantage, however, need not be limited to usurers' income from the interest rate charged. In stipulating that the debt be paid in terms of the local cash-crop (cotton in the case of Caicô and Monção, rice in the case of Monção), the landlord-creditor is able to derive supplementary income by later marketing the debt portion of the harvest (along with the contractual share, in the case of landlords). Aside from preventing debt repayment in money, by monopolising the local labor market as well, landlords inhibit money earning activities from diverting household labor away from the cash crop.<sup>48</sup>

In the long run, chronic consumer indebtedness by tenant families provides their landlords with a growing and captive labor force, specialized in cash crop production. The sharing mechanism itself ensures landlords of the future income flow to be derived from current financing of tenant fertility. These conjectures are supported indirectly by Tables 13 and 14 which show that tenants and their children are more specialized in cash crop production than small landowners or squatters.

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<sup>48</sup>In fact, landlords appear to exercise a four-fold monopoly over their tenants: in the land market, in the product market, in the labor market and in the credit market. According to Kenneth J. Arrow in "Toward a Theory of Price Adjustment", The Allocation of Economic Resources, Stanford University Press, Palo Alto, pp 41-51, the greater the degree of concentration in any side of a market, the greater the price-fixing power that side will have. Accordingly, the high land prices and interest rates paid by small farmers and the low wages and product prices received by them are all suggestive that landlords do indeed exercise the monopoly power they possess in these markets.

The other two components in the differential cost of food between tenants and nontenants are its production and retail cost, discussed briefly in section 3 above. The production cost rises quickly for small landowners, as their family size increases, due to diminishing returns on their own miniscule plots. Because of diminishing returns, small landowners are forced to seek part-time sharecropping, wage employment and other income earning activities in order to support their families. As may be seen in Tables 13 and 14, this need is most pressing during the late twenties and early thirties, when children are small. Tenants, on the other hand, are said to be spared the incidence of diminishing returns due to the practice whereby landlords allot land according to family size. This is yet another way in which landlords may be cheapening the food-cost of children for their tenants, in this case its production-cost. For their part, by stimulating family labor on their land, landlords would also be ensuring themselves of increasing utilization of their notoriously under utilized properties in the land-abundant - labor-scarce Northeastern agrarian economy.

Finally, the retail cost of food is also said to be largely under the control of landlords, who allegedly force tenants to buy from the farm-store, thereby deriving retail income from the tenancy arrangement. This aspect cannot be analysed within the present sample, since the origin of purchases was not enquired. The sample does, however, provide some support concerning landlord monitoring of the production-cost of food for tenants, via elastic supply of land to larger families.

Table 15, which shows acreage farmed by tenure class and age group, provides some support, albeit tenuous, for the supposition that older (larger) tenant families receive more land than younger tenants. Before 30 years of age tenant plots are smaller than those of small landowners and squatters, but become much larger by the ages of 45 and over. These older tenant family-heads sometimes command the agricultural labour of one or two sons and four or five grandsons, all working their plots in the same property and all living together in the same house. According to Table 16, these are the highest income households in the sample. In fact, they may constitute the ideal which all others strive

to attain. Abundance is generated by pooling the production of many workers into one large consumption unit, even though individual consumption levels may be low.

The attainment of the large successful tenant family may be a deliberate objective, served by low food costs provided by landlords and high fertility behaviour practiced by tenants. It does not seem to be an unintended outcome of unconscious social practices, since Northeastern rural households belong to the same cultural-ethnic blend of whites, blacks and indians. There does not even seem to be any consistent difference in age of marriage among tenure classes (Table 17), even though early marriage would evidently serve the pro-natalist advantage of tenants and late marriage would serve the opposite interests of small landowners and squatters. Quite the contrary, the large tenant family appears to be a goal that is set upon early in life, toward which parents work by moving less than other rural households (Table 18), establishing permanent ties of social and economic dependence upon their landlords, having as many children as possible and working them as much as they can.<sup>49</sup>

