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## A new poverty profile for Brazil using PPV, PNAD and census data

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DEPARTAMENTO DE ECONOMIA  
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TEXTO PARA DISCUSSÃO  
Nº. 418

A NEW POVERTY PROFILE FOR BRAZIL USING PPV, PNAD AND  
CENSUS DATA \*

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**Abstract:** This paper contains a poverty profile for Brazil, based on 1996 data. Poverty measures and shares are presented for a wide range of population subgroups, based on household level data from the PNAD 1996, adjusted for imputed rents and spatial differences in cost of living. Robustness of the profile is verified with respect to different poverty lines, different spatial price deflators, and different equivalence scales. Overall poverty incidence ranges from 23% with respect to an indigence line (15% for urban areas) to 45% with respect to a more generous poverty line (37% for urban areas). More importantly however, poverty is found to vary significantly across regions and city sizes, with rural areas, small and medium towns and the metropolitan peripheries of the North and Northeast regions being poorest. In addition, education, race and the labor status of the household head are important correlates of vulnerability. The marginal impact of each of these attributes, controlling for all others, is investigated through probit regressions run on PPV data. These confirm the importance of spatial variables, but suggest that education remains *the* central personal attribute determining the likelihood that a household experiences poverty. Some tentative recommendations to improve the quality of the available data sets are also made.

## 1. INTRODUCTION

If economic stability is sustained into the next century, and macroeconomic conditions permit a gradual resumption of growth within the bounds of fiscal discipline, Brazil has a real opportunity to improve the living conditions of its poorest people. While economic growth will have to play an important part in that process, both international experience and the country's very high levels of inequality suggest the need for improving the effectiveness of public policy, and ensuring that services and transfers reach those in greatest need. This, in turn, requires that one knows who the poor are, where they live, and what their social and economic profile is.

Although distributional analysis of Brazil has generally been of a high standard, there are four reasons why the construction of a new poverty profile is now timely. First, price stability since 1994; trade liberalization; and technical change in a number of sectors in the last few years are all likely to have had some impact on the distribution of income. Second, new expenditure surveys, notably the *Pesquisa sobre Padrões de Vida* (PPV) of 1996, suggest that price variations across this continent-sized nation are not insubstantial.<sup>1</sup> Previous profiles have generally not accounted for these spatial price differences at all.<sup>2</sup>

Third, previous analyses of the annual *Pesquisa Nacional por Amostra de Domicílios* (PNAD), Brazil's main rural-and-urban household survey instrument, failed to incorporate any values for imputed rent as part of the incomes of owner-occupiers, thereby introducing a substantial distortion into the measurement of their real living standards. While the PNAD is still short of best international practice in not including questions that permit such an imputation, we were able to 'predict' values as best we could, by means of an augmented hedonic price regression, as discussed below. Finally, we were also able to partition the set of non-metropolitan urban areas in Brazil by size more finely than has hitherto been the case. Whereas before large (non-metropolitan) cities like Campinas (SP) or Campos (RJ) were lumped in the same category as small towns of less than 20,000 inhabitants, we matched urban population data from the 1996 Semi-Census ('Contagem') to the PNAD, generating a finer partition which sheds considerable light on the structure of urban poverty in the country.

While this paper draws on these data and methodological improvements, it also highlights some serious problems with Brazilian household data in general, which have become apparent from a comparison of poverty incidence indicators based on different surveys. On the basis of these comparisons, and drawing on

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<sup>1</sup> Brazil's latest decadal detailed expenditure survey of metropolitan areas, the POF 1995-96, broadly confirms the importance of these differences, even though, by construction, it can not measure cost-of-living disparities between metropolitan areas and the rest of the country.

<sup>2</sup> There are exceptions. For instance, Rocha (1993) used regional price deflators in describing the evolution of aggregate poverty measures. Her deflators were constructed quite differently from the ones we will use, as discussed below.

international experience with data collection, we make some suggestions for a possible rationalization of Brazil's household survey system, run by the *Instituto Brasileiro de Geografia e Estatística* (IBGE).

The remainder of the paper is organized as follows. The next section briefly describes our basic concepts and methodology and how the latter draws on the available data sets. Section 3 then discusses some data-related concerns, which have become apparent when comparing results from the different surveys we have used. Section 4 presents the results of the partial profile analysis, based on probit regressions run on PPV data, which investigate the marginal effect of a number of household and personal characteristics on the probability of being poor. The probit regressions are also used for testing the robustness of the profile with respect to different income concepts and regional price deflation procedures. In section 5, we present a new and detailed (cross-tabulation) poverty profile for Brazil, based on the nationally representative PNAD 1996 survey.<sup>3</sup> The analysis is carried out for the whole country, but focuses on urban areas, both metropolitan and non-metropolitan. The profiles of poverty are presented both across and within macro geographical regions, both in terms of subgroup-specific poverty measures and in terms of their contribution to total poverty. Section 6 summarizes and concludes.

## 2. DATA AND METHODOLOGY

The basic welfare indicator used for constructing the poverty profile is a transformation of the total household income ( $Y$ ) reported in the PNAD 1996. It is

given by  $y_{ij} = \frac{Y_{ij}}{I_j n_i^q}$ , where household  $i$  lives in spatial area  $j$ ,  $n_i$  is the number of

household members,  $q \in (0,1)$  is the Buhmann et. al. (1988) equivalence scale parameter, and  $I_j$  is the price deflator for spatial area  $j$ . The recipient unit is the individual, which is to say that the distribution analyzed is a vector of  $y$ , where  $y_i$  is entered  $n_i$  times.

$Y_{ij}$  incorporates one important addition to the total household income variable reported in the original PNAD data set, namely a measure of imputed rent. This imputation, which is standard practice in household welfare analysis (See e.g. Deaton, 1997) is meant to evaluate the monthly flow of rental services that house-owners derive from their housing stock. It is imputed only to households that report owning their houses (whether or not they own the land). Imputed values were derived by means of a two-step procedure: first a hedonic rental price model was estimated by means of a set of regressions PNAD. The diversity of household heads, spatial and housing characteristics and services in this data set allowed us to take into account rental price variation. Secondly, the parameters of these estimated models were applied to the characteristics of each individual house-

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<sup>3</sup> Although the 1997 PNAD is now available, use of 1996 data enables us to benefit straightforwardly from the PPV and the 'Contagem' data-sets, both of which also date from 1996. Poverty profiles, unlike scalar indices, do not generally change dramatically from one year to the next.

owning household in the PNAD 1996, and used to predict its imputed rent, which was added at the household level, and henceforth formed part of its total income.

The equivalence scale parameter is straightforward, and its usefulness to check the sensitivity of poverty or inequality estimates to different assumptions about economies of scale is well established (see Coulter et. al., 1992; Ferreira and Litchfield, 1996; and Lanjouw and Ravallion, 1995). Much more problematic, in the case of Brazil, is the choice of a suitable spatial price deflator. Ideally, a spatial price deflator, like its temporal counterpart, seeks to approximate a true cost of living index,  $\Gamma_j = \frac{E(p_j, \bar{u})}{E(p_R, \bar{u})}$ , where  $E(\cdot)$  is the expenditure function,  $p_j$  is the vector of prices ruling in area  $j$ ,  $u$  is a given level of utility and  $R$  is some reference area.

Any deflator used in practice is bound to be an imperfect approximation to  $\Gamma_j$ . Ravallion and Bidani (1994) argue for using a Laspeyres price index, constructed by fixing the vector of quantities for some reference area (in their case, a country average), and allowing the price vector to vary across all areas in the domain of the index. Others have pointed out that this method has a tendency to underestimate real incomes, by failing to account for the substitution effects of changes in relative prices over space.

In addition, the issue is complicated in Brazil by the availability of three separate expenditure surveys, each of which generates different quantity and (implicit) price vectors, and each of which has its own advantages and disadvantages. The ENDEF was carried out in 1974. Its main advantage is that it was the last truly comprehensive expenditure survey carried out in Brazil, including urban and rural areas all across the country. Its main disadvantage is obvious: prices and consumption patterns have changed substantially in the last 25 years. The *Pesquisa de Orçamentos Familiares* (POF) is the ENDEF's main successor. It is carried out in ten-year intervals, but only for eleven metropolitan areas. The last wave dates from 1998. Its main advantage is that the consumption questionnaire is highly disaggregated (approximately 1300 foodstuff items per household).<sup>4</sup> Its main disadvantage, for a national analysis, is its limited geographical coverage, which excludes all rural and non-metropolitan urban areas.

Finally, the PPV was conducted for the first time in 1996, covering urban and rural areas in the Northeast and Southeast regions only. Its main advantage is that it is the most recent expenditure survey available which covers the country's non-metropolitan areas. It also has the most detailed questionnaire on issues of incidence of government programs.<sup>5</sup> Its main disadvantages are its restricted

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<sup>4</sup> See Lanjouw and Lanjouw (1996) for a discussion of the effects of changes in the degree of aggregation in expenditure surveys, on poverty measurement.

<sup>5</sup> See World Bank (1998) for a detailed analysis of public expenditures and their incidence in the Brazilian Northeast, based on PPV data.

regional coverage, and the relatively aggregated nature of its consumption questionnaire.

Based on each of these surveys, or on combinations of them, a multitude of different price deflators could be constructed, each yielding potentially different distributions of real income for the country. Additionally, the various different data sources could be used to construct true price indices (à la Ravallion and Bidani, 1994) or, alternatively, cost of living indices where quantities are allowed to vary, in order to capture the substitution effects implicit in each region's actual expenditure patterns (à la Rocha, 1993). In order to overcome the possible ambiguity resulting from these different approaches, we tested the sensitivity of the poverty profile with respect to variations in the spatial price deflator.

To do so, we generated a parametric class of deflators, based on PPV expenditure and implicit price data. The class of indices is given by :  $I_{aj} = \mathbf{a}I_+ + (1-\mathbf{a})I_-$ ,

where  $I_+ = \sigma_F \frac{q_+ p_j}{q_+ p_+} + \sigma_H \frac{p_j}{p_+}$  and  $I_- = \sigma_F \frac{q_- p_j}{q_- p_-} + \sigma_H \frac{p_j}{p_-}$ .  $\sigma_F$  is the food share

in housing and food expenditure, and  $\sigma_H$  is the corresponding housing expenditure share.  $p$  and  $q$  are food price and quantity vectors in the regions they are indexed by. The quantities are averages of the consumption quantities for each commodity reported by deciles 2-5 in each region, and the prices are the implicit prices (or unit values) for those deciles.  $\pi$  is a housing cost analogue for the same deciles in each region. All of these are taken from the PPV data set. In order to make the parametric class of deflators  $I_\alpha$  a suitable instrument to test for the robustness of the profile with respect to different reference consumption bundles, the reference regions indexed by - and + are chosen so as to maximize the differences in relative prices between them.

They are chosen so that  $(p_-, p_+)$  solve the following algorithm:  $Minr(p_i, p_j)$  over  $S = \{p_k\}$ ,  $\forall k$ .  $\rho$  is the Pearson correlation coefficient. This program simply entails choosing the two areas, within the ten areas surveyed by the PPV, which display the least correlated price vectors. In addition, we also examined the profile based on nominal incomes, i.e. the controlling case of no regional deflation: with  $I_j = 1$ ,  $\forall j$ .

The ten areas surveyed by the PPV are: (1) Metropolitan Fortaleza; (2) Metropolitan Recife; (3) Metropolitan Salvador; (4) other urban areas in the Northeast; (5) rural areas in the Northeast; (6) Metropolitan Belo Horizonte; (7) Metropolitan Rio de Janeiro; (8) Metropolitan Sao Paulo; (9) other urban areas in the Southeast; and (10) rural areas in the Southeast. The correlation coefficients between price vectors for each pairwise combination of these ten regions are given in Table 1 below.

**Table 1: Correlation Coefficients across region-specific price vectors, from the PPV (1996) survey**

	Fortaleza	Recife	Salvador	NE urb	NE rur	RM B.H.	RM Rio	S. Paulo	SE urb	SE rur
<b>Fortaleza</b>	1.000									
<b>Recife</b>	0.8581	1.000								
<b>Salvador</b>	0.9302	0.7321	1.000							
<b>NE urban</b>	0.9594	0.8805	0.9229	1.000						
<b>NE rural</b>	0.9593	0.8814	0.9143	0.9846	1.000					
<b>RM B.H.</b>	0.9050	0.6761	0.8559	0.8656	0.8513	1.000				
<b>RM Rio</b>	0.8468	0.8153	0.7772	0.8694	0.8268	0.8654	1.000			
<b>S. Paulo</b>	0.8969	<b>0.6239</b>	0.8580	0.8526	0.8453	0.9318	0.7985	1.000		
<b>SE urban</b>	0.9324	0.7992	0.8542	0.9240	0.8956	0.9591	0.9234	0.9205	1.000	
<b>SE rural</b>	0.9063	0.8360	0.8258	0.9163	0.8832	0.9326	0.9371	0.8582	0.9849	1.000

As Table 1 indicates,  $p_-$  turns out to be the price vector for the metropolitan area of Recife, and  $p_+$  is the price vector for the metropolitan area of Sao Paulo.<sup>6</sup> In general, once one such index is computed (for a given  $\alpha$ ) for each of the ten regions, we have deflators for all households located in the NE and SE regions in the PNAD. Unfortunately, as noted above, the PPV does not survey the other three regions of the country. We deflate household incomes in those regions by mapping  $I_j$  s as follows:

1. Average for the three metropolitan areas in the NE → Each metropolitan area in the North.
2. Other urban areas in the NE → Other urban areas in the North.<sup>7</sup>
3. Average for the three metropolitan areas in the SE → Each metropolitan area in the South.
4. Other urban areas in the SE → Other urban areas in the South.
5. Rural areas in the SE → Rural areas in the South.
6. Average for all metropolitan areas in the NE and SE → Each metropolitan area in the Center-West.
7. Average of other urban areas across the NE and SE → Other urban areas in the Center-West.
8. Average of rural areas across the NE and SE → Rural areas in the Center-West.<sup>8</sup>

<sup>6</sup> Note that the correlation coefficient is insensitive to price *levels* by construction, so that the two metropolitan areas have the most different *relative* prices, not *absolute* price levels.

<sup>7</sup> The PNAD does not survey rural households in the North region, for cost-related reasons. We therefore do not need a spatial price deflator for that area.



This would give us a complete set of price deflators (for any given  $\alpha$ ), with which to adjust the entire PNAD household income distribution to take spatial price differences into account. Furthermore, by varying  $\alpha$  in the interval (0, 1), thereby constructing convex combinations of the two price indices based on the reference regions with the least correlated price vectors, we could test the robustness of the poverty profile – or indeed of any poverty or inequality measure – with respect to changes in the choice of price deflator.

In the event, this procedure turns out to be unnecessary for the case of Brazil.  $I_-$  and  $I_+$  themselves, given in Table 2 below, turn out to be very closely correlated. In particular, the ranking of the 10 PPV areas by poverty headcount with respect to the lower bound poverty line (see below) is identical for both of them. In this light, and in order to avoid the presentation of an unmanageable number of profile tables, the analysis presented below is based exclusively on the Sao Paulo-based regional price index ( $I_+$ ). Clearly, given the information in Table 2, the matrix  $I_{\alpha j}$  can be constructed for  $J = \{j\}$  and for any values of  $\alpha \in (0, 1)$ .

Table 2:

**Regional Price Indices based on the Recife and Sao Paulo baskets.**

PPV 'Region'	$I_-$ : The Recife-based index	$I_+$ : The Sao Paulo-based index
RM Fortaleza	1.004451	1.014087
RM Recife	1.000000	1.072469
RM Salvador	1.234505	1.179934
Northeast Urban	1.085385	1.032056
Northeast Rural	0.931643	0.953879
RM Belo Horizonte	1.043125	0.958839
RM Rio de Janeiro	1.094239	1.002163
RM Sao Paulo	1.120113	1.000000
Southeast Urban	0.995397	0.904720
Southeast Rural	0.985787	0.889700

A third possible approach to price deflation draws on both of the two alternative expenditure survey data sets, the POF 1998 and the ENDEF 1974. These indices are created from spatially specific food poverty lines computed for each of eleven metropolitan areas across the country, using the more disaggregated POF questionnaire, and conversion factors from these areas to all others, derived from the 1974 ENDEF (after assuming - rather arbitrarily - a certain rate of convergence in these factors since the ENDEF was carried out). This third approach is being employed to construct a set of regionally specific poverty lines for Brazil, by a Commission composed of CEPAL, IBGE and IPEA. Its main advantage over our approach is the more disaggregated nature of the consumption questionnaire in the POF<sup>9</sup>, as well as its larger sample size. Its disadvantage is that it relies on original

<sup>8</sup> These are unweighted averages.

<sup>9</sup> The theoretical predictions of Lanjouw and Lanjouw (1996), borne out by the examples they examine, are that an expenditure concept based on a more disaggregated questionnaire should lead to lower headcounts for our headline poverty line ( $z^-$ ), and unchanged estimates for the upper-bound poverty line ( $z^+$ ). The effects on higher order FGT measures would be ambiguous in the first case, and an increase in the latter. See below.

non-metropolitan information that is twenty-five years old. It is unclear whether its extrapolation algorithm (to areas not directly surveyed), relying on modified ENDEF conversion factors, is superior to the contiguous similarity assumption underlying our approach. Another advantage of our approach is that we first tested for robustness across a range of possible deflators, and a single deflator was chosen only after we found that the regional poverty ranking is reasonably robust.

Once one of these price indices (and a value for  $\theta$ ) is chosen, a vector of regionally deflated, equivalised household incomes is defined and ready for distributional analysis. Inequality measures can be immediately computed. For poverty analysis, however, a poverty threshold needs to be defined, so as to identify the poor. Following standard practice, we adopt a set of three poverty lines, to check the robustness of the profile to variations in the specific line chosen. Since we have deflated the incomes by a spatial price index, and taken household economies of scale into account, we do not need region- or household type-specific lines. All three lines are expressed in 1996 reference region (metropolitan São Paulo) prices. These are:

- An indigence line, equal to the cost of the ‘minimum food basket’ in the reference region:  $\mathbf{z} = p_R \mathbf{q}_R^*$ , where  $\mathbf{q}_R^*$  is the same vector  $\mathbf{q}_R$  of average consumption bundles for deciles 2-5 in reference region R, scaled up to yield a caloric intake equal to the FAO minimum intake of 2,288 calories per day.<sup>10</sup> This line is equal to R\$ 65.07.
- A lower-bound poverty line, which scales up the cost of the minimum food basket to take into account the non-food expenditures of those people whose total incomes would just allow them to purchase that minimum food basket. I.e.  $z^- = \frac{\mathbf{z}}{\mathbf{e}_L}$ , where  $\mathbf{e}_L$  is the Engel coefficient for households whose total income is equal to the indigence line. This line is worth R\$ 131.97 and we treat it as our main, ‘headline’ poverty threshold.
- An upper-bound poverty line, which scales up the cost of the minimum food basket to take into account the non-food expenditures of those people whose actual food expenditures equal the cost of the minimum food basket. I.e.  $z^+ = \frac{\mathbf{z}}{\mathbf{e}_U}$ , where  $\mathbf{e}_U$  is the Engel coefficient for households whose total food expenditure is equal to the indigence line. This line is equal to R\$ 204.05. While profiles were computed with respect to this line as well, it yields very high headcounts (62% for Brazil as a whole) and is thus less useful for profiling. To save space, detailed profiles are not presented for this line, although results are available from the authors on request.

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<sup>10</sup> This figure is the exact caloric recommendation for metropolitan Sao Paulo, according to IBGE/IPEA, 1998, Table 1.

Since our identification methodology relies on comparing a vector of spatially deflated incomes with a single poverty line, it is crucial that the poverty line be expressed in the same ‘currency unit’ as the income vector - i.e. in the 1996 prices ruling in the reference region (metropolitan São Paulo). If the price deflator changed, the poverty lines should change in tandem, by adopting the new reference region’s price vector, and scaling up its quantities vector to yield the desired caloric intake.

