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ESTIMATING THE IMPACT OF INCOME AND PRICE CHANGES ON CONSUMPTION IN BRAZIL

Abstract

A set of commodity demand functions are estimated with a very rich, multi-purpose Brazlian budget survey, "Estudo Nacional da Despesa Familiar" (ENDEF), which covered over 53,000 households. Particular attention is paid to demand for foods. Since income responses are not linear, a generalized form of the Almost Ideal Demand System is adopted; household per capita expenditure is used as a measure of resource availability and we take account of both endogeneity and measurement error. All expenditure elasticities are significantly different from zero and greater than unity for meat, dairy products and most non-foods. Since the survey reports both expenditures and quantities, regional price indices are constructed, paying special attention to problems of measurement error and quality variation within price aggregates. Own price elasticities are negative for all but two of the twenty commodities; for many foods, price elasticities are large and, in all cases, they are significant. The empirical specification permits considerable flexibility in the effect of demographic structure on demand as well as heterogeniety of preferences as reflected in household characteristics such as levels of education. Dairy products and eggs are consumed in larger proportions in households with more infants whereas the consumption of prime age males is intensive in rice and beans.

1. Introduction

An important goal of research by an agricultural agency such as EMBRAPA is the development and dissemination of technology which leads to improved yields and output by farmers. Farmers adopting these practices should generate higher incomes -- which will presumably have spillover effects into the rest of the economy. As supply changes, so prices are also likely to change which will affect all households in the economy.

Knowledge about consumer demand patterns should, therefore, be a factor in the development of a research agenda for agencies like EMBRAPA. Firstly, it is necessary to know about current demand patterns -- and how they are likely to change as incomes or prices change -- in order to make informed projections about future demand. Secondly, from a public policy point of view, it is important to determine the distributional consequences of different policies by identifying those households which are likely to gain or lose from, for example, a particular price change.

As a first step, one might examine how much is spent on a set of commodities, both in aggregate and distinguishing households by welfare level. Typically income (or expenditure) is used as a measure of welfare although one might also wish to distinguish different household compositions. In order to make predictions about the effect of policy interventions, one needs to know the price and income elasticities of demand for commodities.

The theory and measurement of consumer behavior are quite closely integrated -- and we shall draw extensively on this literature; a brief review is in Section 2. In any particular application, however, there are a number of practical issues which need to be faced when implementing the theory. These are discussed in Section 3. In this paper we use data from a large scale

household expenditure survey conducted in Brazil in 1974/5. Section 4 describes the data and results. After presenting summary statistics of household expenditures and budget shares, distinguishing regions and income classes, we report estimates of income and price elasticities together with the impact of changes in household composition on expenditure patterns.

2. Methodology

Modern consumer demand theory posits that a household chooses its consumption bundle so that it achieves the maximum possible utility given the resources it has at hand. The choice problem may equally be cast as choosing the least cost bundle of commodities which achieves some pre-specified level of satisfaction (or utility). (Diewert, 1974, 1978). In contrast with the more traditional problem of constrained maximization of a utility function, the 'duality approach' involves only the minimization of a cost problem and, therefore, it is straightforward to move between demands and the cost function. Since theory puts restrictions on the objective function (utility function or cost function), this link between demands and the cost function turns out to be very useful in applied work[1]. For an excellent discussion see Deaton and Muellbauer, (1980).

The derivatives of the cost function generate demands -- conditional on the level of utility achieved; they are Hicksian or compensated demands. In practice, as prices and incomes change, households are not compensated to ensure

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[1]Of particular importance is the problem of integrability. Restrictions in consumer demand theory are typically placed on preferences -- but it is a non-trivial exercise to move from Marshallian demands back to preferences. In contrast, moving from Hicksian demands to preferences involves only the solution of an integration problem.

their welfare is unchanged. Instead, Marshallian demands with income held constant are observed. It is, however, very simple to move from Hicksian to Marshallian demands so that estimation of one is sufficient to recover the parameters of the other.

In theory, there are a number of restrictions demands might be expected to satisfy. At a minimum, the sum of expenditure on each commodity should equal total expenditure: demands should "add up". If all prices and incomes double, then (relative) demand patterns should be unchanged in which case households are said to not suffer from "money illusion" and the demands are homogeneous. If an increase in the price of rice is associated with a decrease in the demand for beans, then an increase in the price of beans should be associated with a decrease in the demand for rice. More formally, holding utility constant, we expect the effect on demand for good i of a change in the price of good j will equal the effect on demand for good j of an equal change in the price of i. This simply means the derivatives of Hicksian demands are symmetric. Of course, holding utility constant, an increase in the price of rice would be associated with a decline in demand for rice; Hicksian demands must be downward sloping. If income effects are sufficiently large, however, it is possible (although unlikely) that Marshallian demands would be upward sloping. Clearly, given the derivatives of Hicksian demands, the Slutsky substitution matrix, it is very easy to test (or impose) homogeneity, symmetry and negativity of demands.