### Conclusions

Northeastern share-tenancy is an institutional arrangement which regulates a specific set of transactions between tenants and landlords. Landless peasants gain access to land and food-storage services during destitute periods. Landlords gain access to family labor from the overlapping life cycles of individual members. Intrinsic to this relationship is food-consumption-cum-crop-lien indebtedness. Its short-run effect is to provide an incentive toward increasing household labor effort and specialization in the cash crop. Its long-run impact apparently stimulates increasing family size: both by boosting the benefits of larger families and by reducing their cost. Thus, share-tenancy seems

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<sup>49</sup> I had expected that tenant children would also put in fewer hours in school than those of small landowners and squatters. But the very spotty evidence collected in the sample (Table 19) does not lend support to this supposition.

to be linked to high fertility.<sup>50</sup>

This is a very new hypothesis and merits further investigation. In subsequent papers, the food-cost and labor-benefits of children in a tenant-landlord economy will be contrasted with those of a wage-labor agrarian economy. These elements will be incorporated into a fertility model, which will be tested on the rural portion of the nationwide household survey collected by the Estudo Nacional da Despesa Familiar (ENDEF-FIBGE).

In Brazil, rural fertility rates have declined significantly during the past decade. Meanwhile, the recent and rapid transformation of share-tenants into a wage labor force has coincided with increasing under-employment and labor - surplus conditions in the urban economy. Since worsening urban employment prospects progressively dampen the migratory threat, new commercial farm-enterprizes may no longer feel the need to boost the reproduction of the rural labor force or to tie workers to the land, as slaveowners used to do by force and as traditional landlords still do by indebtedness. The empirical evidence presented in this paper suggests that the decline in rural fertility in Brazil, may signify not a "modernization" of the rural labor force, but its conscious adjustment to the loss of fertility inducements experienced previously under tenancy.

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<sup>50</sup> Aside from crop-lien indebtedness, sharecropper specialization in cash-crop production was also a common and much maligned phenomenon in the post-bellum South of the United States. A more recent and very interesting finding from the point of view of this paper is that non-landowning rural blacks also seem to have had larger families than small landowners. In this regard, see S. Parnell, "The Effect of Emancipation on the Fertility of Black Americans", paper, Economics 130, Stanford University, December, 1976, p 12. With regard to the statistical significance of the negative effect of land-ownership on fertility in the sample described here, see also Dov Chernichovsky, "Some Socioeconomic Aspects..." p. 13.

APPENDIX

TABLES 1-19



TABLE 1  
DISTRIBUTION OF HOUSEHOLDS IN THE SAMPLE

MOTHER'S AGE	15-19	20-24	25-29	30-34	35-39	40-44	45-49	> 50	TOTAL
Total	7	21	23	28	19	17	12	38	165
Caicó	-	8	4	8	6	1	1	21	49
Florânia	2	6	7	5	5	2	4	5	36
Monção	5	7	12	15	8	14	7	12	80
Tenants <sup>1</sup>	2	10	8	10	5	2	3	9	49
Caicó	-	5	2	5	2	1	-	5	20
Florânia	2	5	6	5	3	1	3	3	28
Monção	-	-	-	-	-	-	-	1	1
Small Land Owners	3	1	6	3	5	1	3	12	34
Caicó	-	1	2	2	1	-	1	9	16
Florânia	-	-	-	-	2	-	-	1	3
Monção	3	-	4	1	2	1	2	2	15
Others	2	10	9	15	9	14	6	17	82
Caicó <sup>2</sup>	-	2	-	1	3	-	-	7	13
Florânia <sup>2</sup>	-	1	1	-	-	1	1	1	5
Monção <sup>3</sup>	2	7	8	14	6	13	5	9	64

<sup>1</sup> Sharecroppers + Sharetenants.

<sup>2</sup> Part-time Sharecroppers or Sharetenants.

<sup>3</sup> Squatters.