### **3. DATA ISSUES: MISMEASURING LIVING STANDARDS SEVERAL TIMES OVER.**

Before discussing the poverty profile in Sections 4 and 5, we discuss a number of problems with the underlying data, which we feel the reader must be aware of before interpreting any results. It has become apparent, in the course of preparing this study, that each of the main household surveys used for welfare analysis in Brazil suffers from its own serious – and different – shortcoming(s). This effectively implies that none of them is, on its own, a really satisfactory basis for the study of social welfare, inequality or poverty. Clearly, many imperfect surveys would seem to be inferior to a single, better designed survey.

Two alternative paths can be followed to deal with this situation. In the medium-run, pending a thorough review of Brazil’s household survey system, one could use innovative statistical procedures to combine data-sets, seeking to complement their strengths and compensate for their weaknesses. Such techniques, although still in their infancy, usually rely on imputing key variables from small but detailed data sets to larger ones where they are either absent or measured with unacceptable margins of error. See Hentschel et. al. (1999) and Elbers et. al. (1999). An application of this approach to combining the PPV’s consumption module and the PNAD’s sample size is the subject of current research. The other alternative is probably first-best, if cost constraints are not binding: that is to redesign the survey system so as to replace various sub-optimal instruments with a single well-designed survey. Below, we first discuss the nature of the problems we encountered, and then make a simple suggestion for possible improvements.

The main relatively recent household surveys in Brazil are the PNAD (annual), the POF (decadal), the *Pesquisa Mensal de Emprego* (PME: monthly), and the PPV (as yet unclear).<sup>11</sup> The PME surveys only six metropolitan areas in the country (São Paulo, Rio de Janeiro, Belo Horizonte, Salvador, Recife and Porto Alegre), and is thus clearly not an adequate instrument for nationally representative welfare analysis. Neither is this its objective. The PME, as the name indicates, is primarily a labor force and employment survey, intended to provide up-to-date information on recent trends in the country’s main labor markets. As such, its coverage and periodicity are probably appropriate, and we refrain from any further comment on it.

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<sup>11</sup> The ENDEF of 1974, to which we have referred above, was a one-off experiment and is clearly too old to be of any use as a primary instrument for distributional analysis today.

The other three surveys, however, are a different story. The POF is the country's traditional main expenditure survey. Its principal original purpose was to generate the expenditure baskets for computing price indices – a very important activity in the decades of high inflation. Despite its large sample size (16000 households), the POF's main shortcomings, as mentioned above, are that it covers only metropolitan Brazil, and that the interval between waves (ten years) is excessively long for it to be used as the country's main household survey for tracking the evolution of poverty, welfare and income distribution.

The PPV, implemented by IBGE like all other surveys, but influenced to a large extent by the LSMS popularized by the World Bank, suffers from a similar shortcoming. It too is not nationally representative, excluding three of the five main regions of country. Admittedly, 73% of the country's population lives in the Northeast (NE) and the Southeast (SE), which are surveyed by the PPV. But researchers interested in obtaining a comprehensive picture of poverty in Brazil are unlikely to be much reassured by this, when the remaining 27% of the population are excluded in the most non-random way possible, by living in huge areas of the country which are far from its main population centers.

In addition, the approximately 5,000 households surveyed by the PPV have been widely regarded as an excessively small sample size by many in the Brazilian research community. In part, this reflects a bias towards large samples for their own sake, and the PPV can be defended on the basis that the standard errors around its estimates are not absurdly large (see Table 3 below). Nevertheless, (a) these standard errors are still large enough that some confidence intervals in the PPV sub-regions are not exactly small, with some greater than 20 percentage points; and (b) in a large federal country like Brazil, many interesting and important questions arise at the state – or even city – level. Unlike the PNAD, the PPV is simply not representative at those levels.

This leaves the PNAD, which has been the main staple of country-wide (as opposed to metropolitan) distributional analysis in Brazil since the mid-1970s. It covers both urban and rural areas (except in the Northern region), and is representative at the state level, as well as for all metropolitan areas. Its sample size, currently of 105 thousand dwellings, should be sufficient to produce much narrower confidence intervals for regional poverty or inequality estimates. It is conducted annually, allowing for an unusually rich time-series of repeated cross-sections.

However, for such a large survey, and one which is fielded so often, some of the PNAD questionnaire shortcomings are remarkable. The questionnaire has evolved a great deal between the mid-1970s and 1996, generally much for the better. Nevertheless, there is one aspect, crucial for poverty and income distribution analysis, which has remained rather problematic: the income questions for any income source other than wage employment. Government transfers, private transfers, as well as capital and property incomes are rather summarily dealt with by question 125 in Part 10 of the 1996 survey. A number of existing government

transfer programs are not listed specifically, and the only logical place where their value might be registered is together with “interest from savings accounts or other investments, dividends and other incomes” (V1274).

More seriously, the main income from labor questions are the same for employees (formal or informal), self-employed workers, and farmers working their own land. There are, to be sure, other qualitative questions about employment and contractual arrangements in agriculture, as well as *whether* various in-kind benefits are received. There are no questions about their specific value, and the respondent then arrives at a pair of questions for each of his or her main, secondary and other occupations during the reference week. One of these asks for the value of the cash income from that occupation (respectively V9532, V9982 and V1022) and the other asks for the value of income in kind and benefits (respectively V9535, V9985 and V1025). While this is probably appropriate for wage earners (whether ‘com’ or ‘sem carteira’), it is much less adequate for either the urban self-employed or farmers working their own or rented land (i.e. all agricultural non-wage workers). These categories of workers do earn a living from a number of different sources, many of them in kind and in benefits, and are likely to benefit from questions which specifically remind them of all their sources of income, helps them value in kind and benefit incomes, and helps distinguish between consumption and investment expenditures.

In principle, the measurement errors likely to arise from the absence of these more detailed questions could bias income measurement in either direction. Too few questions about in-kind benefits or the values of different types of production for own consumption are likely to lead to an underestimate of welfare, through forgetfulness. On the other hand, the absence of questions about expenditure on inputs is likely to lead to an overestimate of net incomes from home production. In practice, the international evidence suggests that the first effect often predominates, and the absence of such detailed questions can lead to income under-reporting by categories of workers which, as it happens, are quite likely to be poor. The evidence which we have uncovered for Brazil, by comparing incomes and poverty incidence estimates from the PPV, which does contain (a) a consumption expenditure questionnaire and (b) a more detailed income questionnaire, with the PNAD estimates, suggests that the same is true in this country.

Table 3 below lists estimates of poverty incidence (headcounts) from the PPV and the PNAD, for the ten sub-regions where the PPV is carried out and is representative. It also presents the (sampling design adjusted) 95% Confidence Interval around each of the PPV estimates. The PNAD headcounts come from the adjusted PNAD distribution described in Section 2, reflecting imputed rent and regional price deflation adjustments. The PPV estimates are presented for each of three different welfare indicators which can be constructed from the PPV data: the first is the real per capita household consumption expenditure; the second is real per capita household income, calculated from the more detailed income questions

in the PPV questionnaire; the third is real per capita income from PPV questions analogous to those in the PNAD questionnaire.

Table 3:

**Headcount Indices from Different Welfare Concepts and Surveys<sup>#</sup>**

PPV Region	PPV Headcount Estimate	95% C. I. lower bound	95% C. I. upper bound	PNAD Headcount Estimate
<b>PPV Welfare Concept 1: Real Per Capita Consumption Expenditure.</b>				
RM Fortaleza	0.1850	0.0117	0.3582	<b>0.2626*</b>
RM Recife	0.2212	0.1342	0.3082	<b>0.2768*</b>
RM Salvador	0.1928	0.1431	0.2424	<b>0.2697</b>
NE Urban	0.3756	0.2875	0.4638	<b>0.4011*</b>
NE Rural	0.4981	0.3820	0.6143	<b>0.6850</b>
RM B. Horizonte	0.0791	0.0251	0.1332	<b>0.0856*</b>
RM Rio	0.0304	0.0186	0.0422	<b>0.0613</b>
RM Sao Paulo	0.0375	0.0027	0.0723	<b>0.0273*</b>
SE Urban	0.0472	0.0197	0.0748	<b>0.0743*</b>
SE Rural	0.2603	0.1683	0.3523	<b>0.3539</b>
<b>PPV Welfare Concept 2: Real Per Capita Income (Constructed**).</b>				
RM Fortaleza	0.1236	0.0149	0.2323	<b>0.2626</b>
RM Recife	0.1970	0.1575	0.2365	<b>0.2768</b>
RM Salvador	0.1730	0.1413	0.2048	<b>0.2697</b>
NE Urban	0.2896	0.2311	0.3481	<b>0.4011</b>
NE Rural	0.2241	0.1480	0.3002	<b>0.6850</b>
RM B. Horizonte	0.0557	0.0258	0.0855	<b>0.0856</b>
RM Rio	0.0553	0.0198	0.0909	<b>0.0613*</b>
RM Sao Paulo	0.0227	0.0123	0.0331	<b>0.0273*</b>
SE Urban	0.0466	0.0202	0.0731	<b>0.0743</b>
SE Rural	0.1019	0.0541	0.1497	<b>0.3539</b>
<b>PPV Welfare Concept 3: Real Per Capita Income from questions like those in PNAD ***</b>				
RM Fortaleza	0.1060	-0.0182	0.2302	<b>0.2626</b>
RM Recife	0.1547	0.1104	0.1989	<b>0.2768</b>
RM Salvador	0.1188	0.0978	0.1398	<b>0.2697</b>
NE Urban	0.2340	0.1694	0.2986	<b>0.4011</b>
NE Rural	0.3935	0.2991	0.4879	<b>0.6850</b>
RM B. Horizonte	0.2205	0.0120	0.0321	<b>0.0856</b>
RM Rio	0.0247	0.0011	0.0483	<b>0.0613</b>
RM Sao Paulo	0.0105	0.0028	0.0182	<b>0.0273</b>
SE Urban	0.0127	0.0017	0.0237	<b>0.0743</b>
SE Rural	0.0973	0.0535	0.1410	<b>0.3539</b>

Notes: <sup>#</sup> based on the indigence line  $z$  of R\$65.07 per month in all cases.

\* denotes PNAD headcount estimates which fall within the 95% Confidence Interval for the PPV estimate in each welfare concept category.

\*\* This measure of real per capita income is constructed by aggregating for each household the total value of incomes, in cash and kind, reported in response to a large number of separate questions in the PPV questionnaire, and deducting the cost of inputs into household production wherever that is appropriate. The general wisdom is that it provides a more reliable guide to real household income than the single question concept, analogous to that reported in the PNAD.

\*\*\* This measured is also derived from the PPV, but is based on single questions about the incomes of farmers and self-employed workers, like those in the PNAD questionnaire. This concept is thus supposed, *ex ante*, to be the most comparable with PNAD results.

Sources: Authors' calculations from the PPV 1996/97 and the adjusted PNAD 1996.

Table 3 reveals an interesting picture about the two data sets. First, PPV welfare concept 3, which is supposedly that most comparable to the PNAD questions, leads to PPV poverty estimates which are substantially lower than those of PNAD. No single PNAD headcount falls within the relevant confidence interval from its PPV analogue. While this might seem to imply that the PNAD really does underestimate incomes substantially, thus overestimating poverty, we must recall that this PPV concept was selected to mimic the PNAD, and is not the most appropriate.

When we move to PPV Welfare concept 2, its best measure of income, the situation is a little improved. Two PNAD headcounts (those for RM Rio and RM Sao Paulo) now fall within the relevant PPV confidence intervals. Most other metropolitan and urban headcounts lie just above the upper bound of the PPV confidence interval. The notable exceptions are the two rural areas: while the PPV confidence interval for poverty incidence in rural Southeast is (0.0541, 0.1497), the PNAD point estimate is 0.3539. Perhaps even more strikingly, while the PPV confidence interval for the rural Northeast is (0.1480, 0.3002), the PNAD estimate is 0.6850. An inspection of Panel 2 of table 2 should convince readers that these differences are of an order of magnitude quite different from those in the metropolitan and urban areas.

Since consumption figures tend to be lower than incomes for most poor people (because of savings), the PPV poverty estimates based on expenditure (welfare concept 1) are higher than those based on its income concepts. Consequently, a number of the PNAD poverty estimates do fall within their confidence intervals (in Panel 1). The exceptions are the metropolitan regions of Rio and Salvador and, once again, both rural areas.

What is one to make of all this? Clearly, to commend the PNAD on the grounds that its income-based poverty estimates are generally not statistically significantly different from the consumption-based poverty estimates of the PPV, based on the same, unadjusted poverty line, would seem overly generous. Provided that the poor save, as they seem to do in Brazil, one would expect income-based poverty incidence to be lower than its expenditure-based analogue, for the same population and poverty line. On the other hand, it would seem too harsh to condemn the PNAD on the basis that it does not match the PPV estimates according to a sub-optimal income concept constructed from the PPV.

On balance, the evidence from Panel 2 suggests that the PNAD, because of its short-form income questionnaire, seems to underestimate incomes and overestimate poverty in Brazil. While this effect is serious throughout, it is most serious in rural areas, where point estimates of the headcount are three times as large in the PNAD as in the PPV. On the basis of our experience with rural income questionnaires, there should be little doubt that the error is more likely to be in the PNAD than in the PPV. Unfortunately, because the PPV does not cover the South, the North or the Center-West regions of the country, and would not allow a representative breakdown of urban areas such as the one we have

constructed for the PNAD, it is not directly useful – other than as a benchmark – for this study.

Although we are constrained to work with it, we do find ourselves in the unfortunate position of starting out with our beliefs in the quality of the PNAD income data – particularly for rural households – rather shaken. Since we will focus on urban areas below, and on ordinal comparisons of profiles, rather than on the absolute values of poverty measures, much can be presented that is still of use. The reader is, nevertheless, cautioned openly at the outset that all rural poverty measures are likely to be substantial overestimates, and that even urban measures are likelier to be above than below the true mark.

Finally, this section concludes with a modest suggestion for household data collection in Brazil in the future. It seems to us that a situation in which three different surveys (the PNAD, the POF and the PPV) are run, but one is still unable to find a single set of numbers which is (a) reliable and (b) covers the whole country, is clearly sub-optimal. From the point of view of the data analyst, a much superior situation could be achieved by a single survey, whose questionnaire is like that of the PPV12, whose coverage is like that of the PNAD, whose sample size is somewhere between half and three-quarters of the PNAD's, and which is fielded every two years, rather than annually. Scrapping three surveys, and replacing them with a single bi-annual survey, with income and consumption information, and which is representative both at the country and state levels would greatly enhance the ability of researchers to make confident statements about the levels of and changes in Brazilian welfare, poverty and inequality.

#### **4. THE 1996 POVERTY PROFILE: AN ANALYSIS OF MARGINAL EFFECTS.**

The methodology described in Section 2 enables us to compute a variety of alternative spatial price deflators, and to allow for various alternative assumptions about intra-household economies of scale, in order to test the robustness of the profile with respect to these variations. However, it would be cumbersome to present the detailed cross-tabulations of the profile for income vectors incorporating all combinations of these various alternative assumptions. We therefore conduct the robustness tests in a ‘marginal effect’ version of the profile, given by simple transformations of a probit model, regressing the probability of being poor on the relevant household characteristics which are later used in the cross-tabulations.<sup>13</sup> The income concept used for the dependent variable is welfare

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<sup>12</sup> Except that the expenditure questions – at least on food items - could be a little more disaggregated.

<sup>13</sup> As  $\theta$  varies, we scale the poverty line up by a factor equal to  $\bar{n}^{-1-q}$ , where  $\bar{n}$  is the average household size, so as to keep the overall poverty incidence rate constant for households with the average household size. This allows us to compensate for the pure size effect of the adjustment to the income effect, while preserving the re-rankings which are an important part of the exercise.



concept 3 in Table 3: the PNAD-like per capita household income measure from the PPV.

These profile probit regressions are intended as merely descriptive, and no inference of causation whatsoever is made. The transformed coefficients should be seen only as estimates of partial correlation coefficients with the probability of being poor. The vector of independent variables  $X$  includes the following household variables: regional location (for the ten PPV regions); some housing characteristics, access to water, electricity and telephones, and the following attributes of the household head: gender, age, race, years of schooling and labor status. The coefficients  $\beta$  are then transformed into marginal effects of a change in the relevant element of  $X$  on the probability of being poor,  $dF/dx$ . These are tested for statistical significance using standard errors which are adjusted for the clustering process inherent in the sampling procedure. The marginal effects and their p-values for the preferred regression (with the Sao Paulo price index, and  $\theta = 1$ ) are reported in Table 4 below.

Table 4:

**Probit Analysis Results,  $z = z^*$ ,  $I = I_+$ ,  $\theta = 1.0$**

Variable	dF/dx	P >  z	Variable	dF/dx	P >  z
<b>Demographic variables</b>					
Household size	0.0838	0.000	Proportion of HH aged 5-15	0.4635	0.000
{Household size} <sup>2</sup>	-0.0035	0.002	Proportion of HH aged > 65	0.0050	0.949
Proportion of HH aged < 5	0.7788	0.000			
<b>Characteristics of Household Head</b>					
Age	0.0050	0.204	Mulato dummy	0.0157	0.490
{Age} <sup>2</sup>	-0.0001	0.176	Indigenous dummy	0.1870	0.183
Years of schooling	-0.0229	0.000	Self-employed dummy	0.0970	0.153
Female dummy	-0.0038	0.882	Unemployed / Unpaid Employee	0.0688	0.300
Black dummy	-0.0304	0.445		-0.0530	0.368
<b>Housing Characteristics and Access to Services</b>					
Dirt floor in house	0.1226	0.011	Piped Water	-0.1129	0.001
# Bedrooms	-0.0676	0.000	Electricity	-0.1374	0.008
Dirt Road outside	0.0178	0.494	Phone	-0.2281	0.000
Favela dummy	0.0648	0.114			
<b>Regional Dummies</b>					
RM Fortaleza	0.3603	0.000	RM B. Horizonte	0.1249	0.002
RM Recife	0.5325	0.000	RM Rio	0.1973	0.000
RM Salvador	0.4889	0.000	SE – Other Urban	0.0909	0.025
NE – Other Urban	0.5367	0.000	SE - Rural	0.1940	0.001
NE - Rural	0.3549	0.000			

Table 4 contains a number of interesting results. First, controlling for the other variables included, household size does have a significant positive and concave effect on poverty. Large households do appear likely to be poorer, controlling for

other attributes, although the relationship is concave in family size. Similarly, the proportion of children seems to be positively correlated with poverty, and more strongly so for younger children. No such significant correlation is found for the proportion of over-65s in the household. These results are robust not only to different price deflation procedures but also, more interestingly, to changing the household equivalence scale parameter  $\theta$  to 0.75. In that regression, household size remained positive, concave and significant, and the results for children and the elderly were unchanged. Only when the probit was run for an income vector adjusted by  $\theta = 0.50$ , did we observe a reversal in the sign of the marginal effect of household size, which then became insignificant. This suggests that, unless there are reasons to suppose that economies of scale within Brazilian households are greater than those implied by a  $\theta$  in the (0.7, 1.0) range, the stylized fact that larger households are poorer, controlling for other attributes, survives scrutiny. In the absence of robustness tests to changes in an equivalence scale which is sensitive to different age groups within the household, our findings also suggest that a larger number of children is correlated with a greater probability of being poor, while the same is not true of a larger number of older people.

Turning then, to the marginal effects of characteristics of household heads, we find some surprising results. The unsurprising one, of course, is that education is significantly negatively correlated with the probability of being poor (although, even here, the effect is quantitatively much smaller than that of living in a richer area...). But apart from education; age, gender, ethnicity and the occupational status of the household head, all turn out to be insignificant correlates of poverty. For age and gender, this is in line with previous findings from decompositions of Generalized Entropy inequality measures (see Ferreira and Litchfield, 1999). It is also confirmed by the tabulation profiles presented in the next Section.