Although this model of consumer behavior is very powerful -- it is not without some strong assumptions. The model is static and presumably should be interpreted in the context of choosing consumption bundles over the entire life cycle in which case there is no role for liquidity constraints. In the absence

of information on the present discounted value of household lifetime wealth, it is not possible to empirically implement this model.

It is clearly necessary to make additional assumptions. Firstly, we might assume that utility obtained from consumption in a particular time period is (weakly) separable from utility in any other period. Intuitively, we assume that each household makes its lifetime resource allocations but that consumption in another period affects current consumption only through income effects. In this case, period specific consumption and life-time income would enter the demand function; we assume that current income (or some transformation of it) is a good measure of life-time wealth. For a discussion and application see Blundell and Walker, (1978), Browning and Meghir (1988). Separability is not an innocuous assumption; for example, estimation of a sub-demand system, such as a food demand system, imposes the restriction that changes in the composition of non-food demands should affect the composition of food demands only through an income effect on the demand for food in aggregate.

The theory described above also assumes there is a well-defined household utility function (or single budget constraint). In order for this to be true, there must either be a single decision-maker (in which case we can invoke a Bergson-Samuelson welfare function) or no heterogeneity in preferences among household members. In this paper, we shall assume homogeneity of preferences, but see McElroy (1989) and Chiappori (1988) for a discussion of an alternative approach.

3. Empirical implementation

One of the distinguishing features of research into consumer demand is the extent to which the underlying theory has been applied to data. For example, in the early days of estimating demand systems, the most important concerns arose from data limitations and computational constraints. The Linear Expenditure System (LES) proposed by Stone (1954) specified a logarithmic demand function, assumed zero cross-price elasticities for some pairs of goods and imposed symmetry and homogeneity on the demand system; he was able, therefore, to reduce the parameters to be estimated to a manageable number.

Rather than imposing restrictions on the data, an alternative approach has been to test the theory of consumer demand. (See, for example, Theil (1965), Barten (1967, 1969), Deaton (1974)). It turns out that imposing symmetry (at least conditional on homogeneity) seldom violates the data; homogeneity, however, is almost universally rejected. Of course, in any of these tests, the researcher must maintain that the assumed structure of the estimated model is correct; theory, however, provides little guidance in the actual functional form of the demand system and so it is not clear whether the theory is being rejected or whether the additional maintained assumptions are causing the rejection.

In part, as a consequence of these results, researchers have turned to identifying functional forms which are flexible in the sense they may approximate arbitrarily well an unknown underlying utility or cost function locally (Diewert, 1971; Christensen, Jorgenson and Lau, 1975) or globally (Gallant, 1981; Barnett and Lee, 1985;). To begin, consider the relation between demand for a good, x_i, and total income (or expenditure), x. A simple functional form might be:

$$\ell n x_i = \beta_{0i} + \beta_{1i} \ell n x + \varepsilon_i$$

where ℓn denotes natural logarithm. In order for "adding up" to be satisfied, all households must buy every commodity, a restriction which is likely to be violated by data. To avoid this problem, ℓnx_i might be replaced with the level of expenditure, x_i. If we are concerned with the fit of the regression over the entire income distribution, then these functional forms seldom perform well in practice -- even with a quadratic term in (log) total expenditure -- as they are not sufficiently flexible to pick up subtle non-linearities.

Working (1940) and Leser (1953) proposed an Engel curve which is widely used, simple, can be derived from theory and performs quite well in practice with aggregated commodities. It relates the share of expenditure on a good, w_i, to the logarithm of expenditure:

$$w_i = \beta_{0i} + \beta_{1i}\ell nx + \varepsilon_i$$

It appears to be quite flexible and permits, for example, the expenditure elasticity of demand to be a function of both total expenditure and expenditure on good i:

$$\eta_i = 1 + (\beta_{1i}/w_i)$$

The marginal propensity to consume, MPC_i, is $\eta_i w_i = \beta_{1i} + w_i$; clearly $sign(\partial MPC_i/\partial x) = sign(\partial w_i/\partial x) = sign(\eta_i - 1)$. This implies that luxuries ($\eta > 1$) must have increasing marginal propensities to consume; in contrast, for goods with expenditure elasticities less than one, the MPC declines with expenditure. This is a restrictive implication -- especially when considering disaggregated

commodity demands -- and is certainly not one we would wish to impose on the data.

A natural generalization would be to add a quadratic term in log(expenditure)

$$w_i = \beta_{0i} + \beta_{1i}\ell nx + \beta_{2i}\ell nx^2 + \varepsilon_i \qquad [1]$$

in which case the elasticity is:

$$\eta_i = 1 + ([\beta_{1i} + 2\beta_{2i}\ell nx] \; / \; w_i) \qquad [2]$$

which clearly permits a good deal more flexibility than the Working-Leser functional form. It may be a good idea to add higher order polynomials in ℓnx to [1] although it turns out that a share-quadratic form is the most general form a polynomial may take in order to be consistent with consumer demand theory without imposing restrictions on the parameters, β, (Gorman, 1981). We refer to the share-quadratic specification as the Gorman-Working-Leser Engel curve. Interestingly, Gorman also points out that particular forms of series expansions which are very similar to the Fourier Flexible Form (Gallant, 1981), are also very flexible and consistent with the theory.