TABLE 2  
NUMBER OF CHILDREN ALIVE

MOTHER'S AGE	15-19	20-24	25-29	30-34	35-39	40-44	45-49	COMPLETED FAMILY SIZE
Total	.51	1.73	3.12	4.24	5.07	5.57	5.70	5.70
Caicó	.34	1.34	2.62	3.89	5.09	5.59	5.76	5.76
Florânia	.67	2.45	3.93	5.32	6.04	6.71	6.91	6.91
Monção	.55	1.66	3.05	4.00	4.61	5.05	5.10	5.10
Tenants <sup>1</sup>	.63	2.18	3.50	4.81	5.71	6.24	6.39	6.39
Caicó	.42	1.88	3.48	5.48	6.88	7.21	7.21	7.21
Florânia	.75	2.63	3.99	5.36	6.15	6.75	6.97	6.97
Monção	-	-	-	-	-	-	-	-
Small Land Owners	.38	1.47	2.81	4.04	5.13	5.50	5.61	5.61
Caicó	.13	.33	1.71	2.90	4.40	4.70	4.92	4.92
Florânia	.00	.67	2.00	3.67	4.17	5.17	5.17	5.17
Monção	.61	1.85	3.16	4.44	5.24	5.61	5.61	5.61
Others	.58	1.84	3.22	4.20	4.82	5.31	5.40	5.40
Caicó <sup>2</sup>	.62	2.00	3.18	4.63	5.51	6.18	6.35	6.35
Florânia <sup>2</sup>	.60	4.60	6.93	8.60	9.60	10.60	10.60	10.60
Monção <sup>3</sup>	.58	1.81	3.20	4.03	4.56	4.95	5.02	5.02

<sup>1</sup>Sharecroppers and Sharetenants.

<sup>2</sup>Part-time Sharecroppers or Sharetenants

<sup>3</sup>Squatters

TABLE 3

ESTIMATED TOTAL LIVE BIRTHS

MOTHER'S AGE	15-19	20-24	25-29	30-34	35-39	40-44	45-49
Total	.51	2.73	4.97	6.63	7.83	8.66	9.19
Caicō	.34	2.84	4.35	6.37	7.95	8.45	8.62
Florânia	.67	3.45	6.38	8.10	9.47	11.14	12.22
Monção	.55	2.09	3.81	5.25	6.05	6.75	6.99
Tenants <sup>1</sup>	.63	2.78	5.92	7.73	8.88	10.01	10.94
Caicō	.42	2.08	3.93	6.63	8.39	9.72	9.72
Florânia	.75	3.63	7.34	9.04	10.00	11.80	12.80
Monção	-	-	-	-	-	-	-
Small Land Owners	.38	2.47	2.98	5.43	7.17	7.54	7.86
Caicō	.13	.33	1.71	4.23	5.98	6.28	6.50
Florânia	.00	.67	2.00	3.67	5.55	6.55	6.55
Monção	.61	1.85	3.66	5.94	6.87	7.24	7.77
Others	.58	3.14	4.96	5.36	6.25	7.05	4.44
Caicō <sup>2</sup>	.62	6.50	7.68	9.13	10.43	11.10	11.27
Florânia <sup>2</sup>	.60	5.60	8.93	10.60	11.60	13.40	14.57
Monção <sup>3</sup>	.58	2.24	4.04	5.29	6.03	6.70	6.90

<sup>1</sup>Sharecroppers + Sharetenants

<sup>2</sup>Part-time Sharecroppers or Sharetenants

<sup>3</sup>Squatters

TABLE 4

JUSTIFICATIONS GIVEN FOR FAMILY SIZE PREFERENCES

	NO ANSWER %	COSTS		BENEFITS			OTHER %	TOTAL RESPONDENTS <sup>2</sup>	
		Health %	Economic %	Labor %	Pension %	Enjoyment %		%	NP
Total	48	10	10	13	0	14	5	100	352
Mother	21	21	21	14	1	20	2	100	176
Father	71	0	0	13	0	8	8	100	176
Tenants	34	1	5	26	0	28	6	100	96
Mother	22	2	8	19	0	43	6	100	48
Father	44	0	2	33	0	15	6	100	48
Small Land Owners	64	6	2	9	1	13	5	100	84
Mother	45	12	5	14	2	17	5	100	42
Father	80	0	0	5	0	10	5	100	42
Others <sup>1</sup>	54	8	16	8	1	6	7	100	172
Mother	20	16	32	10	3	9	10	100	86
Father	87	1	0	6	0	3	3	100	86

<sup>1</sup>Mainly squatters.