Race, however, had appeared to account for a significant share of inequality in those static inequality decompositions, and the tabulation profiles show substantial differences between the poverty incidences across households headed by blacks (including 'mulatos'), and whites. Clearly, the insignificance of the race dummy in the probits is a result of controlling for the other attributes included in the regression. While on average, black and indigenous households are substantially more likely to be poor, this seems to be because of other differences between them and white-headed households, such as education or regional location. This is not to say that there are no grounds for poverty reducing policies which take race into account. Neither can it be interpreted as a verdict on the old sociological debate about whether Brazil's racism is more 'economic' than 'social'. All it does say is that if households headed by non-whites are likelier to be poor, then this is due to their differential access to education, or to their locational choices, or to some other factor, rather than simply because they are non-white.

In terms of housing characteristics and access to services, the direction of causation is almost certainly from poverty to these attributes, rather than the reverse. Our caveat about interpreting these 'marginal effects' merely as descriptive estimates of partial correlation coefficients is particularly pertinent

here. The main result is that the poor are indeed significantly less likely to have access to piped water, electricity or, even more markedly, a telephone line. They are also less likely to have many bedrooms, or covered housing floors. The correlations with the nature of the road or street outside, as well as to whether the household is located in a slum ('favela'), turned out to be insignificant, once other factors are taken into account.

Finally, the effect of regional location on the probability of being poor can only be described as dramatic. The reference region (missing dummy) is the metropolitan area of Sao Paulo. Simply put, the marginal effects reported suggest that living anywhere else is correlated with a greater likelihood of being poor, though the quantitative effects are much larger for the Northeast than within the Southeast. Note that these effects have remained this strongly significant *after* controlling for differences in education, labor status, housing characteristics, etc. The implication is that regional differences in household income, and hence in the vulnerability to poverty, are not only a consequence of different educational attainment levels, demographic differences across regions, or racial make-up. They must be explained by other factors, which deserve continuing investigation.

In addition to these results, which are interesting in themselves, the probit analysis was used to check the robustness of the profile to changes in two aspects of our adjustments to the data: the regional price deflators, and the Buhmann et. al. equivalence scale parameter  $\theta$ , both of which were discussed in section 2. Regressions similar to that reported in Table 4 above were run (a) with no regional price adjustments ( $I = 1$ ) and  $\theta = 1.0$ ; (b) with the Recife-based price index ( $I = I_-$ ) and  $\theta = 1.0$ ; with the Sao Paulo-based price index ( $I = I_+$ ) and  $\theta = 0.75$ ; and with the Sao Paulo-based price index ( $I = I_+$ ) and  $\theta = 0.5$ . These regressions are not reported here due to space constraints, but the results were very encouraging.

Sensitivity to the economies of scale parameter was already partly discussed above. Shifting theta from 1.0 to 0.75 did not affect even the relationship between household size and poverty (although moving to 0.5 made it insignificant). All other marginal effects were remarkably robust to changes in theta, except that having a dirt floor became insignificant. This is strong evidence that the poverty profile in Brazil is quite robust to intra-household economies of scale. Only the relationship with household size itself is affected, as would be expected, and even so only when the size of these economies is assumed to be quite large.

Sensitivity with respect to the price index was also tested. When no regional price adjustment is used, the marginal effects of variables other than regional dummies is hardly affected. However, the regional dummies are affected in the manner one would expect. Places where the cost of living is higher than in Sao Paulo (such as Recife or Salvador) have lower marginal effects (since real incomes there are overestimated in the absence of an adjustment), while areas where the cost of living is lower than in Sao Paulo (such as the rural Southeast) have higher marginal effects, since real incomes there are underestimated. On the other hand, using different price deflators, such as the Sao Paulo-based and the Recife-based

indices, which were chosen exactly so as to maximize the difference in relative prices between them, turns out to have virtually no effect on either the sign or the significance of *any* of the right-hand-side variables.<sup>14</sup>

Our conclusions from these robustness checks were twofold. First, dimensions of the profile which are unrelated to household size do not seem to be affected by the choice of theta. Although we are aware that by choosing to work with per capita incomes (theta = 1), we are likely to overestimate poverty to some extent, we will do so in the next section to facilitate comparison with previous work and because, as stated earlier, our emphasis is firmly on ordinal comparisons, rather than on cardinal measures. This is all the more so when we have other, more important reasons to be skeptical about the absolute values of poverty measures, as discussed in Section 3 above.

Second, it does seem that some price deflation, as opposed to none, makes a difference to the estimated ‘marginal effects’ of living in different areas on poverty. In other words, not taking spatial cost-of-living differences into account does seem to lead to some re-rankings in poverty across regions. It therefore seemed advisable to adopt one of our spatial price indices, rather than to use nominal incomes. However, it did not seem to matter much, for the profile, which spatial area’s basket was used as the base. We have therefore chosen to work with  $I = I_+$ , the Sao Paulo-based index, in the tabulations that follow. Tables 5 and 6 below present headcount indices and Gini Coefficients for different combinations of assumptions about values of the Buhmann et. al. equivalence scale and of the regional price deflator.

Table 5:

**Headcount indices (P0) for Brazil as a whole, under different assumptions.**

	$\theta = 0.5$	$\theta = 0.75$	$\theta = 1.0$
<b>I-</b>	20.48	32.91	47.09
<b>I+</b>	19.41	31.22	45.29
<b>I = 1</b>	20.11	32.13	46.14

Table 6:

**Gini Coefficients for Brazil as a whole, under different assumptions.**

	$\theta = 0.5$	$\theta = 0.75$	$\theta = 1.0$
<b>I</b>	0.5474	0.5574	0.5700
<b>I<sub>+</sub></b>	0.5525	0.5624	0.5747
<b>I = 1</b>	0.5529	0.5627	0.5750

<sup>14</sup> Except for a change in the sign of the female head dummy which, nevertheless, remained vastly insignificant.

## 5. THE 1996 POVERTY PROFILE: CROSS-TABULATIONS

Tables 7 and 8 below summarize the results of the poverty profile cross-tabulations constructed from the adjusted PNAD data set discussed in Section 2, for Brazil as a whole. Both tables, as stated above, are based on household income vectors spatially deflated by the São Paulo-based price index ( $I_+$ ), and for  $\theta = 1.0$ . Table 7 measures poverty with respect to the main (lower-bound) poverty line ( $z_-$ ), while Table 8 does so with respect to the indigence line ( $\zeta$ ). Identical profiles were constructed for the upper-bound poverty line ( $z_+$ ), and these can be obtained from the authors. Since poverty in Brazil, when measured with respect to that line, is too high to be of much use in identifying the neediest, as well as due to space constraints, it is not included here.

In each table, for each population subgroup defined by columns 1 and 2, columns 3-8 contain, respectively, its population share  $f_k$ ; its mean income  $\mu(y)_k$ ; its headcount poverty index  $P_{0k}$  (FGT(0)); its normalized poverty deficit  $P_{1k}$  (FGT(1)); its progressively weighted poverty deficit  $P_{2k}$  (FGT(2)); and its contribution to (or share in) total poverty  $s_k$ . Finally Appendix 1 contains tables analogous to 7 and 8 for each major region of the country (Northeast, North, Southeast, South and Center-West). The discussion below relies primarily on tables 7 and 8, but will also draw on some information in the regional tables.

<b>Table 7: Poverty Profile 1996: Brazil , <math>z = z^-</math> (R\$ 131.97/month), <math>I = I_+</math>, <math>\theta=1.0</math></b>							
Household Characteristics	Subgroups	$f_k$	$\mu(y)_k$	$P_{0k}$	$P_{1k}$	$P_{2k}$	$s_k$
	Total	100.00	283.86	45.29	22.30	14.08	100.00
Region	North	4.84	191.96	60.35	29.44	18.20	6.45
	North-East	29.59	135.37	74.86	43.16	29.50	48.91
	Center-West	6.81	282.75	44.66	18.81	10.57	6.72
	South-East	43.59	380.40	27.70	10.86	5.91	26.67
	South	15.17	325.91	33.60	13.76	7.71	11.25
Location	Metropolitan Core	17.63	498.29	23.20	8.90	4.72	9.03
	Metropolitan Periphery	12.14	300.41	32.14	12.21	6.48	8.62
	Large Urban	18.89	365.02	30.08	11.80	6.26	12.55
	Medium Urban	15.69	271.24	41.71	18.50	10.72	14.45
	Small Urban	15.02	173.80	59.45	29.86	18.76	19.72
	Rural	20.63	106.38	78.21	46.68	32.83	35.64
Dependency Ratio*	1	9.99	630.69	7.81	1.44	0.49	1.72
	1 < d = < 1.5	14.60	410.76	19.95	5.60	2.23	6.43
	1.5 < d = < 2	22.40	326.78	33.06	11.52	5.41	16.35
	2 < d = < 3	21.85	211.86	52.72	23.42	13.10	25.44
	3 < d = < 4	13.61	184.66	60.37	30.67	19.04	18.14
	d > 4	15.31	100.81	80.51	50.77	36.50	27.22
	Other/Not Specified	2.25	37.83	94.67	75.37	64.50	4.70

Housing Status	Own House, Paid, with Own Land	63.76	288.74	45.08	22.12	13.95	63.47
	Own House, Paid without Own Land	5.60	148.08	67.86	38.61	26.64	8.38
	Own House, Still Paying	6.06	440.54	20.94	7.34	3.53	2.80
	Rent	12.23	366.34	30.16	12.06	6.55	8.14
	Ceded	11.70	160.54	63.28	33.60	21.94	16.35
	Other	0.50	172.71	58.38	26.64	15.79	0.65
	Not Specified	0.15	216.01	58.68	31.34	20.76	0.20
Water	Piped	81.59	332.35	35.44	14.67	8.15	63.86
	Not Piped	18.26	67.83	89.14	56.33	40.51	35.94
	Other/Not Specified	0.15	207.79	59.83	31.77	20.97	0.20
Sanitation	Sewerage System	37.84	442.21	21.62	7.46	3.64	18.06
	Concrete Cesspit 1	10.19	388.72	24.25	8.30	4.12	5.46
	Concrete Cesspit 2	12.84	235.26	46.19	19.55	10.90	13.10
	Rudimental Cesspit	22.67	145.50	65.87	33.05	20.59	32.98
	Drain	1.98	112.58	72.38	38.38	25.12	3.17
	River or Lake	2.75	164.73	57.20	25.63	14.81	3.47
	Other	0.19	141.04	70.49	36.59	23.03	0.30
	Not Specified	11.52	57.68	92.21	61.52	45.67	23.46
Electricity	Yes	91.93	303.66	41.21	18.84	11.26	83.65
	No	7.91	55.10	92.45	62.31	46.71	16.14
	Other/Not Specified	0.16	212.15	57.64	30.49	19.99	0.21
Waste Disposal	Collected Directly	63.26	373.41	28.73	10.88	5.70	40.13
	Collected Indirectly	7.36	257.20	47.98	21.86	12.75	7.80
	Burned	14.35	112.50	75.95	42.51	28.52	24.06
	Unused Plot of Land	13.23	79.32	85.33	52.33	37.14	24.93
	Other/Not Specified	1.80	115.39	77.23	43.48	29.26	3.07
Characteristics of the Head	Subgroups	$f_k$	$\mu(y)_k$	$P_{0k}$	$P_{1k}$	$P_{2k}$	$s_k$
Gender	Male	82.26	282.64	45.62	22.79	14.53	82.86
	Female	17.74	289.52	43.75	20.04	11.98	17.14
Race	Indigenous	0.17	168.69	66.69	41.66	30.89	0.25
	White	54.27	384.04	31.08	13.50	7.96	37.24
	Black	45.07	159.79	62.59	32.97	21.48	62.30
	Asian	0.46	671.79	15.64	6.23	3.29	0.16
	Not Specified	0.02	89.60	85.41	50.34	35.15	0.04
Age	0-24	3.97	188.88	55.75	27.02	16.68	4.89
	25 to 44 Years	48.40	268.02	47.09	23.85	15.40	50.33

	45 to 64 Years	36.43	305.75	43.04	21.36	13.50	34.63
	>65 Years	11.20	314.79	41.06	16.98	9.28	10.15
Education	0- 1 Years	21.86	104.48	75.00	42.29	28.63	36.20
	1 to 4 Years	20.03	150.86	61.51	31.75	20.51	27.21
	4 to 8 Years	30.10	230.49	41.04	17.31	9.84	27.28
	8 to12 Years	20.56	394.59	19.82	7.03	3.56	9.00
	> 12 Years	7.45	1077.98	1.91	0.56	0.24	0.31
Immigration Status	Not Immigrant	40.56	258.16	52.56	28.35	18.89	47.08
	0 to 5 Years	7.51	270.34	46.60	21.95	13.35	7.72
	6 to 9 Years	4.25	262.61	47.43	21.42	12.65	4.45
	More Than 10 Years	28.87	295.57	40.90	18.54	11.06	26.08
	Other/Not Specified	18.81	331.48	35.32	15.36	8.95	14.67
Labor Status	Inactive	17.70	279.16	43.39	19.70	11.75	16.96
	Unemployed	2.77	131.51	71.27	41.48	28.85	4.36
	Formal Employees	23.31	292.55	34.62	13.18	6.81	17.82
	Informal Employees	13.30	162.34	64.72	34.15	21.96	19.01
	Self-Employed	27.00	235.64	52.76	28.62	19.21	31.45
	Employer	4.76	781.14	13.64	5.58	3.27	1.43
	Public Servant	8.73	422.27	26.99	11.32	6.27	5.20
	Unpaid	2.39	139.04	70.00	43.75	32.69	3.70
	Other/Not Specified	0.04	124.31	70.91	53.32	43.19	0.07
Employment Tenure	0 Years	20.47	259.16	47.16	22.65	14.07	21.32
	1 Years or More	13.04	215.60	51.76	24.74	15.19	14.90
	1 to 3 Years	14.65	260.42	44.79	20.42	12.12	14.49
	3 to 5 Years	8.23	301.52	41.10	18.80	11.21	7.47
	> 5 Years	43.19	322.23	43.16	22.53	14.82	41.17
	Other/Not Specified	0.42	134.50	70.08	39.99	27.80	0.66
Sector of Occupation	Agriculture#	19.61	117.00	77.39	46.75	33.00	33.51
	Manufacturing	12.15	310.39	35.50	16.00	9.50	9.52
	Construction	8.04	200.47	48.94	20.74	11.56	8.69
	Services	31.50	373.11	31.98	12.74	6.88	22.24
	Public Sector	8.23	443.76	25.89	10.57	5.75	4.70
	Other/Not Specified	20.47	259.15	47.17	22.65	14.07	21.33

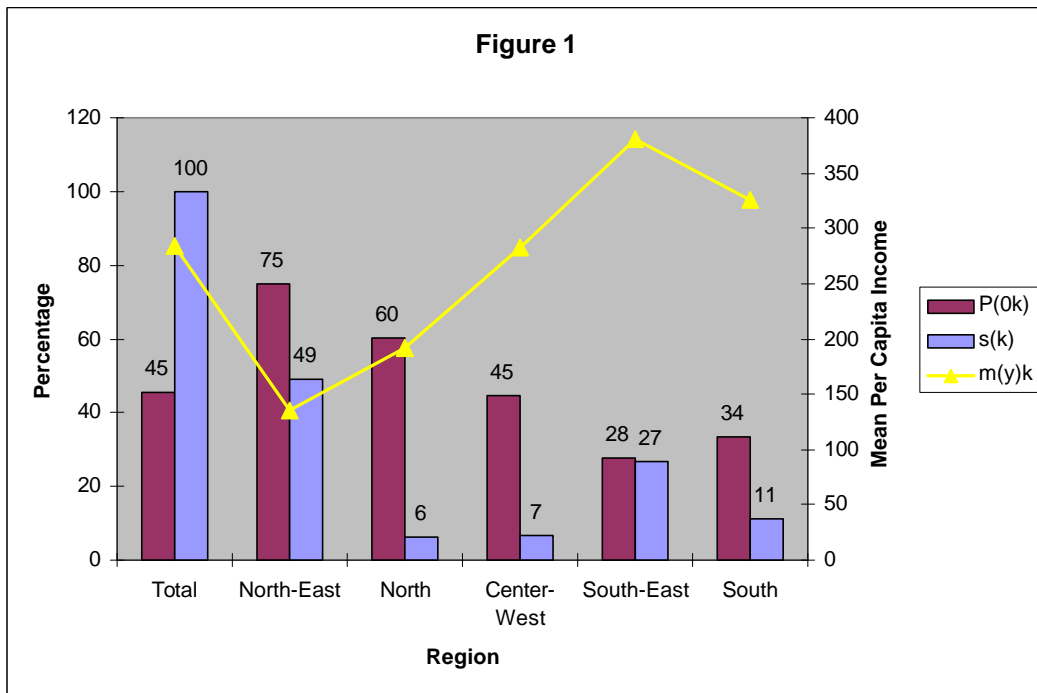
Notes:  $S_k = \frac{f_k P_{ok}}{P_0}$ . Dependency ratio is defined as the number of household members over the

number of earners in the household. # Agriculture includes other Primary Sector occupations.

Table 7 contains a substantial amount of descriptive information. We discuss it under three main headings: the spatial profile; characteristics of the head; and housing and access to services.

## The Spatial Profile

As one would expect from the significance of regional dummies in the probit regression presented in Table 4, poverty in Brazil still varies rather dramatically by region. In terms of all three FGT indices, the Northeast is the poorest region, followed by the North, the Center-West, the South and the Southeast, in that order. Given the large differences in overall population shares, the composition of poverty is biased towards the more populous Southeast. Still, the Brazilian Northeast, with some 30% of the country's population, accounts for nearly half of the poor and, as Table 8 shows, for an even greater proportion (62%) of the indigent. Figure 1 summarizes the regional headcounts and their contribution to total poverty. The right hand scale measures mean incomes in each region, as given by the triangles.

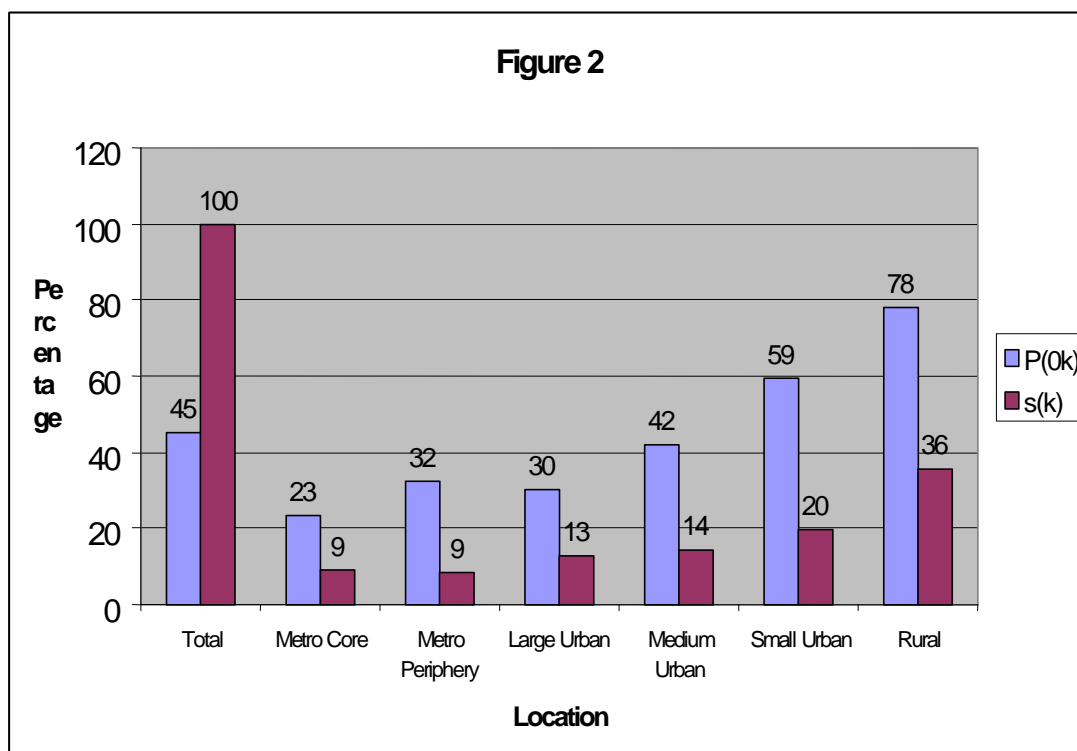


While these regional results simply confirm the persistence of a well-known pattern, more novel results were found about how poverty varies from rural to urban areas and across urban areas, when the latter are disaggregated by size, and metropolitan areas are divided into core and peripheric areas.<sup>15</sup> The findings

<sup>15</sup> To our knowledge, it had not previously been possible to partition urban areas in this way, since PNAD's own classification is coarser. We classified metropolitan households as 'core' if they lived in the main municipality of the metropolitan area (that which gives it its name); and 'periphery' if they lived in any urban segment of any other municipality in the metropolitan area. For other urban areas, 'small' are those with less than 20,000 inhabitants; 'medium' have a population between 20,000 and 100,000; and 'large' are greater than 100,000, but not classified as metropolitan.



confirm that rural areas are the poorest in the country (with a headcount of 78%).<sup>16</sup> But they also reveal substantial variation across urban areas by size, with all poverty measures decreasingly monotonically with city size, except for metropolitan peripheries, which are both always poorer than their cores, and generally roughly as poor as other large urban areas. In terms of the composition of total poverty, rural areas still account for some 36% of all poor people (and 48% of the indigent). Small urban areas account for roughly a fifth, while the combined metropolitan areas cover some 18%. Medium and large towns have the lowest share of poor people. Figure 2 below brings this out sharply.