We turn next to the addition of prices. Following Binswanger and Swamy, (1983), we choose to let (log) prices, ℓnp_j, enter each demand function linearly and also through a generalized price index, $\mathcal{P}$:

$$w_i = \beta_{0i} + \beta_{1i}\ell n(x/\mathcal{P}) + \beta_{2i}[\ell n(x/\mathcal{P})]^2 + \Sigma_j\gamma_{ij}\ell np_j + \varepsilon_i \qquad [3]$$

which is the natural quadratic generalization of the Almost Ideal Demand System of Deaton and Muellbauer (1980). It may be interpreted as a linear approximation to a more complicated set of price and income interactions (Gorman, 1981). The linear approximation has practical merit; it is typically the case that there is a considerable amount of collinearity in price series and so allowing more flexibility in price responses may extract a high cost in terms of reducing the number of prices which might be used. The problem may be ameliorated by imposing homogeneity and symmetry on the demand system, although this then precludes testing the theory.

Thirdly, it is almost certainly the case that household composition has an impact on the allocation of expenditures. It seems prudent, therefore, to include demographic structure as determining variables in a demand system. Of course, in the long run (say over the life-cycle), household composition is jointly determined with expenditure patterns and so is correctly treated as endogenous. The approach taken here has a shorter time horizon and we assume composition is fixed.

At the most primitive level, we would want to control for household size; it is well known that there is a positive correlation between total expenditure and family size. As a first step, one might replace real total expenditure in [3] with real <u>per capita</u> expenditure, $x^*=x/\mathcal{P}n$. The effect on the share of the budget spent on good i of an additional member in the household would, however, be constrained to be proportional to $(\eta_i-1)w_i$. We therefore include, in addition, the logarithm of household size, ℓnn. If all household members are identical, then this should be a satisfactory model of demographic effects on demand. Of course, all members are not identical and so we also include the

ratio of the number of household members, n_d, in each of eight demographic groups to total household size:

$$w_i = \beta_{0i} + \beta_{1i}\ell n(x^*) + \beta_{2i}[\ell n(x^*)]^2 + \sum_j \gamma_{ij}\ell np_j + \delta_i \ell nn + \sum_d \delta_{id}(n_d/n) + \varepsilon_i \quad [4]$$

This might also be viewed as a linear approximation to a more general function in which we ignore higher order terms. Since the impact of changing household composition is quite complicated, we shall report the elasticities:

$$\pi_{id} = (\partial x_i/\partial n_d)/(\partial x_i/\partial x) \cdot (n/x) \quad [5]$$

This is the effect of an additional person in demographic category d on the demand for good i relative to the change in expenditure that would have resulted in the same change in demand. Intuitively if one member of group d is added to a household then this is the amount of additional expenditure the household would need in order to leave the amount spent on good i unchanged. This effect is then standardized by per capita expenditure to turn it into an elasticity. Deaton et al., (1989) called these 'outlay equivalent ratios'. If the impact on demand for good i is the same for each household member, then these ratios will be equal; a comparison of them across goods and demographic groups will identify those goods which are consumed relatively more by particular household members.

Finally, we augment [4] with a set of additional controls, z:

$$w_i = \beta_{0i} + \beta_{1i}\ell n(x^*) + \beta_{2i}[\ell n(x^*)]^2 + \sum_j \gamma_{ij}\ell np_j + \delta_i \ell nn + \sum_d \delta_{id}(n_d/n) + \phi_i z + \varepsilon_i \quad [6]$$

In order to permit heterogeneity of preferences across households and also heterogeneity of efficiency in household production functions, these controls include the education of the head and spouse, whether the head is male and whether a spouse exists. During the survey period, inflation was about 30% per annum and so all prices and incomes have been deflated by a municipio specific index based on exogenous data collected by IBGE.

In a complete demand system, including the demand for leisure, the vector of prices will include wages and income would exclude all labor income. Non-labor income is, however, hard to measure accurately and is unlikely to be a good proxy for lifetime wealth (or permanent consumption). Insofar as shocks to income are smoothed, a better observable proxy would be current expenditure. Since current expenditure is the sum of expenditure on all goods, adding up is automatically satisfied. It is difficult, however, to justify treating current expenditure as an exogenous regressor; a fortiori when considering commodities like food which account for a large proportion of the budget. The expenditure terms should, therefore, be instrumented to purge the estimated income effects of simultaneity bias. Appropriate identifying instruments may be polynomials of non-labor income.

In many budget surveys, expenditure information is collected on a recall basis; since the purchase frequency of goods varies, typically the recall period ranges from a week (for most foods), to a month (for goods like clothing) to three months and a year (for infrequent purchases like durables). Each household

may report zero expenditure on a good for at least two reasons; either the household does not consume the commodity or the commodity is consumed but was not purchased during the recall period.