<sup>2</sup>Total number of fathers and mothers interviewed

NUMBER OF RESIDENT CHILDREN\*

MOTHER'S AGE	15-19	20-24	25-29	30-34	35-39	40-44	45-49	≥ 50
Total	3.0	2.3	3.6	5.0	5.3	5.8	6.9	6.5
Caicō	-	2.5	2.0	2.6	4.7	.0	11.0	5.8
Florânia	-	3.3	3.1	5.4	4.2	9.5	6.0	9.0
Monção	3.0	1.4	4.4	6.1	6.5	5.7	6.9	6.7
Tenants <sup>1</sup>	-	2.0	3.0	3.7	4.6	5.0	5.7	8.2
Caicō	-	.8	3.5	2.0	3.0	.0	-	9.0
Florânia	-	3.2	2.8	5.4	5.7	10.0	5.7	8.0
Monção	-	-	-	-	-	-	-	-
Small Land Owners	6.0	5.0	3.2	4.3	4.4	1.0	10.7	5.2
Caicō	-	5.0	.5	3.5	6.0	-	11.0	4.7
Florânia	-	-	-	-	2.0	-	-	9.0
Monção	6.0	-	4.5	6.0	6.0	1.0	10.5	5.5
Others	1.5	2.3	4.5	6.0	6.2	6.4	5.7	6.5
Caicō <sup>2</sup>	-	4.5	-	4.0	5.3	-	-	4.9
Florânia <sup>2</sup>	-	4.0	5.0	-	-	9.0	7.0	.2
Monção <sup>3</sup>	1.5	1.4	4.4	6.1	6.7	6.2	5.4	7.1

<sup>1</sup> Sharecroppers + Sharetenants

<sup>2</sup> Part-time Sharecroppers or Sharetenants

<sup>3</sup> Squatters

\* "Resident children" may belong to a previous marriage of either spouse. They are not necessarily the offspring of the mother who was interviewed.

**TABLE 6**  
**AVERAGE NUMBER OF WORKING MEMBERS PER HOUSEHOLD\***

MOTHER'S AGE	20-24	25-29	30-34	35-39	40-44	45-49	≥ 50
Total**	4.0	3.9	3.8	4.3	3.7	5.0	5.3
Caicō	3.9	4.8	3.6	4.0	2.0	4.0	5.0
Florânia	4.2	2.1	4.2	5.0	7.0	7.0	5.8
Monção***	-	-	-	-	-	-	-
Tenants <sup>1</sup>	3.7	2.4	3.7	5.6	5.5	7.0	6.0
Caicō	2.8	3.5	3.2	3.0	2.0	-	6.6
Florânia	4.6	1.8	4.2	7.3	9.0	7.0	5.7
Monção***	-	-	-	-	-	-	-
Small Land Owners	4.0	4.0	4.0	5.6	-	4.0	3.9
Caicō	4.0	4.0	4.0	6.0	-	4.0	4.2
Florânia	-	-	-	4.0	-	-	3.0
Monção***	-	-	-	-	-	-	-
Others	-	-	-	-	-	-	-
Caicō <sup>2</sup>	6.5	-	5.0	4.0	-	-	4.7
Florânia <sup>2</sup>	2.0	4.0	-	-	5.0	7.0	9.0
Monção***	-	-	-	-	-	-	-

<sup>1</sup> Sharecroppers + Sharetenants

<sup>2</sup> Part-time Sharecroppers or Sharetenants

\* Includes all "domestic" and non market work recorded.

\*\* Caicō and Florânia only.

\*\*\* This information was not collected in Monção.