The policy implications of this disaggregation of urban poverty are not insubstantial. In the first place, poverty incidence is far higher in small and medium towns than in the metropolitan regions, and policies to combat urban poverty should be targeted accordingly. The common view of placid country-side towns as idyllic when compared to the peripheries of large cities appears to be wide off the mark, and any comprehensive strategy for poverty reduction must focus both on rural areas and on small and medium-sized towns. Second, poverty incidence within metropolitan areas is higher outside the central municipality. Reducing poverty in Brazil's metropolitan regions will not be efficiently achieved

<sup>16</sup> Readers are referred back to Section 3, where important caveats about rural income data were reviewed, and where we suggested that our rural poverty figures are likely to be overestimates. Does this mean that rural poverty is actually lower than reported on all the tables in this paper? Probably. Does it then mean that it is likely to be lower than urban poverty? Probably not, but we can't be sure. Does it mean that Brazil needs better rural living standards data? Yes.

by targeting resources solely at their ‘naming’ core municipalities. Not only is poverty in metropolitan areas less severe than in smaller towns, but it must be combated beginning from their outlying peripheries.

### **Characteristics of the Household Head.**

Turning now to population partitions based on characteristics of the household head, we find first that male- and female-headed households do not really differ in the extent to which they are likely to be poor. All three poverty indices are very marginally higher for male-headed households, and mean incomes in the two groups are almost identical. Naturally, then, poverty shares are virtually identical to population shares. This is not as surprising as might appear, and confirms previous findings for Brazil and other developing countries.<sup>17</sup> It should not, however, be taken to mean that the ‘average welfare’ of men and women in Brazil is roughly the same. This comparison relies on the (narrow) concept of household headship, and says nothing about gender wage gaps in the labor market, or indeed about the intra-household distribution of resources. On both of these important areas, there is evidence to suggest that women may fare less well than men.<sup>18</sup>

Race seems to matter a great deal more. The mean income in black-headed households is 42% of that in white-headed households, and only 24% of that for Asian-headed households. The ratios are very similar for indigenous-headed households. As a result, the headcount for black-headed households, at 63%, is roughly double that for whites, and four times that for Asians. Despite being a (large) minority, black-headed households account for 62% of all poor people in Brazil (ranging from 24% in the South, to 78% in the North). This leaves no room for doubt that the small Asian minority and the white majority are, on average, at a considerably smaller risk of poverty than their black or indigenous counterparts in Brazil. However, the probit analysis based on the PPV and discussed in the previous section revealed that the marginal effect of race was statistically insignificant, when one controlled for other relevant variables, such as years of schooling, region, family size and composition. The conclusion must be that, while there is no doubt about the (descriptive) average association between race and poverty, further work is needed to establish the mechanisms through which race affects household welfare outcomes. It is quite likely that some of it operates through educational attainment or demographic choices, but labor market and other forms of discrimination can certainly not be ruled out.

The age of the household head displays a small but perceptible (unconditional) correlation with poverty incidence. The latter declines monotonically with age, according to the partition in Table 7. Perhaps the most interesting part of this

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<sup>17</sup> See Ferreira and Litchfield (1999) on inequality decompositions for Brazil, and Quisumbing et. al. (1995) on welfare comparisons across male- and female-headed households for a sample of developing countries.

<sup>18</sup> See Deaton (1989) on a pathbreaking investigation of intra-household resource allocation, and Amadeo et. al. (1994) on the level of and changes in the gender gap in the Brazilian labor market.

association, which is otherwise in line with conventional wisdom on labor market returns to experience (often proxied by age), is that it persists for household heads older than 65. These households have the highest mean income of any age group. Since this profile is based on current incomes, this seems to contradict the permanent income hypothesis implication that these older households should be earning less and dissaving into their retirement years. This may reflect a higher life expectancy among richer people; or indeed an excessively generous (and regressive) pension system in operation.<sup>19</sup>

As usual, the most significant (inverse) correlate of poverty is the education of the household head. As table 7 and Figure 3 below indicate, household income rises monotonically and in a convex fashion with the years of schooling of the household head. Per capita income in a household headed by someone who entered (never mind finished) university is on average ten times larger than that in a household headed by someone with 0-1 year of schooling. Consequently, while the latter household has a 75% probability of finding itself below the poverty line, the former has a 2% probability. Given Brazil's poor record of educational attainment, some 42% of the population (and some 63% of the poor) live in households whose heads have 4 or fewer years of education. These findings are in line with those presented in Section 4, where education turned out to have the only statistically significant (at the 10% level) marginal impact on the probability of being poor of all characteristics of the household head.

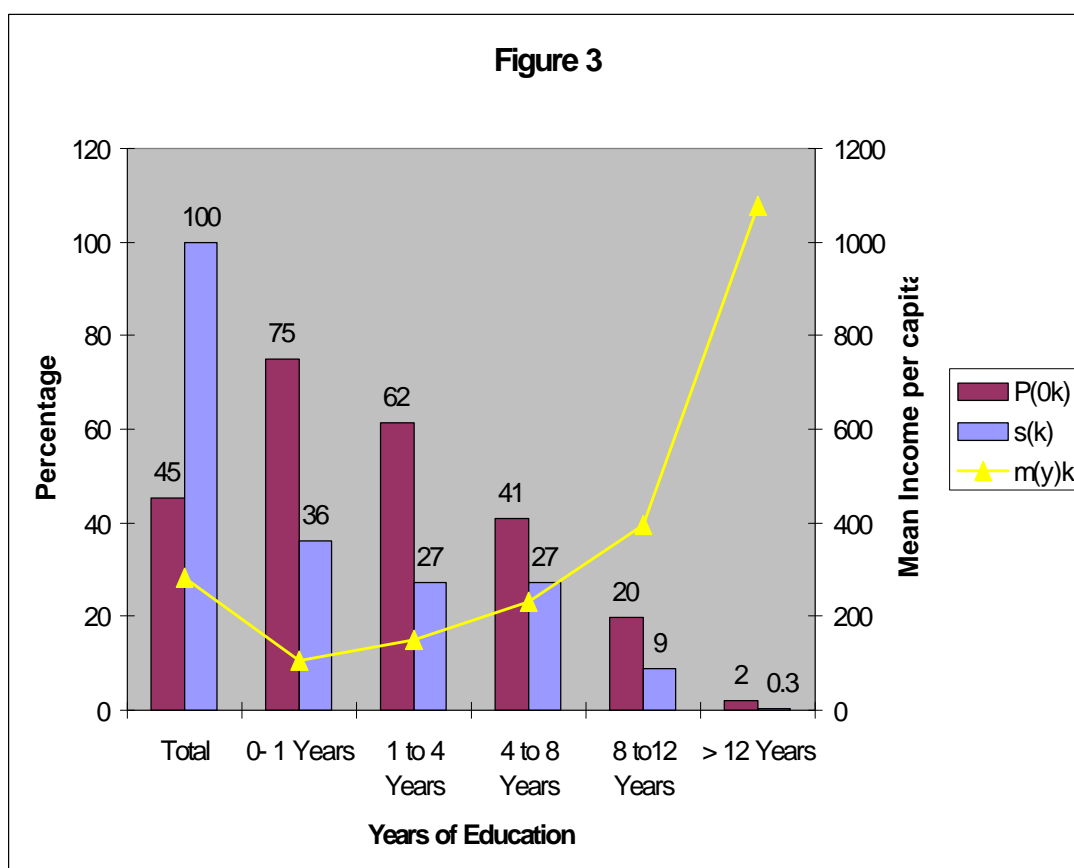
For Brazil as a whole, a household head's immigrant status is not a particularly strong correlate to their probability of being poor, although those who have not immigrated do seem to be a little likelier to be poor, on average. This picture changes considerably across regions however: in the Northeast, where immigration is often an important survival choice, the headcount of those who have never migrated is 81%, versus 68% for those who migrated more than 10 years ago. Across all regions, one does observe the pattern that those who migrated 10 years ago or more are least likely to be poor. In some, the 'natives' (those who never migrated) are poorer than those who migrated between 1 and 9 years ago (like the Northeast), and in others they are richer (like in the South).

These findings are suggestive of a modified version of the Harris and Todaro (1970) model of migration, whereby agents with different degrees of risk-aversion choose between an uncertain pay-off from moving, whose expected returns are higher than those of staying, and a deterministic pay-off from staying. The marginal agent to migrate has a degree of risk-aversion such that she is indifferent. Add to this a process whereby 'making it' in the arrival destination takes time, and you would expect poverty declining with time-elapsed since migration in the net emigration regions, and an inverted U curve for the net immigration regions, with natives doing better there than recent arrivals. The high risk-aversion of long term

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<sup>19</sup> Although one would **not** want to base policy recommendations for pension reform on this tangential, highly aggregated finding. More research into the incidence of the pension system is needed.

immigrants may be associated with entrepreneurship, and explain their success. While the observed pattern is compatible with such a hypothetical story, these findings do not, on their own, provide the basis for a clear understanding of the causes of and returns to migration in Brazil. A more detailed investigation, preferably based on panel data that followed migrants across state boundaries, would be needed before any firm conclusion could be drawn.



As regards labor status, the unemployed and the informal employees ('sem carteira') have the highest headcounts, followed by the self-employed. Formal employees ('com carteira') are roughly half as likely to be poor (35%) as their informal counterparts (65%). Although poverty among the unemployed records the highest values for all three poverty measures, the labor category contributing the largest share of overall poverty is that of the self-employed, since they are ten times as numerous in Brazil as the unemployed (in 1996). This poverty incidence and severity profile by labor status confirms that recent increases in unemployment are a serious cause for concern about poverty and welfare among the households of those affected. However, the numerical predominance of self-employed workers, allied to the fact that they too are likely to suffer from reductions in aggregate demand, should serve as a reminder that they should not be neglected in the design of safety nets and other remedial policies.

The figures for sector of occupation reveal, once again, the prevalence of poverty among agricultural workers.<sup>20</sup> Among predominantly urban sectors, construction has poorer workers than both manufacturing and services. Public sector workers and employers are, on average, least likely to see their households in poverty.

## **Housing Characteristics and Access to Services**

This part of the profile is clearly even less amenable to any causal interpretation. The presumption is, in fact, that if causality were to be inferred at all, it would probably run from low incomes to these attributes. It is intended merely to describe some of the living conditions of the poor, as compared to the non-poor. Housing status, for instance, provides an interesting insight into the Brazilian housing market. Unlike in many developed countries, where poorer households rent, and the richest ones own houses outright, the highest mean incomes in Brazil are amongst those who rent and those who pay mortgages. The lowest mean incomes are those for households living in ‘ceded’ housing<sup>21</sup> (some 12% of the population), and those who own their houses, but not the land they are built on. The headcounts in these two categories is between 60% and 70%.

However, given their population share, the vast majority of those counted as poor in table 7 (63% of them) own both their houses and the land on which they stand. This confirms the anecdotal evidence of middle-class households renting flats in the fashionable Jardins neighborhood in São Paulo, or in Rio’s ‘Zona Sul’, while their domestic servants may own a house in a distant part of the metropolitan periphery. The latter may often have been built through a community effort (‘mutirão’), using second-rate materials, and with facilities which are considerably less comfortable. But they and the plot of land they are in are owned by the residents.<sup>22</sup> Whether this reflects different preferences, or capital and land market failures, which prevent the poor from accessing either the mortgage or the mainstream rental markets, must remain a matter for further study.

As for access to services, 18% of the Brazilian population (36% of the poor) do not have access to piped water. Only 18 % of the poor (versus 38% overall) dispose of their sewage through the main sewerage system. The remaining 82% use alternative means, such as cesspits, drains or direct dumping on river or lakes. 16% of poor households have no access to electricity, as compared to 8% of the total population. And a full 49% of the poor dispose of their garbage by either

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<sup>20</sup> Although, once again, the reader is reminded that poverty rates for agricultural workers are likely to be overestimated due to faulty data collection. See Section 3.

<sup>21</sup> ‘Ceded’ housing is an arrangement predominant in some types of agricultural contracts and among domestic servants.

<sup>22</sup> Note that the ownership question in the PNAD does not explicitly specify formal ownership, and it remains unclear whether all those reporting ownership are necessarily in possession of an official land title.

burning it or dumping it in an unused plot of land. The policy implications from this paragraph dispense with detailed spelling out.

A profile which is exactly analogous to the one presented in Table 7, and discussed above, is presented in Table 8 below for the (lower) food poverty line (or indigence line) of R\$ 65.07 per person per month. Some of its main findings have already been incorporated into the discussion above, and the broad patterns of the profile (though clearly not the values of the poverty measures) do not change much across the two poverty lines. As stated earlier, disaggregated profiles for each macro geographical region of the country, and for both lines, are contained in the Appendix.

<b>Table 8: Poverty Profile 1996: Brazil , <math>z = \zeta</math> (R\$ 65.07/month), <math>I = I_1</math>, <math>\theta=1.0</math></b>							
Household Characteristics	Subgroups	$f_k$	$\mu(y)_k$	$P_{0k}$	$P_{1k}$	$P_{2k}$	$s_k$
	Total	100.00	283.86	22.59	9.60	5.53	100.00
Region	North	4.84	191.96	30.06	11.80	6.58	6.44
	North-East	29.59	135.37	47.89	22.14	13.28	62.72
	Center-West	6.81	282.75	16.63	5.90	3.08	5.01
	South-East	43.59	380.40	9.19	3.22	1.65	17.73
	South	15.17	325.91	12.08	4.45	2.33	8.11
Location	Metropolitan Core	17.63	498.29	7.47	2.41	1.15	5.83
	Metropolitan Periphery	12.14	300.41	10.07	3.33	1.65	5.41
	Large Urban	18.89	365.02	10.22	3.17	1.46	8.55
	Medium Urban	15.69	271.24	17.58	6.43	3.24	12.21
	Small Urban	15.02	173.80	30.82	12.63	7.03	20.49
	Rural	20.63	106.38	52.03	25.54	15.93	47.52
Dependency Ratio*	1	9.99	630.69	0.53	0.10	0.03	0.23
	1<d=<1.5	14.60	410.76	2.50	0.55	0.20	1.61
	1.5 <d=<2	22.40	326.78	7.60	1.93	0.76	7.54
	2 <d=<3	21.85	211.86	23.44	7.03	2.97	22.67
	3 <d=<4	13.61	184.66	33.36	12.57	6.21	20.09
	d>4	15.31	100.81	58.28	29.31	17.94	39.49
	Other/Not Specified	2.25	37.83	84.12	59.84	48.38	8.37
Housing Status	Own House, Paid, with Own Land	63.76	288.74	22.37	9.51	5.48	63.12
	Own House, Paid without Own Land	5.60	148.08	42.00	20.30	12.60	10.40
	Own House, Still Paying	6.06	440.54	5.26	1.40	0.56	1.41
	Rent	12.23	366.34	10.64	3.50	1.65	5.76
	Ceded	11.70	160.54	35.75	15.55	9.00	18.52
	Other	0.50	172.71	24.75	9.46	5.28	0.55
	Not Specified	0.15	216.01	35.68	14.99	8.65	0.24
Water	Piped	81.59	332.35	13.04	4.53	2.28	47.08
	Not Piped	18.26	67.83	65.19	32.21	20.04	52.68

	Other/Not Specified	0.15	207.79	35.46	15.01	8.75	0.24
Sanitation	Sewerage System	37.84	442.21	5.47	1.59	0.69	9.15
	Concrete Cesspit 1	10.19	388.72	6.26	1.91	0.90	2.82
	Concrete Cesspit 2	12.84	235.26	17.93	6.04	2.97	10.19
	Rudimental Cesspit	22.67	145.50	34.19	13.58	7.35	34.31
	Drain	1.98	112.58	39.99	17.77	10.52	3.51
	River or Lake	2.75	164.73	23.41	8.69	4.48	2.85
	Other	0.19	141.04	43.05	14.88	7.53	0.37
	Not Specified	11.52	57.68	72.16	37.60	24.16	36.79
Electricity	Yes	91.93	303.66	18.25	7.08	3.82	74.26
	No	7.91	55.10	72.87	38.87	25.35	25.50
	Other/Not Specified	0.16	212.15	33.80	14.20	8.19	0.24
Waste Disposal	Collected Directly	63.26	373.41	8.88	2.87	1.35	24.86
	Collected Indirectly	7.36	257.20	21.18	7.60	3.86	6.90
	Burned	14.35	112.50	46.48	20.84	12.31	29.51
	Unused Plot of Land	13.23	79.32	59.44	29.13	18.13	34.81
	Other/Not Specified	1.80	115.39	49.10	21.36	12.50	3.91
Characteristics of the Head	Subgroups	$f_k$	$\mu(y)_k$	$P_{0k}$	$P_{1k}$	$P_{2k}$	$s_k$
Gender	Male	82.26	282.64	23.30	10.06	5.85	84.85
	Female	17.74	289.52	19.30	7.48	4.04	15.15
Race	Indigenous	0.17	168.69	47.20	25.49	17.47	0.36
	White	54.27	384.04	12.66	4.95	2.76	30.39
	Black	45.07	159.79	34.64	15.21	8.86	69.09
	Asian	0.46	671.79	4.53	1.62	0.88	0.09
	Not Specified	0.02	89.60	59.45	28.95	15.01	0.06
Age	0-24	3.97	188.88	27.45	10.90	5.92	4.83
	25 to 44 Years	48.40	268.02	24.59	10.88	6.43	52.66
	45 to 64 Years	36.43	305.75	21.65	9.22	5.32	34.92
	>65 Years	11.20	314.79	15.33	4.89	2.19	7.60
Education	0- 1 Years	21.86	104.48	46.22	21.23	12.70	44.71
	1 to 4 Years	20.03	150.86	32.95	14.37	8.41	29.22
	4 to 8 Years	30.10	230.49	15.78	5.73	2.99	21.03
	8 to 12 Years	20.56	394.59	5.44	1.72	0.80	4.95
	> 12 Years	7.45	1077.98	0.30	0.08	0.03	0.10
Immigration Status	Not Immigrant	40.56	258.16	30.23	13.81	8.29	54.26
	0 to 5 Years	7.51	270.34	21.37	8.59	4.77	7.10
	6 to 9 Years	4.25	262.61	20.39	7.86	4.14	3.83
	More Than 10 Years	28.87	295.57	17.94	6.92	3.73	22.93
	Other/Not Specified	18.81	331.48	14.27	5.44	2.96	11.88
Labour Status	Inactive	17.70	279.16	18.71	7.30	4.03	14.65

	Unemployed	2.77	131.51	45.81	22.04	13.82	5.62
	Formal Employees	23.31	292.55	10.96	3.26	1.38	11.30
	Informal Employees	13.30	162.34	36.60	15.28	8.36	21.55
	Self-Employed	27.00	235.64	30.66	14.23	8.60	36.63
	Employer	4.76	781.14	4.95	2.04	1.22	1.04
	Public Servant	8.73	422.27	10.66	3.49	1.59	4.12
	Unpaid	2.39	139.04	46.89	26.93	19.46	4.97
	Other/Not Specified	0.04	124.31	65.55	38.43	28.28	0.13
Employment Tenure	0 Years	20.47	259.16	22.38	9.30	5.36	20.28
	1 Years or More	13.04	215.60	24.23	9.95	5.60	13.98
	1 to 3 Years	14.65	260.42	19.87	7.53	3.96	12.88
	3 to 5 Years	8.23	301.52	18.49	7.06	3.70	6.73
	> 5 Years	43.19	322.23	23.70	10.71	6.39	45.29
	Other/Not Specified	0.42	134.50	44.46	21.45	13.65	0.84
Sector of Occupation	Agriculture#	19.61	117.00	52.44	25.77	16.06	45.52
	Manufacturing	12.15	310.39	15.80	5.96	3.09	8.49
	Construction	8.04	200.47	18.48	6.39	3.20	6.58
	Services	31.50	373.11	11.22	3.64	1.69	15.64
	Public Sector	8.23	443.76	9.62	3.15	1.41	3.50
	Other/Not Specified	20.47	259.15	22.38	9.30	5.36	20.28

Notes:  $s_k = \frac{f_k P_{ok}}{P_0}$ . Dependency ratio is defined as the number of household members over the number of earners in the household. # Agriculture includes other Primary Sector occupations.