Modelling zero purchases is not a trivial task; (see Deaton (1986) for a discussion). In the first place, it is necessary to model the fact that zeroes may arise either because of purchase infrequency or because the good is never consumed; one might employ, for example, a double-hurdle model (Cragg, 1971) in which non-zero expenditures are observed if and only if the household makes it over both hurdles (Deaton and Irish, 1984).

The second issue is more problematic. From a theoretical point of view, as income (or prices) vary and goods enter (or exit) the household's consumption bundle, then the budget constraint changes. An appropriate model in this case may be an endogenously switching regression with as many regimes as there are possible commodity combinations. With more than a very small number of goods, this is intractable with current technology. (See Wales and Woodland, 1983, Lee and Pitt, 1986).

One strategy would be to consider only those households who report non-zero expenditures on a commodity; estimates based on this self-selected sample would, however, suffer from selectivity bias (Heckman, 1977). Alternatively, one may include in the model only those goods purchased by all (or at least most) households. This would preclude modelling items such as alcohol and tobacco. More importantly, perhaps, it would also preclude disaggregation to commodities of particular interest such as milk or beef. The choice of appropriate disaggregation is clearly an empirical issue; the data analyst needs to weigh interest in particular commodities against the problem of frequently observed zero expenditures.

4. Data

The Estudo Nacional da Despesa Familiar, ENDEF, is a large scale household budget survey carried out by the Instituto Brasileiro de Geografia e Estatistica from August 1974 through August 1975. Over 53 000 households were included in a very comprehensive survey which, in addition to household expenditures, gathered information on food consumption, labor supply and income, demographic composition of the household, a limited fertility history of fecund women and anthropometric indicators for all household members. This is a rich data source which may be applied to suggest answers to many important policy questions. In this paper, we shall focus on household expenditure patterns -- and in particular focus on how the composition of the family budget changes as income, prices and family composition change.

Tabulations of the national data have been used to estimate price and income elasticities by Disch (1983) and Williamson-Gray (1982). Calegar and Schuh (1988) used data from the Center-West region to investigate the effects of wheat policy.

The sample size of 53,000 households is much larger than necessary to obtain precise estimates; we have, therefore, split the sample into thirds. The first third has been used for exploratory purposes: we experimented with the functional form of the demand function, the level of price and demographic aggregation and the instruments for per capita expenditure. Based on these results, we chose our specification and proceeded to estimate it using the second third: all results presented below are from this sample. The advantage of this strategy is that statistical tests based on the second third do not need to be adjusted because of prior exploratory analysis.

Means and standard deviations of household characteristics are presented in Table 4.1, stratifying on the level of urbanization; about 76 percent of households live in urban areas. Both per capita expenditure (PCE) and income are higher in urban areas; mean per capita expenditure in urban areas is almost three times bigger than in rural areas. And mean per capita income in rural areas is only 28 percent of the mean for all Brazil.

Household size, on the other hand, declines with the level of urbanization, and most of this differential is explained by there being more children in the average rural household. As long as children do not "cost" as much as adults, it will be important to model demographic composition effects when estimating a demand system.

Female headed households are less common in rural areas, where education levels of the household head are considerably lower than in urban areas. Elementary school has been completed by only 6 percent of rural household heads and 23 percent of urban heads. More than half (52 percent) of the rural household heads are illiterate while less than one-fifth of the urban household heads are in the same situation.

The proportion of household heads who have a spouse is bigger in rural areas. Illiteracy is 10 percent higher for spouses than for the household head, and this differential is larger in urban households.

(a) Expenditure shares and per capita expenditure

Table 4.2 presents, for a variety of foods and non-foods, mean budget shares, their standard deviations and the proportion of households consuming the commodity.

Our choice of aggregates is governed by interest in particular agricultural commodities while being cognizant of the zero-expenditure problem discussed above. Since we are concerned about the sensitivity of our results to the zeroes problem, several commodities are presented both in aggregate (vegetables) and as disaggregates (tomatoes).

Clearly food shares decline with the level of urbanization and almost all of this decline is accounted for by the increases in the average share of the budget allocated to housing, fuel and transport. On average, urban households allocate 41.5 percent of their budget to food, almost one-third (28.5 percent) to housing, fuel and transport, and the rest to the other goods. In contrast, the average rural household spends almost two-thirds (61.7 percent) of their budget on foods and about 14.2 percent on household, fuel and transport. The food share is lowest among households in the urban South and slightly higher in the other urban areas (Table 4.3). Rural households spend a bigger proportion of their budget on food, especially in the Northeast where food accounts for almost two thirds of total expenditure. Given the sectoral distribution of PCE, this is consistent with the quite dramatic declines in food shares as per capita expenditure increases (Table 4.4). As total PCE rises, so does the amount spent on food (Table 4.5) reflecting substitution into higher priced and higher quality foods as well as (or instead of) purchasing larger quantities.