TABLE 7  
AVERAGE YEARLY HOURS PER WORKER\*

MOTHER'S AGE	20-24	25-29	30-34	35-39	40-44	45-49	≥ 50
Total	2.6	1.9	2.6	2.6	2.4	2.8	2.2
Caicō	2.7	1.2	2.5	2.6	2.2	2.9	1.8
Florânia	2.3	3.4	2.7	2.5	2.7	2.5	3.1
Monção**	-	-	-	-	-	-	-
Tenants <sup>1</sup>	2.2	2.4	2.6	2.0	2.0	2.3	3.2
Caicō	2.3	1.3	2.4	1.1	2.2	-	2.7
Florânia	2.2	3.7	2.7	2.2	2.0	2.3	3.7
Monção**	-	-	-	-	-	-	-
Small Land Owners	4.4	1.8	2.8	2.0	-	2.9	2.1
Caicō	4.4	1.8	2.8	2.2	-	2.9	1.9
Florânia	-	-	-	1.9	-	-	2.6
Monção**	-	-	-	-	-	-	-
Others	3.0	2.1	2.3	3.0	3.9	3.1	2.3
Caicō <sup>2</sup>	2.6	-	2.3	3.0	-	-	2.5
Florânia <sup>2</sup>	3.9	2.1	-	-	3.9	3.1	2.2
Monção <sup>3**</sup>	-	-	-	-	-	-	-

<sup>1</sup> Sharecroppers + Sharetenants

<sup>2</sup> Part-time Sharecroppers or Sharetenants

<sup>3</sup> Squatters

\* In 1 000 hs per year.

NB: 10 hs per day x 6 days per week x 52 weeks per year = 3 120 hpy.

\*\* This information was not collected in Monção.

**TABLE 10**  
**PENSIONS AND TRANSFER PAYMENTS, INCLUDING GIFTS,**  
**AS A PERCENTAGE OF TOTAL HOUSEHOLD INCOME**  
**(%)**

MOTHER'S AGE	20-24	25-29	30-34	35-39	40-44	45-49	≥ 50
Total	6.9	1.2	3.7	2.7	5.7	5.7	11.4
Caicō	15.2	.7	6.4	5.4	55.7	.0	14.3
Florânia	.7	2.7	1.9	1.7	1.9	10.6	3.9
Monção	2.6	.4	2.1	.9	3.9	1.2	6.0
Tenants <sup>1</sup>	3.3	2.2	11.6	2.4	15.7	5.0	8.4
Caicō	6.5	1.2	0.5	3.8	55.7	-	8.8
Florânia	.1	2.6	1.9	1.7	3.4	5.0	2.7
Monção	-	-	-	-	-	-	-
Small Land Owners	2.5	.0	2.9	4.6	2.6	2.3	17.3
Caicō	2.5	.0	.0	15.4	-	.0	19.3
Florânia	-	-	-	1.9	-	-	14.0
Monção	-	.0	13.2	1.2	2.6	3.6	5.8
Others	9.7	0.7	6.8	2.0	3.3	7.0	9.9
Caicō <sup>2</sup>	30.0	-	33.6	3.9	-	-	14.9
Florânia <sup>2</sup>	.0	3.3	-	-	.0	22.1	7.0
Monção <sup>3</sup>	2.7	0.5	1.6	.8	3.9	6.2	.6