## 6.CONCLUSIONS

The first conclusion of this study is that all the other conclusions must be treated with circumspection, since they are based on a data set which seems likely to systematically underestimate non-labor incomes, particularly for self-employed earners and principally in rural areas. The recommendation arising from this finding is that the Brazilian Statistical Agency (IBGE) may find it worthwhile to rationalize its portfolio of survey instruments, replacing the POF, the PNAD and the PPV by a single, bi-annual survey with truly national coverage (including urban and rural areas across all regions of the country). This survey should have a sample size and design that ensures representativeness at state level for every state, and within each of the metropolitan areas. Its questionnaire should include questions on both incomes and expenditures.<sup>23</sup> The consumption expenditure questions should be more disaggregated than those in the PPV. The income questions, particularly for incomes from self-employed workers, farmers, and employers, should be more comprehensive than in the PNAD, and more along the

<sup>23</sup> Like, for instance, Mexico's *Encuesta Nacional de Ingresos y Gastos de los Hogares* (ENIGH).



lines of those in the PPV. It should also include more questions on access to and use of services, public or private, than the PNAD currently does. The higher costs of fielding this longer survey should be compensated for by scrapping three separate surveys, and decreasing the survey frequency from annual to bi-annual.

The second main conclusion is that poverty in Brazil, subject to the foregoing caveat, remains substantial. Even after adding imputed rents to the PNAD data, and deflating prices regionally, the national average incidence of indigence in 1996, measured with respect to a food-only poverty line, was 23%. Using a conceptually preferable poverty line, which allows for expenditure on some non-food items (according to the actual consumption patterns of those people whose incomes are equal to the food poverty line), we find a poverty incidence of 45%.

The incorporation of imputed rent procedure in household incomes implied in an household income increase of 18% and a headcount reduction of 16% for the lower-bound poverty line (z-).

Based on our data, poverty remains more acute in rural areas (headcounts of 52% for the indigence line and 78% for the main poverty line) than in urban areas (headcounts of 15% for the indigence line, and 37% for the main poverty line).<sup>24</sup> However, since only 21% of Brazilians live in rural areas, the urban shares in the composition of poverty are higher: 52% of people living below the indigence line live in urban areas, as do 64% of those with incomes lower than the main poverty line.

Interestingly, urban poverty varies considerably with the type of urban environment. Small cities (population < 20,000) have a higher poverty incidence than medium-sized ones (20,000 – 100,000), and these have a higher incidence than large cities (population > 100,000). The cores of metropolitan areas are least poor, but their peripheries have higher headcounts. Small cities and metropolitan areas have the highest poverty shares among urban environments, each accounting for roughly 18-19% of the national total, but metropolitan areas account for a smaller share of the indigent (13.5%). Greater research on and policy initiatives aimed at reducing poverty in small and medium urban areas would seem to be a priority, along with the continuing need to tackle rural poverty.

Urban poverty, like total poverty, also varies markedly across regions, with the Northeast and the North reporting higher poverty rates than the Southeast or the South, according to all three indices used. However, the higher population share of the Southeast causes it and the Northeast to have the largest numbers of poor people in the country. All this information on spatial variations suggests that there is considerable scope for a finer geographical targeting of government poverty-reduction programs. Poverty and living standards maps have been constructed for Brazil down to the municipality level (see UNDP, 1998), and it would be

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<sup>24</sup> Overall urban headcounts refer to all non-rural areas, and are computed straight-forwardly from the information in Table 7.

interesting to compare the allocation of social spending by federal and state governments with those maps.

Our analysis also indicates that families are likelier to be poor if they are larger, and particularly if they have larger numbers of children. Among the characteristics of the household head, the main determinant of a household's vulnerability to poverty is his or her level of education, with (national) poverty rates declining from 75% for those with one year of schooling or less, to 2% for those with more than 12 years.<sup>25</sup> Race and age are also important (unconditional) correlates of poverty, which is higher among households headed by blacks, and lowest among those headed by Asians. Poverty incidence declines monotonically with the age of the head.

In policy terms, it would seem to follow that every effort should be made to preserve spending on education (and health care) during fiscal contractions, and that these sectors should be the first to expand in good times. This is particularly important for basic health care and public health programs, as well as for primary and secondary education. It is vital in places where educational attainment is lowest, such as the rural areas, small towns and metropolitan peripheries of the Northeast and the North. There may well be scope for considering a reallocation of federal educational expenditures from the public university system towards these higher priorities, combined with increased cost recovery and some means-testing of public funds in the tertiary education sector. The availability of basic family planning services should also continue to improve, particularly in parts of the North and Northeast of the country, so that the number of children in poor families reflects their demand, rather than lack of alternatives. And finally, legislation against racial discrimination in the labor and credit markets should be enforced.

The poor are less likely to rent or pay mortgages on their houses than to own them outright, but their houses are generally of worse quality, and they enjoy disproportionately low rates of access to services like piped water, electricity, garbage collection or phone lines. The implications for future public spending on these types of infrastructure should be obvious: using the information on the geographical location of groups without access to these services, which can be quite detailed, expansions should be targeted to them.

Poverty is high among the unemployed and informal sector workers, whether the latter are self-employed or unregistered employees ('sem carteira'). However, a greater share of the poor is in self-employment than in any other labor status category. There is a continuing need to ensure that adequate safety nets are in place, to protect not only formal employees who lose their jobs and may have access to time-bound unemployment benefits, but also to cushion the effect of falling aggregate demand and demand for labor on informal employees and on the self-employed. While detailed policy recommendations fall outside the scope of

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<sup>25</sup> With respect to the main poverty line. See Table 7.

this paper, the evidence we have presented on the labor status of the poor would suggest that there is need for a more comprehensive system of safety nets in Brazil. Two types of programs are likely candidates for expansion: public work schemes, such as those now successfully deployed against the effects of the drought in the Northeast, provided they are adapted to the circumstances of the labor markets in which they are introduced; and educational support grants to poor families, along the lines of the Bolsa Escola program implemented, among others, by the government of the Federal District.

All things considered, there are perhaps two main conclusions from this exercise. The first is that the Brazilian household survey system can be substantially improved at little or no extra cost, so as to provide much more reliable information on living standards across this vast country. The second is that, notwithstanding the above, there is sufficient information in this new poverty profile to guide a reallocation of crucial social spending, on education, health and social protection, to ensure that the poorest people in Brazil are cushioned, to some extent, from the hardships that may come from fiscal adjustment, be it in 1999/2000 or beyond. To this end, three basic tasks present themselves:

- Primary education and basic health programs should be protected; particularly in rural areas, small and medium towns and metropolitan peripheries in the North and the Northeast.
- Safety nets should be broadened to cover informal sector workers, through public employment schemes and targeted educational support grants.
- The spatial dimension of the Brazilian poverty profile is striking. All social expenditures, as well as the above efforts, should be finely geographically targeted.

## APPENDIX 1

### REGIONAL POVERTY PROFILES

<b>Table A1: Poverty Profile 1996: North-East, <math>z = z^*</math> (R\$ 131.97/month), <math>I = I_+</math>, <math>\theta=1.0</math></b>							
Household Characteristics	Subgroups	$f_k$	$\mu(y)_k$	$P_{0k}$	$P_{1k}$	$P_{2k}$	$s_k$
	Total	100.00	135.37	74.86	43.16	29.50	100.00
Location	Metropolitan Core	12.23	264.23	52.32	23.67	13.62	8.55
	Metropolitan Periphery	5.67	150.39	66.02	32.05	19.27	5.00
	Large Urban	15.01	220.82	56.45	25.40	14.36	11.32
	Medium Urban	12.36	144.24	72.56	38.08	23.80	11.98
	Small Urban	18.31	101.73	79.67	46.16	31.54	19.48
	Rural	36.43	68.48	89.74	58.96	43.58	43.67
Dependency Ratio*	1	6.71	340.56	30.00	5.83	2.06	2.69
	1<d=<1.5	10.48	248.83	50.85	17.29	7.61	7.12
	1.5 <d=<2	19.06	185.08	64.22	27.59	14.54	16.35
	2 <d=<3	23.41	113.05	79.06	42.62	26.44	24.72
	3 <d=<4	14.57	84.13	86.45	53.27	36.68	16.83
	d>4	22.66	52.85	93.03	67.01	51.71	28.16
	Other/Not Specified	3.11	15.15	99.36	89.18	81.92	4.12
Housing Status	Own House, Paid, with Own Land	66.31	133.68	75.38	42.84	29.07	66.78
	Own House, Paid without Own Land	8.97	79.33	87.01	56.02	40.98	10.42
	Own House, Still Paying	4.47	307.18	35.92	14.66	7.70	2.15
	Rent	8.33	198.85	60.41	30.01	18.34	6.72
	Ceded	11.50	76.85	87.90	55.49	39.53	13.50
	Other	0.27	120.97	75.99	43.85	29.79	0.27
	Not Specified	0.16	96.36	77.71	50.29	35.19	0.16
Water	Piped	58.38	191.89	61.76	30.05	18.20	48.17
	Not Piped	41.47	55.95	93.28	61.60	45.40	51.68
	Other/Not Specified	0.15	95.68	77.33	49.97	35.04	0.16
Sanitation	Sewerage System	14.59	263.19	48.67	20.90	11.53	9.48
	Concrete Cesspit 1	5.36	290.52	44.88	18.89	10.42	3.21
	Concrete Cesspit 2	16.49	192.40	61.26	28.66	16.77	13.49
	Rudimental Cesspit	30.40	103.29	79.79	44.29	29.21	32.40
	Drain	2.28	67.03	89.41	55.72	39.87	2.73
	River or Lake	1.32	155.98	70.72	34.81	20.95	1.25

	Other	0.22	77.28	88.40	55.99	38.61	0.26
	Not Specified	29.34	49.51	94.84	64.94	48.90	37.17
Electricity	Yes	80.97	155.57	70.20	37.95	24.75	75.93
	No	18.87	49.03	94.82	65.43	49.84	23.91
	Other/Not Specified	0.16	93.77	78.17	50.59	35.39	0.16
Waste Disposal	Collected Directly	39.37	224.06	55.73	25.55	14.81	29.31
	Collected Indirectly	8.85	144.86	70.51	35.72	21.99	8.34
	Burned	17.14	67.21	90.15	57.94	42.03	20.64
	Unused Plot of Land	32.30	65.49	90.28	57.98	42.17	38.95
	Other/Not Specified	2.34	71.20	88.20	54.88	38.54	2.75
Characteristics of the Head	Subgroups	$f_k$	$\mu(y)_k$	$P_{0k}$	$P_{1k}$	$P_{2k}$	$s_k$
Gender	Male	81.44	133.02	75.54	44.38	30.67	82.19
	Female	18.56	145.67	71.85	37.82	24.37	17.81
Race	Indigenous	0.24	100.16	85.86	56.65	42.98	0.28
	White	29.94	202.21	64.31	34.98	23.33	25.72
	Black	69.65	106.77	79.37	46.65	32.13	73.85
	Asian	0.11	168.80	54.53	21.45	9.98	0.08
	Not Specified	0.05	46.23	98.35	67.35	49.79	0.07
Age	0-24	4.30	91.24	83.06	48.12	32.42	4.77
	25 to 44 Years	45.02	128.27	75.89	46.43	32.99	45.65
	45 to 64 Years	37.61	141.80	74.26	42.75	29.04	37.31
	>65 Years	13.07	155.88	70.31	31.43	17.89	12.28
Education	0- 1 Years	38.78	65.01	90.18	56.17	39.97	46.72
	1 to 4 Years	23.43	81.58	86.27	51.56	35.73	27.01
	4 to 8 Years	19.41	126.66	71.18	35.93	22.61	18.46
	8 to 12 Years	14.29	256.46	39.52	15.80	8.52	7.54
	> 12 Years	4.08	730.14	4.94	1.48	0.64	0.27
Immigration Status	Not Immigrant	51.58	109.74	80.59	49.12	34.81	55.53
	0 to 5 Years	6.11	148.28	72.06	40.63	26.99	5.88
	6 to 9 Years	3.80	127.18	74.68	40.34	25.99	3.79
	More Than 10 Years	28.29	162.54	67.97	35.97	23.15	25.69
	Other/Not Specified	10.22	184.84	66.71	35.53	23.12	9.11
Labour Status	Inactive	17.99	141.75	73.06	36.88	23.30	17.56
	Unemployed	2.27	74.25	88.10	62.34	48.33	2.67
	Formal Employees	12.88	140.30	70.18	33.55	19.69	12.07
	Informal Employees	15.37	71.76	89.56	56.08	39.30	18.39
	Self-Employed	35.94	101.49	79.71	48.90	34.75	38.27
	Employer	3.60	488.97	33.18	15.97	10.16	1.60
	Public Servant	8.43	270.81	45.84	21.92	13.04	5.16
	Unpaid	3.50	61.62	91.03	61.79	48.07	4.26
	Other/Not Specified	0.02	85.59	80.61	39.91	22.99	0.02

Employment Tenure	0 Years	20.26	134.20	74.74	39.73	26.10	20.23
	1 Years or More	11.64	102.82	81.06	48.28	33.43	12.61
	1 to 3 Years	11.48	127.17	76.31	42.78	28.28	11.70
	3 to 5 Years	6.89	161.24	70.62	39.10	25.73	6.50
	> 5 Years	49.23	142.62	73.50	43.80	30.60	48.33
	Other/Not Specified	0.50	59.14	93.94	64.37	48.66	0.63
Sector of Occupation	Agriculture#	31.75	63.31	91.35	61.93	46.36	38.75
	Manufacturing	8.52	119.04	77.45	44.36	29.51	8.82
	Construction	6.93	106.21	82.53	42.84	26.53	7.64
	Services	25.19	199.59	59.56	28.24	16.73	20.04
	Public Sector	7.34	276.46	46.06	21.56	12.65	4.52
	Other/Not Specified	20.27	134.18	74.75	39.73	26.10	20.24

Notes:  $s_k = \frac{f_k P_{ok}}{P_0}$ . Dependency ratio is defined as the number of household members over the

number of earners in the household. # Agriculture includes other Primary Sector occupations.

<b>Table A2: Poverty Profile 1996: North , <math>z = z^*</math> (R\$ 131.97/month), <math>I = I_+</math>, <math>\theta=1.0</math></b>							
Household Characteristics	Subgroups	$f_k$	$\mu(y)_k$	$P_{0k}$	$P_{1k}$	$P_{2k}$	$s_k$
	Total	100.00	191.96	60.35	29.44	18.20	100.00
Location	Metropolitan Core	11.43	293.68	45.06	18.73	10.14	8.54
	Metropolitan Periphery	1.44	133.89	72.19	35.89	21.62	1.72
	Large Urban	32.59	251.37	44.15	17.18	8.99	23.84
	Medium Urban	26.45	165.93	65.60	31.28	18.72	28.76
	Small Urban	23.11	117.22	77.82	42.74	27.92	29.80
	Rural	4.98	71.42	89.11	60.88	48.12	7.35
Dependency Ratio*	1	5.14	507.00	11.74	1.82	0.50	1.00
	1 < d = < 1.5	9.58	328.25	30.48	8.44	3.30	4.84
	1.5 < d = < 2	20.82	262.72	42.89	13.26	5.56	14.80
	2 < d = < 3	25.68	168.21	63.46	27.33	14.58	27.00
	3 < d = < 4	16.22	120.73	74.85	37.53	22.46	20.12
	d > 4	20.18	82.11	84.73	52.47	36.76	28.34
	Other/Not Specified	2.38	17.19	99.17	87.48	79.64	3.91
Housing Status	Own House, Paid, with Own Land	74.72	177.58	62.40	30.43	18.69	77.26
	Own House, Paid without Own Land	4.38	128.03	68.71	34.73	22.50	4.99
	Own House, Still Paying	3.97	447.20	17.52	3.70	1.34	1.15
	Rent	8.80	284.74	45.46	19.52	10.81	6.63
	Ceded	7.38	130.66	74.14	41.37	28.23	9.07
	Other	0.50	118.50	72.51	34.62	21.52	0.60
	Not Specified	0.24	250.26	74.52	35.07	22.65	0.30
Water	Piped	69.30	240.52	48.85	20.49	11.35	56.09
	Not Piped	30.46	81.02	86.41	49.74	33.75	43.61
	Other/Not Specified	0.24	250.26	74.52	35.07	22.65	0.30
Sanitation	Sewerage System	8.06	354.14	30.84	9.20	3.98	4.12
	Concrete Cesspit 1	5.15	424.50	25.79	9.37	4.65	2.20
	Concrete Cesspit 2	30.45	256.17	41.51	15.56	8.04	20.95
	Rudimental Cesspit	40.45	123.02	75.43	38.26	23.56	50.56
	Drain	2.53	112.82	75.60	39.12	23.53	3.17
	River or Lake	3.20	125.90	73.01	32.02	18.34	3.87
	Other	0.10	77.38	87.13	45.15	28.26	0.15
	Not Specified	10.06	68.06	89.90	59.00	44.21	14.98
Electricity	Yes	93.89	200.33	58.40	27.16	16.10	90.85
	No	5.83	53.79	91.61	66.06	51.97	8.85

	Other/Not Specified	0.28	265.55	64.36	30.29	19.57	0.30
Waste Disposal	Collected Directly	46.34	258.97	43.81	16.88	8.72	33.64
	Collected Indirectly	13.74	244.38	50.58	22.36	12.64	11.51
	Burned	22.90	96.02	81.70	45.43	30.05	31.00
	Unused Plot of Land	14.00	93.82	84.09	48.65	33.65	19.51
	Other/Not Specified	3.03	108.22	86.56	43.95	27.37	4.35
Characteristics of the Head	Subgroups	$f_k$	$\mu(y)_k$	$P_{0k}$	$P_{1k}$	$P_{2k}$	$s_k$
Gender	Male	78.95	192.45	60.95	30.12	18.76	79.74
	Female	21.05	190.13	58.11	26.87	16.09	20.27
Race	Indigenous	0.19	289.26	66.79	45.75	37.17	0.21
	White	28.02	277.25	46.32	19.88	11.51	21.51
	Black	71.38	158.06	65.80	33.06	20.70	77.83
	Asian	0.40	220.11	69.39	45.53	32.68	0.46
	Not Specified	0.01	235.17	0.00	0.00	0.00	0.00
Age	0-24	4.99	143.02	68.85	30.03	17.20	5.69
	25 to 44 Years	51.96	197.30	59.69	30.26	19.24	51.40
	45 to 64 Years	33.20	192.60	60.29	28.72	17.53	33.17
	>65 Years	9.85	186.46	59.70	27.21	15.48	9.74
Education	0- 1 Years	23.73	90.51	81.04	44.19	28.91	31.87
	1 to 4 Years	20.76	108.75	76.12	40.77	26.31	26.18
	4 to 8 Years	26.80	156.23	63.15	28.44	16.69	28.04
	8 to 12 Years	24.10	286.45	34.38	11.76	5.78	13.73
	> 12 Years	4.61	802.74	2.26	0.72	0.26	0.17
Immigration Status	Not Immigrant	34.37	177.76	62.65	33.07	21.37	35.68
	0 to 5 Years	8.35	171.38	69.21	34.74	21.98	9.58
	6 to 9 Years	4.10	147.81	67.67	31.56	18.33	4.59
	More Than 10 Years	19.81	182.77	60.39	27.72	16.67	19.82
	Other/Not Specified	33.37	222.62	54.84	25.13	14.89	30.33
Labour Status	Inactive	15.46	152.22	66.18	31.92	19.61	16.96
	Unemployed	2.70	89.07	82.12	49.00	34.29	3.68
	Formal Employees	14.30	188.48	54.64	19.96	9.87	12.95
	Informal Employees	15.04	109.68	78.15	39.51	24.12	19.48
	Self-Employed	28.70	171.18	63.22	31.66	19.65	30.07
	Employer	4.59	531.24	18.56	5.27	2.48	1.41
	Public Servant	15.21	304.34	38.13	16.93	9.49	9.61
	Unpaid	3.98	68.66	88.61	62.18	50.38	5.84
Employment Tenure	0 Years	18.17	142.82	68.55	34.46	21.79	20.64
	1 Years or More	15.34	143.91	71.25	34.16	20.82	18.11
	1 to 3 Years	15.46	173.06	66.00	32.47	19.76	16.91
	3 to 5 Years	9.70	199.85	56.59	26.51	15.55	9.10



	> 5 Years	40.60	239.62	50.85	24.47	15.24	34.21
	Other/Not Specified	0.74	70.90	85.77	55.84	40.06	1.05
Sector of Occupation	Agriculture#	12.58	93.30	84.30	52.90	38.63	17.57
	Manufacturing	12.12	156.85	66.95	32.17	19.25	13.45
	Construction	7.03	136.24	68.02	30.44	16.92	7.93
	Services	36.45	231.04	52.51	22.32	12.47	31.71
	Public Sector	13.65	303.87	38.49	17.18	9.60	8.70
	Other/Not Specified	18.17	142.82	68.55	34.46	21.79	20.64

Notes:  $s_k = \frac{f_k P_{ok}}{P_0}$ . Dependency ratio is defined as the number of household members over the number of earners in the household. # Agriculture includes other Primary Sector occupations.