Cereals and meats account for the largest food budget shares at roughly 10 percent each. Dairy products, oils and fats, vegetables, tubers, beans and sugar all fall between 2 and 4 percent of the budget, while fruit and fish are under 2 percent. Of these aggregates fish has a significant number of households who do not consume any, as does fruits in rural areas.

Almost every household reports at least some expenditure on cereals. The shares of cereals in general, rice and corn in particular, decline with the level of urbanization, while the shares of bread and wheat are larger in urban areas. The average rural household spends 7.4 percent on rice and 80 percent of the rural households consume rice. In contrast, only around 4 percent of the average urban budget goes to rice, but 91 percent of urban households consume it. Regionally rice has larger shares in the South and Center-West while being smaller in the North. As per capita expenditure increases, proportionally more households consume rice, allocate a smaller budget share to it, but increase their per capita expenditure.

Relative to the average rural household, the share of bread among urban households is almost three times as much, and the proportion of rural households that consume bread is also less than for urban households. For wheat, which includes bread, the differences between the average budget shares and the proportion of households consuming is small across the two sectors. Regional differences are also small. As per capita expenditures increase in rural areas, the wheat share increases until median PCE and then decreases, whereas in urban areas the share decreases monotonically. Per capita expenditure on wheat increases with total per capita expenditure as does the proportion of households consuming it.

There is little direct consumption of corn, which includes corn meal. The proportion of households consuming corn is a little larger in rural areas but the difference in average shares is substantial (2.3 percent in rural areas and 0.41 percent in urban areas). Urban households spend less, both in absolute and relative terms, on corn as per capita expenditure increases. Rural households

spend relatively less as per capita expenditure increases and absolutely less at the upper quartile.

The proportion of households reporting some expenditure on tubers is similar to rice in urban areas, but larger in rural areas. Tuber consumption is concentrated in the North and Northeast. Its budget share declines dramatically with the level of urbanization and with the level of per capita expenditure. Absolute expenditure on tubers increases some as per capita expenditure increases, as increasing expenditures on potatoes offset decreasing expenditures on manioc. The relative importance of manioc, as compared to potatoes, is much greater in rural areas and in the North and Northeast. Manioc shares for rural households are 3.3 times bigger than for urban households, while the potato shares are quite similar.

Sugar is bought by almost every household (95 percent) and the average share allocated to sugar is bigger than for fruit and a little smaller than for beans, tubers or vegetables. Budget shares on sugar are twice as high in rural as in urban households, and decline in both sectors with per capita expenditure.

On average, the share allocated to beans by rural households is more than two times the share allocated by urban households, however the proportion of households consuming beans is larger in urban areas (85 percent versus 76 percent for rural households on average). Although the bean budget shares decreases with per capita expenditure, among rural households expenditure on beans rises with PCE. Red beans are particularly important in the Northeast and Center-West regions.

Vegetables, as a group, are consumed by equal proportions of urban and rural households, however there are regional differences and differences for individual vegetables. On average, rural Northeast households are larger

consumers of vegetables, particularly spicy ones. We distinguish the most important vegetables which account for over half the vegetable budget share except in the Northeast, where these vegetables account for about a quarter of the vegetable share. Garlic is consumed more among rural households, while onions are favored by urban households. In urban households the largest budget shares are for tomatoes and leafy vegetables, while in rural households leafy vegetables are dominant. As per capita expenditure increases, the budget share allocated to vegetables, as a group, or to individual vegetables (garlic excluded) increases until median PCE. Proportionately more households consume all of these vegetables and spend more on them with increasing per capita expenditure.

Fruits are consumed by only 58 percent of rural households and 75 percent of urban households. Households in the South tend to have lower budget shares. Of particular interest in the fruit consumption pattern is that the budget share allocated to non-citrus fruits is larger than that allocated to citrus fruits, especially in rural areas. There, only 43 percent of the households report some expenditure on non-citrus fruits and the budget share comprises 69 percent of the total fruit share. When the fruit consumption pattern is split by level of per capita consumption, the proportion of households consuming all fruits increases with per capita expenditure as does absolute expenditure. Shares decrease except for oranges and all citrus fruit.

The average urban household spends a slightly lower share on meat than does the average rural household. Households in the North and Northeast allocate a larger share of their budgets to meat. Beef shares are slightly higher in urban areas but pork and chicken accounts for almost twice as much of the budget among rural households relative to urban dwellers. The proportion of households buying meat rises with per capita expenditure as does the level of expenditure

on meat. The budget share rises with per capita expenditure in both sectors until median PCE. The same pattern is found for each of the types of meat, except for pork in urban areas where the budget share declines with PCE.

The proportion of the budget spent on fish is small in most areas and declines with PCE. In the Northeast, it accounts for a fairly high share, especially in rural areas. In the North, it accounts for a very high share, particularly amongst the poorest households who spend 11% of their budget on fish which is more than the amount allocated to meat.