<sup>1</sup> Sharecroppers + Sharetenants

<sup>2</sup> Part-Time Sharecroppers or Sharetenants

<sup>3</sup> Squatters



TABLE 11  
CROP-LIEN DEBTS AS A PERCENTAGE OF TOTAL  
HOUSEHOLD INCOME

MOTHER'S AGE	20-24	25-29	30-34	35-39	40-44	45-49	≥ 50
Total	.09	.15	.15	.15	.19	.14	.24
Caicō	.02	.08	.05	.12	-	-	.04
Florânia	.15	.16	.22	.21	.21	.14	.35
Monção	.06	.14	.15	.07	.15	.14	.30
Tenants <sup>1</sup>	.15	.17	.14	.18	.12	.20	.17
Caicō	.07	.12	.08	.07	.00	-	.09
Florânia	.18	.20	.19	.25	.15	.20	.27
Monção	-	-	-	-	-	-	-
Small Land Owners	.00	.23	.24	.08	.00	.00	.20
Caicō	.00	.07	.00	.00	-	.00	.02
Florânia	-	-	-	.19	-	-	.40
Monção	-	.66	.30	.00	.00	.00	.16
Others	.05	.01	.11	.10	.16	.13	.28
Caicō <sup>2</sup>	.00	-	.00	.19	-	-	.07
Florânia <sup>2</sup>	.00	.00	-	-	.27	.00	.56
Monção <sup>3</sup>	.06	.02	.15	.07	.15	.14	.29

<sup>1</sup> Sharecroppers + Sharetenants

<sup>2</sup> Part-Time Sharecroppers or Sharetenants

<sup>3</sup> Squatters

TABLE 12

PERCENTAGE OF TOTAL LOANS OWED TO DIFFERENT TYPES OF CREDITORS

LOAN UTILIZATION	TOTAL TRANSACTIONS NO	BANKS AND COOPERATIVES %	COMMERCIAL INTERMEDIARIES %	LANDLORDS %	FAMILY, FRIENDS AND NEIGHBORS %	TOTAL %
Total	173	7	16	45	32	100
Consumption Production	130	1	13	35	26	75
	43	6	3	10	6	25
Tenants	80	-	8	69	21	100
Consumption Production	68	-	7	56	20	85
	12	-	1	13	1	15
Small Landowners	25	12	16	4	68	100
Consumption Production	19	-	12	4	60	76
	6	12	4	-	8	24
Others: Total	68	15	26	28	31	100
Consumption Production	44	-	21	19	24	64
	24	15	5	9	7	36
Others: Squatters						
Consumption Production	20	-	13	1	21	41
	20	15	5	3	5	30

**TABLE 13**  
**NON-CASH-CROP INCOME AS A PERCENTAGE OF TOTAL**  
**HOUSEHOLD INCOME**

MOTHER'S AGE	20-24	25-29	30-34	35-39	40-44	45-49	≥ 50
Total	63	76	74	66	83	68	66
Caicō	77	69	69	42	84	96	71
Florânia	10	57	54	42	60	38	19
Monção	97	92	90	87	91	96	76
Tenants <sup>1</sup>	30	54	58	39	81	37	47
Caicō	55	55	60	46	84	-	59
Florânia	13	53	54	41	80	37	15
Monção	-	-	-	-	-	-	-
Small Land Owners	88	96	87	60	94	97	88
Caicō	88	95	89	67	-	96	89
Florânia	-	-	-	46	-	-	49
Monção	-	98	80	78	94	98	22
Others	81	90	90	69	83	79	73
Caicō <sup>2</sup>	96	-	88	58	-	-	64
Florânia <sup>2</sup>	6	95	-	-	35	42	44
Monção <sup>3</sup>	95	89	91	90	91	95	94

<sup>1</sup> Sharecroppers + Sharetenants

<sup>2</sup> Part-Time Sharecroppers or Sharetenants

<sup>3</sup> Squatters

**TABLE 14**  
**PERCENTAGE OF TOTAL HOUSEHOLD LABOR NOT DEVOTED TO**  
**CASH-CROP PRODUCTION**

(%)

MOTHER'S AGE	20-24	25-29	30-34	35-39	40-44	45-49	≥ 50
Total	60	65	60	45	44	81	54
Caicō	68	66	68	44	43	98	59
Florânia	46	63	45	48	48	47	44
Monção*	-	-	-	-	-	-	-
Tenants <sup>1</sup>	50	58	57	38	49	46	55
Caicō	56	58	68	29	43	-	68
Florânia	44	57	45	46	56	46	45
Monção*	-	-	-	-	-	-	-
Small Land Owners							
Caicō	94	71	65	40	-	98	54
Florânia	94	71	65	26	-	98	54
Monção*	-	-	-	56	-	-	55
Others	64	100	73	56	42	51	51
Caicō <sup>2</sup>	66	-	73	56	-	-	54
Florânia <sup>2</sup>	56	100	-	-	42	51	37
Monção <sup>3*</sup>	-	-	-	-	-	-	-