<b>Table A3: Poverty Profile 1996: South-East, <math>z = z^*</math> (R\$ 131.97/month), <math>I = I_1</math>, <math>\theta=1.0</math></b>							
Household Characteristics	Subgroups	$f_k$	$\mu(y)_k$	$P_{0k}$	$P_{1k}$	$P_{2k}$	$s_k$
	Total	100.00	380.40	27.70	10.86	5.91	100.00
Location	Metropolitan Core	24.77	570.15	13.63	4.15	1.90	12.19
	Metropolitan Periphery	19.87	332.40	26.46	8.93	4.36	18.98
	Large Urban	18.39	445.55	16.42	5.33	2.53	10.90
	Medium Urban	15.52	340.06	24.56	8.55	4.27	13.76
	Small Urban	10.15	220.01	45.36	18.61	9.83	16.62
	Rural	11.29	142.23	67.57	34.21	21.66	27.55
Dependency Ratio*	1	12.01	751.36	1.44	0.21	0.06	0.62
	1 < d = < 1.5	17.20	487.84	8.62	1.73	0.52	5.35
	1.5 < d = < 2	24.15	397.48	18.71	4.93	1.85	16.31
	2 < d = < 3	20.68	280.06	34.84	11.82	5.46	26.00
	3 < d = < 4	12.89	262.91	40.98	15.76	8.06	19.07
	d > 4	11.19	153.78	66.00	33.76	21.20	26.67
	Other/Not Specified	1.88	67.26	88.19	58.27	43.83	5.98
Housing Status	Own House, Paid, with Own Land	61.72	400.82	25.77	9.92	5.35	57.40
	Own House, Paid without Own Land	3.95	244.95	43.58	18.03	10.08	6.21
	Own House, Still Paying	6.32	491.47	13.53	3.95	1.63	3.09
	Rent	15.21	430.65	19.22	6.12	2.80	10.55
	Ceded	11.95	209.87	48.99	22.36	13.33	21.13
	Other	0.72	185.82	54.59	21.51	11.19	1.42
	Not Specified	0.14	278.04	41.32	14.00	6.22	0.21
Water	Piped	94.21	397.50	24.73	8.90	4.52	84.09
	Not Piped	5.65	98.27	76.91	43.44	28.99	15.69
	Other/Not Specified	0.14	261.22	42.57	14.71	6.57	0.22
Sanitation	Sewerage System	67.16	457.13	18.06	5.74	2.63	43.77
	Concrete Cesspit 1	8.74	366.11	24.03	7.63	3.72	7.58
	Concrete Cesspit 2	5.49	231.25	43.97	17.45	9.30	8.71
	Rudimental Cesspit	9.20	171.04	54.57	25.15	14.85	18.12
	Drain	1.97	145.40	59.51	26.51	15.52	4.23
	River or Lake	4.33	167.15	54.20	23.87	13.74	8.48
	Other	0.21	191.93	59.61	25.37	13.54	0.46
	Not Specified	2.89	84.30	82.78	50.39	34.88	8.64
Electricity	Yes	97.38	388.47	26.20	9.78	5.11	92.09
	No	2.47	69.83	86.02	53.33	37.55	7.67

	Other/Not Specified	0.15	254.72	44.10	15.22	6.70	0.23
Waste Disposal	Collected Directly	77.40	436.42	18.76	5.93	2.73	52.40
	Collected Indirectly	6.47	318.59	33.68	12.77	6.69	7.87
	Burned	9.52	142.08	67.49	33.22	20.40	23.19
	Unused Plot of Land	4.98	121.50	69.32	34.18	21.10	12.46
	Other/Not Specified	1.63	148.09	69.35	35.73	22.83	4.07
Characteristics of the Head	Subgroups	$f_k$	$\mu(y)_k$	$P_{0k}$	$P_{1k}$	$P_{2k}$	$s_k$
Gender	Male	82.07	379.52	27.92	11.08	6.10	82.70
	Female	17.93	384.42	26.72	9.85	5.05	17.30
Race	Indigenous	0.08	352.74	18.69	4.26	1.25	0.05
	White	64.50	461.90	19.97	7.19	3.69	46.51
	Black	34.72	221.02	42.46	17.85	10.13	53.21
	Asian	0.69	786.03	7.98	2.50	1.10	0.20
	Not Specified	0.01	176.53	60.01	24.92	11.54	0.03
Age	0-24	3.32	261.10	35.50	13.30	6.92	4.25
	25 to 44 Years	48.12	353.73	31.07	12.51	6.93	53.97
	45 to 64 Years	37.38	408.30	24.60	9.57	5.20	33.19
	>65 Years	11.19	437.22	21.26	7.35	3.61	8.59
Education	0- 1 Years	14.07	164.41	52.27	22.96	13.37	26.54
	1 to 4 Years	17.75	204.11	42.88	17.97	10.26	27.48
	4 to 8 Years	34.68	279.33	28.31	10.17	5.12	35.44
	8 to 12 Years	23.67	452.63	11.83	3.74	1.75	10.11
	> 12 Years	9.83	1190.20	1.23	0.34	0.15	0.44
Immigration Status	Not Immigrant	37.85	387.77	31.60	13.54	7.79	43.18
	0 to 5 Years	7.07	355.25	32.31	12.87	6.99	8.25
	6 to 9 Years	3.82	358.08	32.26	11.44	5.80	4.45
	More Than 10 Years	28.71	376.50	25.06	9.06	4.65	25.96
	Other/Not Specified	22.56	384.65	22.31	7.94	4.03	18.16
Labour Status	Inactive	19.50	363.40	25.69	9.77	5.17	18.08
	Unemployed	3.05	168.35	60.81	30.19	18.84	6.70
	Formal Employees	30.85	347.66	24.02	7.85	3.64	26.75
	Informal Employees	11.80	240.06	46.43	20.07	11.53	19.77
	Self-Employed	20.36	381.29	27.49	11.26	6.48	20.20
	Employer	5.13	911.59	6.91	2.48	1.27	1.28
	Public Servant	7.74	524.30	16.44	5.98	2.97	4.60
	Unpaid	1.56	247.19	46.13	23.03	14.40	2.59
	Other/Not Specified	0.02	131.96	43.08	31.59	24.80	0.03
Employment Tenure	0 Years	22.55	336.99	30.45	12.54	7.02	24.78
	1 Years or More	13.50	286.69	34.94	13.05	6.65	17.02
	1 to 3 Years	16.09	328.05	30.27	11.07	5.66	17.58
	3 to 5 Years	8.41	384.36	25.46	8.98	4.47	7.73

	> 5 Years	39.12	459.83	22.92	9.41	5.39	32.36
	Other/Not Specified	0.34	216.02	43.94	17.43	9.92	0.53
Sector of Occupation	Agriculture#	11.37	165.30	64.71	32.62	20.45	26.57
	Manufacturing	14.42	402.86	18.00	5.65	2.60	9.37
	Construction	8.73	247.28	33.42	11.26	5.37	10.53
	Services	35.25	464.17	19.31	6.08	2.77	24.56
	Public Sector	7.68	551.09	15.11	5.03	2.36	4.19
	Other/Not Specified	22.55	336.99	30.45	12.54	7.02	24.78

Notes:  $s_k = \frac{f_k P_{ok}}{P_0}$ . Dependency ratio is defined as the number of household members over the number of earners in the household. # Agriculture includes other Primary Sector occupations.

<b>Table A4: Poverty Profile 1996: South , z = z* (R\$ 131.97/month), I = I<sub>+</sub>, <math>\theta=1.0</math></b>							
Household Characteristics	Subgroups	f <sub>k</sub>	$\mu(y)_k$	P <sub>0k</sub>	P <sub>1k</sub>	P <sub>2k</sub>	s <sub>k</sub>
	Total	100.00	325.91	33.60	13.76	7.71	100.00
Location	Metropolitan Core	11.04	616.42	14.44	4.81	2.37	4.74
	Metropolitan Periphery	11.42	292.34	26.13	8.50	4.08	8.88
	Large Urban	17.89	443.09	18.39	6.32	3.16	9.79
	Medium Urban	19.44	331.07	30.58	11.65	6.22	17.69
	Small Urban	17.84	255.35	36.44	13.44	6.79	19.35
	Rural	22.38	157.83	59.38	28.92	17.88	39.54
Dependency Ratio*	1	12.56	632.95	2.84	0.46	0.13	1.06
	1 < d = < 1.5	17.07	407.06	13.49	2.93	0.95	6.85
	1.5 < d = < 2	24.00	355.72	23.58	6.36	2.43	16.84
	2 < d = < 3	20.44	241.63	42.12	14.63	6.79	25.62
	3 < d = < 4	12.54	207.13	52.52	22.43	12.26	19.61
	d > 4	11.97	130.75	72.84	40.37	26.53	25.96
	Other/Not Specified	1.41	37.58	96.41	73.73	60.32	4.06
Housing Status	Own House, Paid, with Own Land	62.95	337.48	30.68	12.11	6.65	57.48
	Own House, Paid without Own Land	6.06	159.53	58.56	28.46	17.76	10.56
	Own House, Still Paying	8.12	457.74	23.02	8.40	4.16	5.56
	Rent	11.43	397.55	22.28	7.29	3.38	7.58
	Ceded	10.99	181.77	55.46	25.26	15.00	18.14
	Other	0.33	224.22	51.41	28.27	19.44	0.50
	Not Specified	0.12	393.81	49.49	23.33	16.23	0.17
Water	Piped	93.37	342.61	30.15	11.37	5.97	83.77
	Not Piped	6.53	86.25	82.60	47.68	32.45	16.06
	Other/Not Specified	0.10	396.18	58.92	27.78	19.32	0.17
Sanitation	Sewerage System	13.05	591.30	13.59	3.91	1.73	5.28
	Concrete Cesspit 1	28.16	440.27	16.79	5.00	2.20	14.07
	Concrete Cesspit 2	23.73	284.25	29.17	10.46	5.38	20.60
	Rudimental Cesspit	27.28	176.22	53.68	23.61	13.48	43.58
	Drain	1.50	135.45	63.68	28.96	17.62	2.85
	River or Lake	1.69	179.70	49.14	20.81	11.47	2.47
	Other	0.11	138.49	63.91	27.15	18.25	0.21
	Not Specified	4.47	89.18	82.16	47.04	32.14	10.94
Electricity	Yes	96.55	334.64	31.75	12.37	6.66	91.25
	No	3.31	68.61	87.11	54.26	38.32	8.58

	Other/Not Specified	0.14	387.71	41.84	19.73	13.72	0.17
Waste Disposal	Collected Directly	71.64	381.23	24.78	8.54	4.23	52.83
	Collected Indirectly	5.83	343.79	29.47	11.99	6.53	5.11
	Burned	18.58	149.45	61.39	29.50	17.98	33.95
	Unused Plot of Land	2.65	112.10	71.40	39.16	25.41	5.62
	Other/Not Specified	1.31	155.61	63.90	32.66	22.25	2.49
Characteristics of the Head	Subgroups	$f_k$	$\mu(y)_k$	$P_{0k}$	$P_{1k}$	$P_{2k}$	$s_k$
Gender	Male	85.45	320.42	34.30	14.25	8.08	87.24
	Female	14.55	358.19	29.47	10.91	5.56	12.76
Race	Indigenous	0.16	201.61	46.13	26.98	17.69	0.21
	White	84.43	351.47	30.06	11.92	6.59	75.54
	Black	14.97	172.71	54.02	24.34	14.13	24.06
	Asian	0.43	687.24	11.76	3.59	1.19	0.15
	Not Specified	0.01	128.91	80.42	5.26	0.34	0.03
Age	0-24	4.15	237.05	43.16	17.65	9.81	5.33
	25 to 44 Years	51.60	302.31	36.78	15.50	8.91	56.47
	45 to 64 Years	34.41	362.34	30.12	12.19	6.73	30.84
	>65 Years	9.84	359.80	25.10	8.51	4.00	7.35
Education	0- 1 Years	11.99	141.64	58.48	26.85	15.57	20.87
	1 to 4 Years	19.68	187.25	48.37	20.61	11.90	28.33
	4 to 8 Years	38.74	231.21	36.56	14.30	7.85	42.15
	8 to 12 Years	21.62	438.97	12.97	4.21	2.07	8.35
	> 12 Years	7.97	1098.94	1.30	0.46	0.21	0.31
Immigration Status	Not Immigrant	37.90	310.33	35.80	15.74	9.19	40.38
	0 to 5 Years	10.30	285.76	37.30	14.87	8.16	11.44
	6 to 9 Years	6.15	289.51	36.63	14.46	7.90	6.70
	More Than 10 Years	36.16	341.10	31.29	12.08	6.54	33.67
	Other/Not Specified	9.49	397.41	27.65	10.63	5.70	7.81
Labour Status	Inactive	14.31	336.66	30.92	12.01	6.42	13.17
	Unemployed	2.58	139.45	69.29	38.37	25.41	5.32
	Formal Employees	26.58	289.88	30.45	10.14	4.75	24.08
	Informal Employees	10.60	201.63	48.10	20.37	11.31	15.18
	Self-Employed	29.59	280.02	38.45	17.33	10.40	33.85
	Employer	5.66	833.73	6.93	1.98	0.92	1.17
	Public Servant	8.22	497.15	15.70	4.70	2.12	3.84
	Unpaid	2.26	201.87	43.53	19.91	12.07	2.93
	Other/Not Specified	0.20	128.62	77.02	61.59	51.66	0.45
Employment Tenure	0 Years	16.90	306.52	36.78	16.04	9.32	18.50
	1 Years or More	12.45	239.34	42.29	16.20	8.51	15.68
	1 to 3 Years	15.70	282.57	35.29	13.40	6.93	16.49
	3 to 5 Years	9.01	333.37	31.30	12.43	6.80	8.39

	> 5 Years	45.55	371.93	29.63	12.53	7.30	40.17
	Other/Not Specified	0.39	132.04	66.53	26.79	14.49	0.78
Sector of Occupation	Agriculture#	21.08	173.07	59.55	29.01	17.88	37.36
	Manufacturing	14.83	321.82	27.41	8.97	4.25	12.10
	Construction	8.34	226.15	36.37	12.64	6.21	9.03
	Services	30.41	422.85	20.94	6.97	3.36	18.95
	Public Sector	8.44	502.99	16.18	5.13	2.37	4.07
	Other/Not Specified	16.90	306.52	36.78	16.04	9.32	18.50

Notes:  $s_k = \frac{f_k P_{ok}}{P_0}$ . Dependency ratio is defined as the number of household members over the number of earners in the household. # Agriculture includes other Primary Sector occupations.