The average urban budget share allocated to dairy products and eggs is a little larger than for fruit, vegetables, beans, oils and fats, tubers and sugar. In contrast, in rural areas the average dairy and eggs budget share is smaller than the shares of vegetables and tubers, and approximately the same as beans. Examining the consumption pattern by per capita expenditure, the rural-urban pattern describing meat, is repeated. The proportion of households consuming these food items increases as per capita expenditure increases in both urban and rural areas. Budget shares allocated to eggs and other dairy products besides milk, rise with per capita expenditure in both sectors until median PCE; for milk the budget share rises only for urban households. As with meat, absolute expenditures on dairy and eggs increases with per capita expenditure.

Other foods includes meals taken out of the home, coffee, tea, other non-alcoholic beverages and condiments. Its share declines with per capita expenditure in both rural and urban areas. Absolute expenditure rises, but the proportion of households consuming does not change much. Households in the Northeast spend a slightly higher budget share on these items.

Apart from fuel, the share of the budget spent on each of the non-food goods rises within PCE in both rural and urban households. Urban households

spend much more on housing, fuel and transport relative to rural households. Household goods comprise personal care items, cleaning materials, linens and small furniture; other goods include education, books and journals, recreation, alcohol and tobacco. For both aggregates, budget shares are higher among urban households but not by much.

(b) Prices

Each household reports both the value and quantity of goods consumed; we call their ratio the price of that good. Some of the variation in household prices may be due to measurement error and some due to differences in quality choices; it is inappropriate, therefore, to treat household level prices as exogenous. (See Deaton, 1988, for a discussion.) Instead, we shall use market averages of prices (see Strauss, 1982, for an application).

The definition of market boundaries is, however, far from clear since prices are likely to vary because of heterogeneity in transportation and information costs. With survey data, the appropriate definition is partly an empirical question and depends on the choice of commodity aggregation as well as regional aggregation. We were guided by two principles: there not be too much spread in the prices of highly disaggregated commodities within a market area and that there be enough households within each area who consume the good to compute a meaningful measure of central tendency.

We have chosen to calculate prices for 135 commodities (see Appendix 2) in which case there are several reasonable definitions of the market area ranging from over three thousand municipios (counties) to seven regions. After considerable investigation, we decided it is reasonable to calculate separate prices

for each of the 26 states in Brazil, distinguishing metropolitan urban, non-metropolitan urban and rural areas. In order to minimize the influence of outliers due to measurement error, we use median prices for each commodity within each of the 50 market areas.[2]

Group prices and the overall price index are Tornquist indices based on the market level median prices. The Tornquist is a superlative index and is the exact aggregator for the translog function (see Diewert, 1976; Caves, Christensen and Diewert, 1982, for a cross-sectional application).

For the Gth commodity group in the mth market, this index is

$$\ell n\ p_{Gm} = \sum_{g \in G} \frac{1}{2}(w_{gm} + w_{g\bullet})(\ell n\ p_{gm} - \ell n\ p_{g\bullet}) \qquad [7]$$

where the g's are goods within the Gth group, the $\bullet$'s represent national averages and w_{gm} is the share of expenditure on commodity group G spent on good g in market m. The overall price index, P, is $\ell n p_{Gm}$, where G is the set of all 135 commodities.

Means of the market level price indices are presented in Table 4.6, by region distinguishing urban and rural sectors. In most cases, foods which can be consumed without much processing (like rice, meat and milk) are less expensive in rural areas. Foods like sugar and oils which involve some industrial processing tend to be less expensive in urban areas where processing typically takes place. This is consistent with the view that price differentials reflect,

[2]Not all states have metropolitan urban centers and in the North and Center West only urban households were included in the ENDEF sample.

in part, transport and marketing costs. Similarly, prices in the Center-West and North tend to be much higher.

Since prices have been calculated as the ratio of expenditure to quantity price variation is likely to reflect quality variation in addition to true price variation. For sugar this is probably not important, for some commodities, like meat, there is probably some quality heterogeneity adding to real price differences. For housing, clothing and household goods the quality variation is probably considerable. These estimated prices and prices elasticities should, therefore, be treated with caution.

5. Results

(a) Income effects

Table 5.1 presents the results of estimating the demand functions [6] by two stage least squares with polynomials in household unearned income as the identifying instruments. Tests of zero homogeneity of prices and income are decisively rejected, at the .01 level, for 15 out of the 20 commodity equations, and are jointly rejected ($F = 24.3$) as well. This is not unusual in demand studies; we report, therefore, unconstrained single equation estimates. Elasticities and their jackknifed standard errors have been computed at the lower quartile, median and upper quartile of per capita expenditure.[3]

The expenditure elasticities, evaluated at median PCE, are significantly different from zero at the .01 level for all commodities and there is evidence of substantial curvature in the income elasticities. In fact, the quadratic

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[3]The elasticity depends on the estimated coefficients on real (log) per capita expenditure and its square, and levels of real (log) per capita expenditure and the commodity share. The mean share of households in the semi-decile on either side of the quartile of PCE is used in the computation of the elasticity.

expenditure term in the regressions is significant at the .01 level for 15 out of the 20 demand equations. The Working-Leser functional form, which includes only the linear log expenditure term, is apparently not sufficiently flexible.