<sup>1</sup> Sharecroppers + Sharetenants

<sup>2</sup> Part-Time Sharecroppers or Sharetenants

<sup>3</sup> Squatters

\* Information not collected in Monção

TABLE 15  
ACREAGE FARMED

MOTHER'S AGE	20-24	25-29	30-34	35-39	40-44	45-49	≥ 50
Total	9.23	4.3	4.9	3.7	3.5	5.9	7.7
Caicō	2.1	-	4.0	3.4	1.2	0.3	9.7
Florânia	6.6	-	5.2	5.5	6.6	8.3	8.2
Monção	20.2	5.1	5.2	3.0	3.2	5.4	4.1
Tenants <sup>1</sup>	2.6	3.8	4.8	6.6	2.4	8.7	15.3
Caicō	1.7	4.0	4.4	5.1	1.2	-	18.4
Florânia	3.6	3.7	5.2	7.7	3.6	8.7	12.3
Monção							
Small Land Owners	4.0	4.3	2.0	2.7	1.2	3.2	5.4
Caicō	4.0	5.0	1.7	1.0	-	0.3	6.45
Florânia	-	-	-	2.2	-	-	-
Monção	-	4.0	2.4	3.9	1.2	4.7	2.0
Others	18.1	4.8	5.5	2.8	3.8	5.9	4.6
Caicō <sup>2</sup>	2.0	-	6.6	3.0	-	-	6.1
Florânia <sup>2</sup>	22.0	0.6	-	-	9.6	7.0	2.0
Monção <sup>3</sup>	20.2	5.3	5.4	2.7	3.3	5.7	3.5

<sup>1</sup> Sharecroppers + Sharetenants

<sup>2</sup> Part-Time Sharecroppers or Sharetenants

<sup>3</sup> Squatters

**TABLE 16**  
**TOTAL HOUSEHOLD INCOME\***

MOTHER'S AGE	20-24	25-29	30-34	35-39	40-44	45-49	≥ 50
Total	6.8	4.9	4.9	4.4	5.2	5.9	6.3
Caicō	6.8	5.9	6.6	4.9	4.1	3.5	7.9
Florânia	7.3	5.3	6.4	5.9	12.0	8.6	6.0
Monção	6.4	4.4	3.5	3.2	4.4	4.7	3.8
Tenants <sup>1</sup>	5.1	6.1	6.9	6.4	8.6	7.7	9.4
Caicō	4.3	7.6	7.4	5.5	4.1	-	10.7
Florânia	5.9	5.6	6.4	7.1	13.2	7.7	8.0
Monção	-	-	-	-	-	-	-
Small Land Owners	10.9	4.2	2.9	3.7	1.9	3.3	5.1
Caicō	10.9	4.2	3.3	3.9	-	3.5	5.7
Florânia	-	-	-	4.4	-	-	1.5
Monção	-	4.2	1.9	2.8	1.9	3.2	4.1
Others	8.1	4.4	4.0	3.8	5.0	6.3	5.6
Caicō <sup>2</sup>	11.0	-	9.6	4.7	-	-	8.6
Florânia <sup>2</sup>	14.1	3.8	-	-	10.8	11.3	4.2
Monção <sup>3</sup>	6.4	4.5	3.6	3.3	4.6	5.3	3.4