<b>Table A5: Poverty Profile 1996: Center-West, <math>z = z'</math> (R\$ 131.97/month), <math>I = I_+</math>, <math>\theta=1.0</math></b>							
Household Characteristics	Subgroups	$f_k$	$\mu(y)_k$	$P_{0k}$	$P_{1k}$	$P_{2k}$	$s_k$
	Total	100.00	282.75	44.66	18.81	10.57	100.00
Location	Metropolitan Core	14.41	484.51	23.66	8.06	3.92	7.63
	Large Urban	31.46	347.48	30.99	10.79	5.38	21.82
	Medium Urban	15.20	229.85	47.00	18.15	9.57	16.00
	Small Urban	19.91	194.76	55.41	23.60	13.22	24.70
	Rural	19.02	157.23	70.09	35.74	22.19	29.85
Dependency Ratio*	1	9.09	583.13	4.28	0.71	0.19	0.87
	1 < d = < 1.5	13.89	381.24	20.94	3.95	1.12	6.51
	1.5 < d = < 2	23.21	335.60	33.08	8.86	3.34	17.19
	2 < d = < 3	22.96	232.11	51.64	19.52	9.33	26.55
	3 < d = < 4	14.48	185.90	60.51	27.18	14.80	19.61
	d > 4	13.72	129.70	76.88	41.44	26.34	23.61
	Other/Not Specified	2.65	33.42	95.20	76.75	64.85	5.66
Housing Status	Own House, Paid, with Own Land	59.68	279.77	45.10	19.01	10.79	60.26
	Own House, Paid without Own Land	1.33	252.36	60.22	31.95	21.02	1.79
	Own House, Still Paying	8.19	465.23	18.63	5.60	2.37	3.42
	Rent	14.33	332.57	35.38	12.28	6.02	11.35
	Ceded	15.69	163.40	63.14	29.12	16.64	22.18
	Other	0.52	136.56	52.88	26.01	16.33	0.61
	Not Specified	0.26	117.51	66.56	46.25	35.72	0.38
	Water	Piped	84.18	317.23	38.15	14.32	7.35
	Not Piped	15.56	98.99	79.54	42.64	27.52	27.72
	Other/Not Specified	0.26	117.51	66.56	46.25	35.72	0.38
Sanitation	Sewerage System	27.58	482.18	21.51	6.84	3.14	13.28
	Concrete Cesspit 1	4.12	433.76	22.76	6.95	2.89	2.10
	Concrete Cesspit 2	7.34	258.49	45.96	17.91	9.37	7.55
	Rudimental Cesspit	52.41	199.94	52.39	21.67	11.91	61.48
	Drain	1.42	84.82	84.20	43.91	27.13	2.68
	River or Lake	0.86	182.03	56.94	25.19	13.66	1.10
	Other	0.21	119.24	63.25	31.15	19.03	0.29
	Not Specified	6.06	84.24	84.94	50.51	34.75	11.52
Electricity	Yes	92.99	297.91	41.67	16.33	8.65	86.75
	No	6.75	80.22	85.06	51.98	36.03	12.86
	Other/Not Specified	0.26	117.51	66.56	46.25	35.72	0.38



Waste Disposal	Collected Directly	69.88	328.29	35.27	12.62	6.39	55.18
	Collected Indirectly	5.50	398.84	37.36	15.81	8.72	4.60
	Burned	17.61	130.16	74.10	37.21	22.80	29.21
	Unused Plot of Land	6.25	120.58	71.00	36.57	22.59	9.94
	Other/Not Specified	0.76	124.04	63.23	37.31	25.55	1.08
Characteristics of the Head	Subgroups	$f_k$	$\mu(y)_k$	$P_{0k}$	$P_{1k}$	$P_{2k}$	$s_k$
Gender	Male	82.35	281.74	45.61	19.39	10.95	84.09
	Female	17.65	287.44	40.26	16.12	8.78	15.91
Race	Indigenous	0.52	81.44	86.50	55.05	41.33	1.00
	White	45.92	378.65	34.34	13.03	6.78	35.30
	Black	52.91	199.40	53.52	23.62	13.64	63.40
	Asian	0.66	450.15	20.77	7.05	3.55	0.31
Age	0-24	5.62	190.19	54.02	22.26	12.16	6.80
	25 to 44 Years	55.17	261.00	47.47	20.17	11.37	58.63
	45 to 64 Years	32.13	323.97	39.73	16.81	9.56	28.58
	>65 Years	7.08	338.55	37.79	14.52	7.64	5.99
Education	0- 1 Years	18.80	130.81	65.93	30.69	18.32	27.75
	1 to 4 Years	20.16	152.34	59.27	26.96	15.83	26.75
	4 to 8 Years	30.40	206.44	49.24	19.36	10.18	33.52
	8 to 12 Years	22.96	372.76	22.73	7.37	3.60	11.68
	> 12 Years	7.68	1030.28	1.72	0.35	0.11	0.30
Immigration Status	Not Immigrant	20.35	229.83	50.82	22.59	12.96	23.16
	0 to 5 Years	9.51	231.21	51.91	22.15	12.68	11.06
	6 to 9 Years	4.82	234.96	49.49	20.86	11.76	5.34
	More Than 10 Years	22.70	269.43	44.58	18.19	9.91	22.65
	Other/Not Specified	42.62	332.01	39.61	16.36	9.16	37.79
Labour Status	Inactive	14.05	264.40	45.94	20.24	11.94	14.46
	Unemployed	3.65	98.62	79.34	46.57	32.46	6.49
	Formal Employees	19.45	233.55	42.15	14.33	6.63	18.36
	Informal Employees	18.72	152.53	63.18	26.99	14.37	26.47
	Self-Employed	23.64	250.88	44.82	19.12	10.87	23.73
	Employer	5.55	861.25	10.60	3.04	1.45	1.32
	Public Servant	12.86	452.75	20.68	6.43	2.89	5.95
	Unpaid	2.08	130.61	69.30	43.82	33.72	3.22
Employment Tenure	0 Years	17.71	230.20	52.83	25.67	16.17	20.95
	1 Years or More	15.84	195.83	53.12	21.77	11.38	18.84
	1 to 3 Years	16.28	252.10	46.14	17.97	9.47	16.81
	3 to 5 Years	10.11	282.11	45.77	18.36	9.83	10.36

	> 5 Years	39.58	355.04	36.44	14.79	8.20	32.29
	Other/Not Specified	0.49	184.07	68.29	37.36	24.24	0.75
Sector of Occupation	Agriculture#	21.33	185.92	66.71	33.25	20.32	31.85
	Manufacturing	7.40	241.95	43.50	15.73	7.53	7.20
	Construction	8.48	208.35	48.26	16.79	7.77	9.16
	Services	33.82	336.18	33.69	11.23	5.25	25.51
	Public Sector	11.27	471.00	21.09	6.98	3.34	5.32
	Other/Not Specified	17.71	230.20	52.83	25.67	16.17	20.95

Notes:  $s_k = \frac{f_k P_{ok}}{P_0}$ . Dependency ratio is defined as the number of household members over the number of earners in the household. # Agriculture includes other Primary Sector occupations.

<b>Table A6: Poverty Profile 1996: North-East , <math>z = \zeta</math> (R\$ 65.07/month), <math>I = I_r</math>, <math>\theta=1.0</math></b>							
Household Characteristics	Subgroups	$f_k$	$\mu(y)_k$	$P_{0k}$	$P_{1k}$	$P_{2k}$	$s_k$
	Total	100.00	135.37	47.89	22.14	13.28	100.00
Location	Metropolitan Core	12.23	264.23	22.54	7.79	3.91	5.75
	Metropolitan Periphery	5.67	150.39	32.78	11.91	6.11	3.88
	Large Urban	15.01	220.82	24.55	7.86	3.65	7.69
	Medium Urban	12.36	144.24	40.93	15.70	8.01	10.56
	Small Urban	18.31	101.73	52.32	23.69	13.88	20.00
	Rural	36.43	68.48	68.50	35.83	23.00	52.11
Dependency Ratio*	1	6.71	340.56	2.44	0.44	0.13	0.34
	1 < d = < 1.5	10.48	248.83	9.64	2.27	0.87	2.11
	1.5 < d = < 2	19.06	185.08	23.98	6.42	2.61	9.54
	2 < d = < 3	23.41	113.05	49.65	16.85	7.62	24.27
	3 < d = < 4	14.57	84.13	64.50	27.92	14.85	19.63
	d > 4	22.66	52.85	80.02	44.82	29.02	37.86
	Other/Not Specified	3.11	15.15	96.23	79.73	69.54	6.24
Housing Status	Own House, Paid, with Own Land	66.31	133.68	47.06	21.61	12.97	65.16
	Own House, Paid without Own Land	8.97	79.33	64.31	33.32	21.39	12.04
	Own House, Still Paying	4.47	307.18	13.30	3.56	1.45	1.24
	Rent	8.33	198.85	31.50	11.74	5.85	5.48
	Ceded	11.50	76.85	64.85	31.15	18.78	15.57
	Other	0.27	120.97	54.80	22.05	11.63	0.30
	Not Specified	0.16	96.36	63.63	26.99	14.50	0.21
Water	Piped	58.38	191.89	30.39	11.45	6.00	37.04
	Not Piped	41.47	55.95	72.47	37.17	23.53	62.76
	Other/Not Specified	0.15	95.68	62.63	26.94	14.74	0.20
Sanitation	Sewerage System	14.59	263.19	19.16	6.17	2.83	5.83
	Concrete Cesspit 1	5.36	290.52	16.43	5.65	2.82	1.84
	Concrete Cesspit 2	16.49	192.40	28.19	9.98	4.98	9.71
	Rudimental Cesspit	30.40	103.29	49.09	20.84	11.67	31.16
	Drain	2.28	67.03	63.18	31.31	19.48	3.01
	River or Lake	1.32	155.98	34.74	12.88	6.37	0.96
	Other	0.22	77.28	77.01	28.09	14.87	0.35
	Not Specified	29.34	49.51	76.93	40.92	26.53	47.14
Electricity	Yes	80.97	155.57	41.14	17.44	9.85	69.56
	No	18.87	49.03	76.71	42.27	28.00	30.23

	Other/Not Specified	0.16	93.77	64.01	27.15	14.59	0.21
Waste Disposal	Collected Directly	39.37	224.06	24.70	8.67	4.26	20.30
	Collected Indirectly	8.85	144.86	37.56	14.13	7.35	6.94
	Burned	17.14	67.21	68.06	33.80	21.05	24.36
	Unused Plot of Land	32.30	65.49	66.97	34.02	21.49	45.17
	Other/Not Specified	2.34	71.20	66.07	29.46	17.29	3.23
Characteristics of the Head	Subgroups	$f_k$	$\mu(y)_k$	$P_{0k}$	$P_{1k}$	$P_{2k}$	$s_k$
Gender	Male	81.44	133.02	49.71	23.35	14.15	84.54
	Female	18.56	145.67	39.90	16.82	9.48	15.46
Race	Indigenous	0.24	100.16	67.45	36.53	23.84	0.34
	White	29.94	202.21	38.08	16.94	10.13	23.81
	Black	69.65	106.77	52.07	24.34	14.61	75.73
	Asian	0.11	168.80	13.00	2.75	0.88	0.03
	Not Specified	0.05	46.23	85.87	43.22	22.82	0.09
Age	0-24	4.30	91.24	55.24	23.85	13.45	4.96
	25 to 44 Years	45.02	128.27	53.00	25.96	16.12	49.83
	45 to 64 Years	37.61	141.80	47.08	21.56	12.89	36.97
	>65 Years	13.07	155.88	30.21	10.08	4.55	8.24
Education	0- 1 Years	38.78	65.01	64.61	31.36	19.31	52.32
	1 to 4 Years	23.43	81.58	57.80	27.22	16.45	28.28
	4 to 8 Years	19.41	126.66	37.48	15.20	8.40	15.19
	8 to 12 Years	14.29	256.46	13.85	4.46	2.12	4.13
	> 12 Years	4.08	730.14	0.81	0.19	0.08	0.07
Immigration Status	Not Immigrant	51.58	109.74	55.70	27.28	16.94	60.00
	0 to 5 Years	6.11	148.28	44.68	19.56	11.17	5.70
	6 to 9 Years	3.80	127.18	42.31	18.08	10.04	3.35
	More Than 10 Years	28.29	162.54	38.49	15.99	8.92	22.74
	Other/Not Specified	10.22	184.84	38.46	16.25	9.34	8.21
Labour Status	Inactive	17.99	141.75	37.30	15.61	8.97	14.01
	Unemployed	2.27	74.25	73.53	41.63	28.31	3.48
	Formal Employees	12.88	140.30	34.76	11.70	5.27	9.35
	Informal Employees	15.37	71.76	66.37	30.44	17.36	21.31
	Self-Employed	35.94	101.49	55.55	27.36	17.06	41.69
	Employer	3.60	488.97	15.05	6.97	4.45	1.13
	Public Servant	8.43	270.81	22.77	8.02	3.80	4.01
	Unpaid	3.50	61.62	68.40	41.00	30.36	5.00
	Other/Not Specified	0.02	85.59	53.18	12.83	5.11	0.02
Employment Tenure	0 Years	20.26	134.20	41.35	18.52	11.14	17.49
	1 Years or More	11.64	102.82	54.11	25.36	15.25	13.16
	1 to 3 Years	11.48	127.17	48.08	20.25	11.22	11.52
	3 to 5 Years	6.89	161.24	43.42	18.42	10.16	6.25

	> 5 Years	49.23	142.62	49.40	23.63	14.47	50.79
	Other/Not Specified	0.50	59.14	75.99	40.62	27.40	0.80
Sector of Occupation	Agriculture#	31.75	63.31	72.88	38.67	24.92	48.32
	Manufacturing	8.52	119.04	50.90	21.30	11.66	9.06
	Construction	6.93	106.21	44.46	17.02	8.96	6.44
	Services	25.19	199.59	29.25	10.11	4.90	15.38
	Public Sector	7.34	276.46	21.57	7.71	3.60	3.31
	Other/Not Specified	20.27	134.18	41.35	18.52	11.13	17.50

Notes:  $s_k = \frac{f_k P_{ok}}{P_0}$ . Dependency ratio is defined as the number of household members over the number of earners in the household. # Agriculture includes other Primary Sector occupations.

<b>Table A7: Poverty Profile 1996: North , <math>z = \zeta</math> (R\$ 65.07/month), <math>I = I_1</math>, <math>\theta=1.0</math></b>							
Household Characteristics	Subgroups	$f_k$	$\mu(y)_k$	$P_{0k}$	$P_{1k}$	$P_{2k}$	$s_k$
	Total	100.00	191.96	30.06	11.80	6.58	100.00
Location	Metropolitan Core	11.43	293.68	16.69	5.02	2.32	6.35
	Metropolitan Periphery	1.44	133.89	40.55	12.86	6.38	1.94
	Large Urban	32.59	251.37	15.20	4.20	1.82	16.48
	Medium Urban	26.45	165.93	30.57	11.67	6.05	26.90
	Small Urban	23.11	117.22	48.23	19.47	10.67	37.08
	Rural	4.98	71.42	67.97	41.87	31.39	11.25
Dependency Ratio*	1	5.14	507.00	0.00	0.00	0.00	0.00
	1 < d = < 1.5	9.58	328.25	4.90	0.61	0.21	1.56
	1.5 < d = < 2	20.82	262.72	6.24	1.14	0.37	4.32
	2 < d = < 3	25.68	168.21	26.46	6.67	2.38	22.60
	3 < d = < 4	16.22	120.73	41.35	13.75	5.94	22.31
	d > 4	20.18	82.11	62.21	28.35	16.45	41.76
	Other/Not Specified	2.38	17.19	94.04	77.04	66.68	7.45
Housing Status	Own House, Paid, with Own Land	74.72	177.58	31.01	11.96	6.56	77.08
	Own House, Paid without Own Land	4.38	128.03	35.77	15.80	9.42	5.22
	Own House, Still Paying	3.97	447.20	0.93	0.25	0.09	0.12
	Rent	8.80	284.74	18.62	5.66	2.55	5.45
	Ceded	7.38	130.66	44.81	21.04	13.28	11.00
	Other	0.50	118.50	41.35	13.27	7.63	0.69
	Not Specified	0.24	250.26	53.48	14.46	6.63	0.43
Water	Piped	69.30	240.52	18.69	6.07	2.96	43.08
	Not Piped	30.46	81.02	55.74	24.81	14.80	56.48
	Other/Not Specified	0.24	250.26	53.48	14.46	6.63	0.43
Sanitation	Sewerage System	8.06	354.14	5.58	1.31	0.44	1.50
	Concrete Cesspit 1	5.15	424.50	8.10	2.01	0.73	1.39
	Concrete Cesspit 2	30.45	256.17	13.54	3.74	1.68	13.71
	Rudimental Cesspit	40.45	123.02	40.23	15.08	7.72	54.13
	Drain	2.53	112.82	44.00	13.84	6.49	3.70
	River or Lake	3.20	125.90	30.04	10.11	4.85	3.20
	Other	0.10	77.38	59.95	20.05	7.64	0.21
	Not Specified	10.06	68.06	66.25	36.31	25.28	22.17
Electricity	Yes	93.89	200.33	27.15	9.74	4.99	84.79
	No	5.83	53.79	76.16	44.93	32.18	14.78

	Other/Not Specified	0.28	265.55	46.19	12.49	5.73	0.43
Waste Disposal	Collected Directly	46.34	258.97	14.35	3.99	1.73	22.11
	Collected Indirectly	13.74	244.38	20.50	6.93	3.31	9.37
	Burned	22.90	96.02	49.66	21.42	12.29	37.83
	Unused Plot of Land	14.00	93.82	54.82	25.48	15.98	25.53
	Other/Not Specified	3.03	108.22	51.17	17.17	8.91	5.16
Characteristics of the Head	Subgroups	$f_k$	$\mu(y)_k$	$P_{0k}$	$P_{1k}$	$P_{2k}$	$s_k$
Gender	Male	78.95	192.45	30.68	12.29	6.97	80.59
	Female	21.05	190.13	27.73	9.93	5.11	19.41
Race	Indigenous	0.19	289.26	48.26	33.39	28.03	0.31
	White	28.02	277.25	18.26	6.93	3.66	17.02
	Black	71.38	158.06	34.56	13.58	7.61	82.06
	Asian	0.40	220.11	46.20	25.24	16.70	0.61
	Not Specified	0.01	235.17	0.00	0.00	0.00	0.00
Age	0-24	4.99	143.02	30.37	9.91	4.97	5.04
	25 to 44 Years	51.96	197.30	31.06	12.99	7.61	53.69
	45 to 64 Years	33.20	192.60	29.78	11.17	5.97	32.89
	>65 Years	9.85	186.46	25.58	8.55	3.96	8.38
Education	0- 1 Years	23.73	90.51	47.51	20.12	11.77	37.51
	1 to 4 Years	20.76	108.75	44.43	17.89	10.10	30.68
	4 to 8 Years	26.80	156.23	27.85	10.06	5.32	24.82
	8 to 12 Years	24.10	286.45	8.67	2.53	1.09	6.95
	> 12 Years	4.61	802.74	0.27	0.03	0.00	0.04
Immigration Status	Not Immigrant	34.37	177.76	34.87	14.73	8.57	39.86
	0 to 5 Years	8.35	171.38	36.45	14.73	8.52	10.13
	6 to 9 Years	4.10	147.81	34.11	10.16	4.92	4.65
	More Than 10 Years	19.81	182.77	29.47	10.46	5.31	19.42
	Other/Not Specified	33.37	222.62	23.36	9.03	4.99	25.94
Labour Status	Inactive	15.46	152.22	33.97	12.70	6.68	17.48
	Unemployed	2.70	89.07	57.15	26.07	15.92	5.14
	Formal Employees	14.30	188.48	16.43	4.05	1.59	7.81
	Informal Employees	15.04	109.68	42.04	14.95	7.40	21.04
	Self-Employed	28.70	171.18	32.43	12.73	6.95	30.96
	Employer	4.59	531.24	4.28	1.17	0.41	0.65
	Public Servant	15.21	304.34	15.95	5.24	2.38	8.07
	Unpaid	3.98	68.66	66.86	45.15	35.11	8.84
Employment Tenure	0 Years	18.17	142.82	37.42	14.69	8.05	22.62
	1 Years or More	15.34	143.91	33.84	13.10	7.26	17.27
	1 to 3 Years	15.46	173.06	33.05	12.24	6.68	16.99
	3 to 5 Years	9.70	199.85	26.85	9.28	4.48	8.67

	> 5 Years	40.60	239.62	24.21	10.08	5.90	32.70
	Other/Not Specified	0.74	70.90	71.72	31.71	18.48	1.76
Sector of Occupation	Agriculture#	12.58	93.30	58.82	30.93	21.03	24.62
	Manufacturing	12.12	156.85	32.62	11.59	5.82	13.15
	Construction	7.03	136.24	28.87	8.76	4.11	6.75
	Services	36.45	231.04	20.91	6.87	3.19	25.36
	Public Sector	13.65	303.87	16.52	5.21	2.27	7.50
	Other/Not Specified	18.17	142.82	37.42	14.69	8.05	22.62

Notes:  $s_k = \frac{f_k P_{ok}}{P_0}$ . Dependency ratio is defined as the number of household members over the number of earners in the household. # Agriculture includes other Primary Sector occupations.