The expenditure elasticities for the three cereals: rice, wheat and corn, are quite different from each other. Wheat products have a relatively high income elasticity for a food, .88 at the median. It is quite precisely estimated and declines as expenditure rises to .52 at the 75th percentile. That income effects for wheat are sizeable suggests that maintaining a large subsidy on wheat products is likely to be expensive (Calegar and Schuh, 1988). Rice demand is quite income responsive among the poor, but the elasticity falls almost to zero at the 75th percentile. Corn, which is consumed by only half of all households, is an inferior good when consumed directly. Consumed indirectly in the form of meat this is not so, as we see below.

The expenditure elasticity for manioc is negative, even for the poor (although it is not significantly different from zero at the 25th percentile). While we have aggregated farinha and fresh manioc (some people suggest that the income response for fresh manioc may be positive), our results suggest that manioc shares may be sharply lower in future years. This implies more downward pressure on price if a major supply shift is achieved. On the other hand current shares are high among the rural poor as Table 1.3 indicates. For other tubers, mostly English potatoes, the response to income is positive and drops only a little as expenditures rise.

Beans, another food eaten proportionately more by the poor, has a fairly low income response and becomes inferior for upper expenditure households.

Meats are quite income elastic, as one would expect, at all income levels, with an elasticity of 1.03 at the median of the PCE distribution. So too are

milk as well as eggs and other dairy products. For milk, budget shares actually increase at low expenditure levels (the elasticity is over one), and falls a little at higher levels (an elasticity less than one). Fish are less income responsive than meats, having an elasticity of around 0.5 at median PCE; the oils and fats income responses are broadly similar to that for fish.

The fruits and vegetables income elasticities are rather different. The fruit income elasticity is near one, and is fairly stable. Vegetables have a fairly low elasticity, .40 at the median, although the elasticity rises with PCE.

Sugar, an important source of calories, has an income elasticity of .25 at the median of PCE, and it declines slightly with expenditure. Other foods, which includes meals eaten out of the house, has a higher elasticity; it rises with expenditure.

The non-foods categories are all fairly responsive to expenditure, as is expected. All expenditure elasticities are over one save for housing among poor households. Paralleling these elasticities, the expenditure elasticity for all foods is less than one, .68 at the median, falling from .73 at the 25th percentile to .56 at the 75th. The food income elasticity at the median corresponds to a marginal budget share of .32.

In addition to estimating expenditure elasticities for food items it is of interest to estimate expenditure effects on nutrient intakes. Here we regress the log of per capita household calorie and protein intakes on the same variables using the functional form [6] for regressors. The expenditure elasticity for calorie intake is .17 at median PCE, ranging from .24 to .09 at the 25th and 75th percentiles, respectively. For protein intakes the elasticities range from .30 to .18. Given the precision of these estimates, it is apparent that nutrient

intakes do respond to expenditure at low income levels, contrary to the assertions of Behrman and Deolaliker (1987), although the protein expenditure elasticity suggests that households are switching towards foods that are more protein intensive as income rises.

(b) Effects of household composition

In addition to expenditure divided by household size, the logarithm of household size is included in each demand function [6]. In order to determine whether household composition has an impact on demand, the ratios of the number of household members in each of seven demographic groups to total household size are also included. Table 5.2 presents the outlay equivalent ratios [5], their standard errors and a test statistic for the joint significance of the household composition terms in each function; in all cases, except fish and sugar, composition effects are significant.

Five age groups are distinguished: infants (0-4 years), young children (5-9 years), adolescents (10-14 years), prime age adults (15-54 years) and older adults ($\geq$ 55 years); males and females are treated separately for all ages except infants and young children.[4] Generally, the outlay equivalent ratios for foods are positive: adding a person to a household will result in a higher share of the budget spent on food even if per capita expenditure is held constant. For non-foods, the ratios are mostly negative: there are clear returns to scale in housing and fuel consumption.

[4]In all cases, tests for equality of effects of males and females were not rejected for these two age groups.

Dairy products and eggs are consumed in larger proportions in households with more infants: milk subsidies are likely to have a positive impact on child nutrition. Fruit and wheat consumption also tend to be higher in households with more young children.

Adults are associated with higher shares on beans, rice, fish and vegetables. The consumption of prime age males (and to a lesser extent adolescents) is especially intensive in rice and beans. Female adults (and adolescents) are associated with significantly higher shares on vegetables. Older adults and prime age females tend to be associated with higher shares on tubers other than manioc (mostly potatoes) and sugar.

(c) Price elasticities

Uncompensated food price elasticities are presented in Table 5.3 and income compensated food price elasticities in Table 5.4. Both uncompensated and compensated non-food price elasticities are in Table 5.5. Reading down a column gives the impact of a particular price on commodity demands; the effect of different prices on demand for a particular commodity can be read off each row.