<sup>1</sup> Sharecroppers + Sharetenants

<sup>2</sup> Part-time Sharecroppers or Sharetenants

<sup>3</sup> Squatters

\* Cr\$ 1 000 of 1974 - US\$ 166

TABLE 17  
AGE OF MARRIAGE OF MOTHERS

MOTHER'S AGE	15-19	20-24	25-29	30-34	35-39	40-44	45-49	>50
Total	16.3	18.5	12.6	18.5	21.2	21.2	23.6	25.4
Caicō	-	21.5	21.5	23.7	22.3	nm	21.0	26.8
Florânia	-	17.3	17.3	18.0	17.8	18.0	18.7	21.2
Monção	16.3	18.3	18.3	17.8	22.2	27.1	25.0	23.1
Tenants <sup>1</sup>	-	18.7	17.7	21.3	20.0	28.0	19.0	23.3
Caicō	-	19.8		24.0	25.5	nm	-	23.6
Florânia	-	17.6	17.3	18.0	16.3	16.1	19.0	23.3
Monção	-	-	-	-	-	-	-	23.0
Small Land Owners	15.0	na	20.0	na	19.8	28.0	18.7	24.8
Caicō	-	na	24.0	na	17.0	-	21.0	24.9
Florânia	-	-	-	-	20.0	-	-	20.0
Monção	15.0	-	18.0	15.0	21.0	28.0	17.5	22.5
Others	17.0	17.7	18.3	18.3	22.8	20.1	26.3	24.1
Caicō <sup>2</sup>	-	18.0	-	22.0	23.0	-	-	25.0
Florânia <sup>2</sup>	-	17.0	17.0	-	-	20.0	18.0	16.0
Monção <sup>3</sup>	17.0	17.7	18.5	18.0	22.7	26.1	28.0	24.3

<sup>1</sup> Sharecroppers + Sharetenants.

<sup>2</sup> Part-time Sharecroppers or Sharetenants.

<sup>3</sup> Squatters.

na - information not available

nm - never married.

**TABLE 19**  
**HOURS OF SCHOOL PER YEAR PER CHILD**

MOTHER'S AGE	20-24	25-29	30-34	35-39	40-44	45-49	≥ 50
Total *							
Caicō*							
Florânia*							
Monção*							
Tenants <sup>1</sup> *							
Caicō	0	0	174.55	0	0		136.00
Florânia	0	0	29.23	230.00	112.00	80.00	167.50
Monção	-	-	-	-	-	-	-
Small Land Owners*							
Caicō	0	0	0	180.00	-	128.00	59.17
Florânia	-	-	-	0	-	-	0
Monção	-	118.29	0	221.54	0	221.40	0
Others*							
Caicō <sup>2</sup>	0	-	320.00	404.25	-	-	132.50
Florânia <sup>2</sup>	0	96.00	-	-	600.00	44.44	40.00
Monção <sup>3</sup>	0	0	136.50	31.76	125.22	193.85	58.91

<sup>1</sup> Sharecroppers + Sharetenants

<sup>2</sup> Part-time Sharecroppers or Sharetenants

<sup>3</sup> Squatters

\* Totals were not calculated due to a systematic nature of response.



TABLE 18

## PERCENTAGE OF HUSBANDS WHO HAVE EVER LIVED IN ANOTHER STATE

MOTHER'S AGE	%							
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	≥ 50
Total	66.7	42.9	39.1	42.9	42.1	23.5	58.3	31.6
Caicō	-	25	25	12.5	50	0	100	29.6
Florânia	-	50	42.9	80	60	0	50	60
Monção	66.7	57.1	41.7	46.7	25	28.6	57.1	25
Tenants <sup>1</sup>	-	40	37.5	50	60	0	33.3	22.2
Caicō	-	20	50	20	50	0	-	20
Florânia	-	60	33.3	80	65.7	0	33.3	33.3
Monção	-	-	-	-	-	-	-	0
Small Land Owners	100	100	33.3	33.3	40	100	100	53.3
Caicō	-	100	0	0	0	-	100	33.3
Florânia	-	-	-	-	50	-	-	100
Monção	100	-	50	100	50	100	100	0
Others	50	40	44.4	40	33.3	21.4	50	35.3
Caicō <sup>2</sup>	-	0	-	0	66.7	-	-	28.6
Florânia <sup>2</sup>	-	0	100	-	-	0	100	100
Monção <sup>3</sup>	50	57.1	37.5	42.9	16.7	23.1	40	33.3

<sup>1</sup> Sharecroppers + Sharetenants<sup>2</sup> Part-time Sharecroppers or Sharetenants<sup>3</sup> Squatters