<b>Table A8: Poverty Profile 1996: South-East , <math>z = \zeta</math> (R\$ 65.07/month), <math>I = I_+</math>, <math>\theta=1.0</math></b>							
Household Characteristics	Subgroups	$f_k$	$\mu(y)_k$	$P_{0k}$	$P_{1k}$	$P_{2k}$	$s_k$
	Total	100.00	380.40	9.19	3.22	1.65	100.00
Location	Metropolitan Core	24.77	570.15	2.72	0.74	0.31	7.32
	Metropolitan Periphery	19.87	332.40	6.25	1.88	0.90	13.53
	Large Urban	18.39	445.55	3.81	1.11	0.50	7.61
	Medium Urban	15.52	340.06	6.31	2.05	0.97	10.67
	Small Urban	10.15	220.01	15.71	4.78	2.12	17.36
	Rural	11.29	142.23	35.39	14.64	8.25	43.51
Dependency Ratio*	1	12.01	751.36	0.05	0.01	0.00	0.06
	1<d=<1.5	17.20	487.84	0.28	0.05	0.02	0.52
	1.5 <d=<2	24.15	397.48	1.56	0.30	0.09	4.11
	2 <d=<3	20.68	280.06	8.61	1.87	0.59	19.37
	3 <d=<4	12.89	262.91	13.65	3.68	1.43	19.15
	d>4	11.19	153.78	35.18	14.21	7.59	42.87
	Other/Not Specified	1.88	67.26	68.17	36.34	24.72	13.93
Housing Status	Own House, Paid, with Own Land	61.72	400.82	8.32	2.89	1.46	55.88
	Own House, Paid without Own Land	3.95	244.95	15.89	5.53	2.88	6.82
	Own House, Still Paying	6.32	491.47	1.47	0.43	0.17	1.01
	Rent	15.21	430.65	4.23	0.99	0.37	7.00
	Ceded	11.95	209.87	21.55	8.36	4.55	28.02
	Other	0.72	185.82	14.45	5.07	2.71	1.13
	Not Specified	0.14	278.04	8.46	2.30	0.70	0.13
Water	Piped	94.21	397.50	6.87	2.16	1.02	70.49
	Not Piped	5.65	98.27	47.78	20.93	12.13	29.38
	Other/Not Specified	0.14	261.22	8.32	2.27	0.69	0.13
Sanitation	Sewerage System	67.16	457.13	3.72	1.01	0.42	27.22
	Concrete Cesspit 1	8.74	366.11	5.73	1.67	0.78	5.45
	Concrete Cesspit 2	5.49	231.25	15.03	4.79	2.32	8.98
	Rudimental Cesspit	9.20	171.04	24.34	8.99	4.69	24.37
	Drain	1.97	145.40	23.76	9.37	5.26	5.10
	River or Lake	4.33	167.15	21.36	8.07	4.29	10.08
	Other	0.21	191.93	24.63	6.42	2.27	0.58
	Not Specified	2.89	84.30	57.92	26.21	15.35	18.24
Electricity	Yes	97.38	388.47	7.88	2.57	1.24	83.52
	No	2.47	69.83	60.79	28.95	17.59	16.35

	Other/Not Specified	0.15	254.72	7.96	2.17	0.66	0.13
Waste Disposal	Collected Directly	77.40	436.42	3.82	1.05	0.45	32.19
	Collected Indirectly	6.47	318.59	10.51	3.42	1.59	7.40
	Burned	9.52	142.08	33.60	13.07	7.03	34.81
	Unused Plot of Land	4.98	121.50	35.12	13.68	7.66	19.04
	Other/Not Specified	1.63	148.09	37.02	15.78	8.91	6.56
Characteristics of the Head	Subgroups	$f_k$	$\mu(y)_k$	$P_{0k}$	$P_{1k}$	$P_{2k}$	$s_k$
Gender	Male	82.07	379.52	9.52	3.40	1.76	85.03
	Female	17.93	384.42	7.67	2.40	1.12	14.97
Race	Indigenous	0.08	352.74	0.00	0.00	0.00	0.00
	White	64.50	461.90	5.67	1.82	0.89	39.77
	Black	34.72	221.02	15.90	5.87	3.09	60.07
	Asian	0.69	786.03	1.85	0.41	0.14	0.14
	Not Specified	0.01	176.53	15.54	4.10	1.08	0.02
Age	0-24	3.32	261.10	9.91	3.36	1.67	3.58
	25 to 44 Years	48.12	353.73	10.95	3.89	2.00	57.33
	45 to 64 Years	37.38	408.30	7.97	2.84	1.47	32.41
	>65 Years	11.19	437.22	5.48	1.55	0.71	6.68
Education	0- 1 Years	14.07	164.41	21.22	8.17	4.29	32.49
	1 to 4 Years	17.75	204.11	15.87	6.03	3.32	30.66
	4 to 8 Years	34.68	279.33	8.01	2.36	1.08	30.23
	8 to 12 Years	23.67	452.63	2.47	0.74	0.33	6.36
	> 12 Years	9.83	1190.20	0.24	0.06	0.02	0.25
Immigration Status	Not Immigrant	37.85	387.77	12.35	4.65	2.47	50.88
	0 to 5 Years	7.07	355.25	10.38	3.65	1.93	8.00
	6 to 9 Years	3.82	358.08	8.79	2.90	1.33	3.65
	More Than 10 Years	28.71	376.50	7.17	2.26	1.09	22.39
	Other/Not Specified	22.56	384.65	6.15	1.96	0.94	15.09
Labour Status	Inactive	19.50	363.40	8.01	2.62	1.30	16.99
	Unemployed	3.05	168.35	31.15	12.36	6.85	10.35
	Formal Employees	30.85	347.66	5.20	1.36	0.54	17.45
	Informal Employees	11.80	240.06	18.58	6.84	3.55	23.85
	Self-Employed	20.36	381.29	10.07	3.98	2.21	22.32
	Employer	5.13	911.59	1.93	0.67	0.32	1.07
	Public Servant	7.74	524.30	4.86	1.37	0.56	4.10
	Unpaid	1.56	247.19	22.27	9.58	5.38	3.77
	Other/Not Specified	0.02	131.96	43.08	19.77	15.80	0.09
Employment Tenure	0 Years	22.55	336.99	11.14	3.94	2.05	27.35
	1 Years or More	13.50	286.69	10.10	3.21	1.47	14.84
	1 to 3 Years	16.09	328.05	8.76	2.74	1.23	15.34
	3 to 5 Years	8.41	384.36	6.75	2.07	0.97	6.18

	> 5 Years	39.12	459.83	8.38	3.23	1.78	35.68
	Other/Not Specified	0.34	216.02	17.05	5.97	3.21	0.62
Sector of Occupation	Agriculture#	11.37	165.30	33.63	13.66	7.56	41.63
	Manufacturing	14.42	402.86	3.82	1.03	0.41	5.99
	Construction	8.73	247.28	7.98	2.21	0.97	7.58
	Services	35.25	464.17	3.76	1.01	0.42	14.44
	Public Sector	7.68	551.09	3.61	1.02	0.41	3.01
	Other/Not Specified	22.55	336.99	11.14	3.94	2.05	27.35

Notes:  $s_k = \frac{f_k P_{ok}}{P_0}$ . Dependency ratio is defined as the number of household members over the number of earners in the household. # Agriculture includes other Primary Sector occupations.

<b>Table A9: Poverty Profile 1996: South , z = <math>\zeta</math> (R\$ 65.07/month), I = I., <math>\theta=1.0</math></b>							
Household Characteristics	Subgroups	$f_k$	$\mu(y)_k$	$P_{0k}$	$P_{1k}$	$P_{2k}$	$s_k$
	Total	100.00	325.91	12.08	4.45	2.33	100.00
Location	Metropolitan Core	11.04	616.42	3.58	1.10	0.52	3.28
	Metropolitan Periphery	11.42	292.34	5.93	1.85	0.85	5.61
	Large Urban	17.89	443.09	4.76	1.51	0.69	7.05
	Medium Urban	19.44	331.07	9.99	3.30	1.61	16.08
	Small Urban	17.84	255.35	10.41	3.15	1.41	15.37
	Rural	22.38	157.83	28.40	11.83	6.65	52.61
Dependency Ratio*	1	12.56	632.95	0.10	0.01	0.00	0.10
	1 < d = < 1.5	17.07	407.06	0.69	0.09	0.02	0.98
	1.5 < d = < 2	24.00	355.72	2.13	0.50	0.16	4.23
	2 < d = < 3	20.44	241.63	10.81	2.25	0.76	18.30
	3 < d = < 4	12.54	207.13	21.65	6.34	2.65	22.49
	d > 4	11.97	130.75	44.38	19.13	10.27	44.00
	Other/Not Specified	1.41	37.58	84.55	54.53	40.31	9.90
Housing Status	Own House, Paid, with Own Land	62.95	337.48	10.20	3.74	1.96	53.15
	Own House, Paid without Own Land	6.06	159.53	29.25	11.97	6.44	14.67
	Own House, Still Paying	8.12	457.74	6.82	1.79	0.73	4.58
	Rent	11.43	397.55	4.49	1.33	0.56	4.25
	Ceded	10.99	181.77	24.46	9.22	4.95	22.26
	Other	0.33	224.22	31.76	14.33	9.33	0.86
	Not Specified	0.12	393.81	23.39	12.66	8.89	0.23
Water	Piped	93.37	342.61	9.18	3.07	1.48	70.96
	Not Piped	6.53	86.25	53.25	24.12	14.39	28.80
	Other/Not Specified	0.10	396.18	27.84	15.07	10.59	0.23
Sanitation	Sewerage System	13.05	591.30	2.58	0.66	0.26	2.79
	Concrete Cesspit 1	28.16	440.27	3.06	0.81	0.35	7.14
	Concrete Cesspit 2	23.73	284.25	7.89	2.67	1.37	15.50
	Rudimental Cesspit	27.28	176.22	21.80	7.77	3.92	49.24
	Drain	1.50	135.45	28.95	11.81	6.36	3.60
	River or Lake	1.69	179.70	16.80	6.54	3.04	2.35
	Other	0.11	138.49	26.90	13.83	9.71	0.25
	Not Specified	4.47	89.18	51.65	24.19	14.50	19.13
Electricity	Yes	96.55	334.64	10.27	3.57	1.80	82.09
	No	3.31	68.61	64.53	29.82	17.55	17.69

	Other/Not Specified	0.14	387.71	19.77	10.71	7.52	0.23
Waste Disposal	Collected Directly	71.64	381.23	6.33	1.98	0.91	37.55
	Collected Indirectly	5.83	343.79	10.58	3.44	1.66	5.11
	Burned	18.58	149.45	28.79	11.53	6.34	44.30
	Unused Plot of Land	2.65	112.10	42.96	17.89	9.57	9.41
	Other/Not Specified	1.31	155.61	33.57	16.87	11.48	3.63
Characteristics of the Head	Subgroups	$f_k$	$\mu(y)_k$	$P_{0k}$	$P_{1k}$	$P_{2k}$	$s_k$
Gender	Male	85.45	320.42	12.72	4.77	2.51	89.97
	Female	14.55	358.19	8.33	2.62	1.26	10.03
Race	Indigenous	0.16	201.61	34.56	12.91	5.61	0.44
	White	84.43	351.47	10.31	3.75	1.97	72.06
	Black	14.97	172.71	22.19	8.44	4.37	27.50
	Asian	0.43	687.24	0.00	0.00	0.00	0.00
	Not Specified	0.01	128.91	0.00	0.00	0.00	0.00
Age	0-24	4.15	237.05	15.67	5.29	2.52	5.39
	25 to 44 Years	51.60	302.31	13.94	5.39	2.92	59.57
	45 to 64 Years	34.41	362.34	10.42	3.77	1.96	29.69
	>65 Years	9.84	359.80	6.57	1.57	0.49	5.35
Education	0- 1 Years	11.99	141.64	25.39	9.12	4.51	25.20
	1 to 4 Years	19.68	187.25	18.76	7.21	3.98	30.57
	4 to 8 Years	38.74	231.21	12.13	4.44	2.31	38.90
	8 to 12 Years	21.62	438.97	2.92	1.00	0.51	5.22
	> 12 Years	7.97	1098.94	0.16	0.07	0.03	0.11
Immigration Status	Not Immigrant	37.90	310.33	14.63	5.65	3.02	45.91
	0 to 5 Years	10.30	285.76	12.83	4.60	2.28	10.95
	6 to 9 Years	6.15	289.51	12.47	4.37	2.16	6.35
	More Than 10 Years	36.16	341.10	9.91	3.55	1.86	29.68
	Other/Not Specified	9.49	397.41	9.06	3.01	1.53	7.12
Labour Status	Inactive	14.31	336.66	9.70	3.40	1.73	11.49
	Unemployed	2.58	139.45	41.64	18.08	10.69	8.90
	Formal Employees	26.58	289.88	6.98	1.85	0.70	15.36
	Informal Employees	10.60	201.63	17.74	6.24	3.18	15.58
	Self-Employed	29.59	280.02	16.60	6.69	3.63	40.65
	Employer	5.66	833.73	1.74	0.32	0.12	0.81
	Public Servant	8.22	497.15	3.44	0.90	0.35	2.34
	Unpaid	2.26	201.87	19.49	7.90	4.64	3.65
	Other/Not Specified	0.20	128.62	73.84	47.87	35.61	1.21
Employment Tenure	0 Years	16.90	306.52	14.58	5.64	3.10	20.39
	1 Years or More	12.45	239.34	13.48	4.37	2.05	13.90
	1 to 3 Years	15.70	282.57	10.47	3.38	1.60	13.61
	3 to 5 Years	9.01	333.37	11.50	3.76	1.77	8.58

	> 5 Years	45.55	371.93	11.35	4.51	2.47	42.81
	Other/Not Specified	0.39	132.04	21.57	8.31	4.29	0.71
Sector of Occupation	Agriculture#	21.08	173.07	28.76	11.67	6.51	50.19
	Manufacturing	14.83	321.82	6.40	1.81	0.75	7.86
	Construction	8.34	226.15	8.61	2.82	1.28	5.95
	Services	30.41	422.85	5.07	1.48	0.60	12.76
	Public Sector	8.44	502.99	4.06	1.03	0.38	2.84
	Other/Not Specified	16.90	306.52	14.58	5.64	3.10	20.39

Notes:  $s_k = \frac{f_k P_{ok}}{P_0}$ . Dependency ratio is defined as the number of household members over the number of earners in the household. # Agriculture includes other Primary Sector occupations.

<b>Table A10: Poverty Profile 1996: Center-West , <math>z = \zeta</math> (R\$ 65.07/month), <math>I = I_+</math>, <math>\theta=1.0</math></b>								
Household Characteristics	Subgroups	$f_k$	$\mu(y)_k$	$P_{0k}$	$P_{1k}$	$P_{2k}$	$s_k$	
	Total	100.00	282.75	16.63	5.90	3.08	100.00	
Location	Metropolitan Core	14.41	484.51	5.71	1.68	0.70	4.94	
	Large Urban	31.46	347.48	7.80	2.51	1.22	14.75	
	Medium Urban	15.20	229.85	14.33	4.75	2.38	13.09	
	Small Urban	19.91	194.76	20.60	7.32	3.89	24.66	
	Rural	19.02	157.23	37.22	14.14	7.68	42.56	
Dependency Ratio*	1	9.09	583.13	0.07	0.01	0.00	0.04	
	1<d=<1.5	13.89	381.24	0.42	0.04	0.01	0.35	
	1.5 <d=<2	23.21	335.60	2.89	0.52	0.17	4.03	
	2 <d=<3	22.96	232.11	15.48	3.07	0.89	21.37	
	3 <d=<4	14.48	185.90	25.77	7.16	2.71	22.42	
	d>4	13.72	129.70	45.79	17.71	8.97	37.75	
	Other/Not Specified	2.65	33.42	87.93	60.35	45.81	14.03	
Housing Status	Own House, Paid, with Own Land	59.68	279.77	17.10	6.25	3.32	61.36	
	Own House, Paid without Own Land	1.33	252.36	28.73	14.72	9.81	2.29	
	Own House, Still Paying	8.19	465.23	2.98	0.55	0.15	1.47	
	Rent	14.33	332.57	8.95	2.62	1.21	7.71	
	Ceded	15.69	163.40	26.97	9.06	4.44	25.44	
	Other	0.52	136.56	27.73	10.82	6.56	0.87	
	Not Specified	0.26	117.51	55.56	29.49	21.52	0.86	
	Water	Piped	84.18	317.23	11.15	3.42	1.63	56.42
		Not Piped	15.56	98.99	45.65	18.94	10.60	42.72
		Other/Not Specified	0.26	117.51	55.56	29.49	21.52	0.86
Sanitation	Sewerage System	27.58	482.18	4.18	1.18	0.49	6.93	
	Concrete Cesspit 1	4.12	433.76	3.05	0.70	0.22	0.76	
	Concrete Cesspit 2	7.34	258.49	16.94	4.49	1.76	7.47	
	Rudimental Cesspit	52.41	199.94	18.78	6.34	3.20	59.17	
	Drain	1.42	84.82	43.12	16.87	9.56	3.69	
	River or Lake	0.86	182.03	25.20	6.35	3.18	1.31	
	Other	0.21	119.24	24.37	10.36	6.46	0.30	
	Not Specified	6.06	84.24	55.95	26.02	15.73	20.37	
Electricity	Yes	92.99	297.91	13.26	4.30	2.12	74.12	
	No	6.75	80.22	61.62	27.02	15.61	25.02	
	Other/Not Specified	0.26	117.51	55.56	29.49	21.52	0.86	

Waste Disposal	Collected Directly	69.88	328.29	9.29	3.00	1.46	39.03
	Collected Indirectly	5.50	398.84	13.32	4.57	2.66	4.40
	Burned	17.61	130.16	38.36	14.20	7.63	40.60
	Unused Plot of Land	6.25	120.58	37.39	14.51	7.70	14.05
	Other/Not Specified	0.76	124.04	41.65	18.73	11.69	1.91
Characteristics of the Head	Subgroups	$f_k$	$\mu(y)_k$	$P_{0k}$	$P_{1k}$	$P_{2k}$	$s_k$
Gender	Male	82.35	281.74	17.22	6.17	3.25	85.26
	Female	17.65	287.44	13.89	4.65	2.31	14.74
Race	Indigenous	0.52	81.44	58.49	33.31	26.09	1.81
	White	45.92	378.65	10.65	3.22	1.56	29.40
	Black	52.91	199.40	21.56	8.01	4.21	68.59
	Asian	0.66	450.15	5.06	1.21	0.40	0.20
Age	0-24	5.62	190.19	18.87	6.20	3.08	6.37
	25 to 44 Years	55.17	261.00	17.82	6.39	3.34	59.11
	45 to 64 Years	32.13	323.97	15.10	5.49	2.95	29.17
	>65 Years	7.08	338.55	12.57	3.64	1.69	5.35
Education	0- 1 Years	18.80	130.81	29.55	11.16	6.18	33.40
	1 to 4 Years	20.16	152.34	26.13	9.42	4.92	31.67
	4 to 8 Years	30.40	206.44	15.17	5.00	2.46	27.73
	8 to 12 Years	22.96	372.76	5.21	1.67	0.77	7.20
	> 12 Years	7.68	1030.28	0.00	0.00	0.00	0.00
Immigration Status	Not Immigrant	20.35	229.83	21.55	7.34	3.78	26.36
	0 to 5 Years	9.51	231.21	19.84	7.37	4.06	11.34
	6 to 9 Years	4.82	234.96	18.37	6.55	3.37	5.32
	More Than 10 Years	22.70	269.43	15.27	5.22	2.64	20.83
	Other/Not Specified	42.62	332.01	14.11	5.17	2.73	36.15
Labour Status	Inactive	14.05	264.40	18.77	7.29	4.00	15.86
	Unemployed	3.65	98.62	50.17	25.20	15.83	11.02
	Formal Employees	19.45	233.55	10.22	2.15	0.73	11.95
	Informal Employees	18.72	152.53	23.76	6.81	2.77	26.73
	Self-Employed	23.64	250.88	17.32	6.36	3.23	24.61
	Employer	5.55	861.25	1.99	0.75	0.35	0.66
	Public Servant	12.86	452.75	4.31	0.97	0.34	3.33
	Unpaid	2.08	130.61	46.69	28.51	21.80	5.83
Employment Tenure	0 Years	17.71	230.20	25.25	10.98	6.44	26.88
	1 Years or More	15.84	195.83	18.05	5.16	2.40	17.19
	1 to 3 Years	16.28	252.10	15.09	4.59	2.26	14.76
	3 to 5 Years	10.11	282.11	15.29	5.02	2.35	9.29



	> 5 Years	39.58	355.04	12.94	4.55	2.29	30.79
	Other/Not Specified	0.49	184.07	36.52	16.78	10.00	1.08
Sector of Occupation	Agriculture#	21.33	185.92	33.91	12.59	6.73	43.47
	Manufacturing	7.40	241.95	11.99	2.76	0.97	5.33
	Construction	8.48	208.35	10.84	2.60	1.03	5.52
	Services	33.82	336.18	7.47	2.05	0.85	15.19
	Public Sector	11.27	471.00	5.32	1.35	0.51	3.60
	Other/Not Specified	17.71	230.20	25.25	10.98	6.44	26.88

Notes:  $s_k = \frac{f_k P_{ok}}{P_0}$ . Dependency ratio is defined as the number of household members over the number of earners in the household. # Agriculture includes other Primary Sector occupations.

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