A large number of price effects turn out to be significant (15 of 20 own uncompensated price elasticities are significant at 0.01 percent) and own compensated and uncompensated price effects are negative for all but two of the twenty commodities, namely oils and fats and manioc. For manioc the compensated elasticity is not significantly different from zero at the .05 level.[5]

The own price elasticity of demand for rice is (absolutely) large and significantly negative. In fact, the price of rice has a significantly positive

[5]Since these are single equation estimates no restrictions, such as homogeneity or Slutsky symmetry, have been imposed.

effect on the demand for wheat, corn, beans, manioc, fish, sugar, meat and non-milk dairy products. Rice demand is positively affected by the price of wheat and beans. The notion that rice, wheat, beans and manioc are substitutes is intuitively appealing.

Own price elasticities are large (over 1.5 in absolute value) for wheat, potatoes, beans, fish, milk, non-dairy, in addition to rice. This is plausible given the level of commodity disaggregation we are using. More aggregated groups, such as vegetables, fruits, meats and the non-food categories have smaller, yet often significant, own price effects. The high wheat price elasticity (even the compensated elasticity is high) means that the consumer subsidy on wheat had a larger revenue cost to the government, but also a larger welfare impact on consumers than if demand were price inelastic.

Cross price effects seem to be sensible in general. For example, compensated price elasticities are positive between wheat and potatoes, manioc and beans, and milk and non-milk dairy products: these commodity pairs are substitutes. Complementarity is found between rice and milk, vegetables and oils, meat and oils and manioc and oils, among other pairs. Negative uncompensated cross price effects are found between many of the non-foods prices and foods. This is especially true for the price of housing, which makes sense of the large income effect a housing price change entails.

6. Conclusions

The estimates in this paper have direct relevance for discussions about agricultural pricing policies and for resource allocation within the EMBRAPA research nexus.

Those food crops for which research induced price declines should benefit the poor (middle income and wealthy households would also benefit) include wheat (especially for urban households), manioc and corn (both for rural households). In addition, price declines for beef, milk, pork and chicken would also benefit poor households. This assessment is based on budget shares, and for farm households ignores the income effect arising from altered farm profits. The expenditure elasticities identify those foods for which demand is likely to grow. Food with low expenditure elasticities will find over time, other things equal, prices lagging behind those of foods with high expenditure elasticities, especially if the food is non-traded. This looks especially likely for manioc and to a lesser extent for beans. If relative prices decline for these crops, then farmers will begin to switch out of them.

Furthermore it is not necessarily the case that research produced supply shifts will result in price declines. This depends on whether the product is traded, in which case its price is tied to the world price; and for non-traded foods (some of which may be non-traded as a result of government policies) depends on price elasticities of demand. For instance, for manioc the own price elasticity is about zero. Thus any supply shift from research will result in price declines, the gain thus accruing to consumers; disproportionately to low income households. However such induced price declines will lead farmers to switch into other crops and allocate less land to manioc.

Beans on the other hand, has a high estimated own price elasticity, suggesting that supply shifts will have a small price impact, hence research gains would accrue to producers. Indeed many of the food crops of direct interest to EMBRAPA -- wheat, rice, beans and dairy products -- have high own price effects, suggesting that producers may be benefiting from possible research induced supply shifts in these commodities.

These partial equilibrium results fail to take account of the substantial cross-price effects; their inclusion in a general equilibrium model may result in radically different conclusions. The demand parameters discussed above will be valuable inputs into an exercise which simulates the effects of policies -- such as technologically induced supply shifts -- within a multi-market setting.

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Table 4.1
Household characteristics : Means and standard deviations

	All country		Urban		Rural	
	Mean	s.d.	Mean	s.d.	Mean	s.d.
Expenditure						
total household	20.076	[24.29]	23.179	[26.26]	10.022	[11.59]
per capita	5.379	[8.58]	6.356	[9.48]	2.213	[2.74]
*ℓ*n(PCE)	8.081	[0.95]	8.294	[0.91]	7.391	[0.73]
Income						
total household	25.412	[84.33]	30.603	[95.33]	8.589	[18.32]
per capita	6.947	[23.61]	8.492	[26.70]	1.941	[4.63]
Household composition						
household size	4.831	[2.59]	4.685	[2.53]	5.304	[2.74]
proportion of members						
aged 0- 4	0.124	[0.17]	0.117	[0.16]	0.144	[0.17]
5- 9	0.109	[0.15]	0.103	[0.15]	0.125	[0.15]
males 10-14	0.052	[0.10]	0.050	[0.10]	0.058	[0.10]
fems 10-14	0.052	[0.10]	0.051	[0.10]	0.054	[0.10]
males 15-54	0.260	[0.21]	0.263	[0.21]	0.251	[0.20]
fems 15-54	0.276	[0.19]	0.288	[0.20]	0.235	[0.16]
males ≥55	0.056	[0.15]	0.053	[0.15]	0.065	[0.16]
females ≥55	0.073	[0.18]	0.074	[0.19]	0.067	[0.17]
Characteristics of household head						
proportion						
male	0.841		0.822		0.901	
education						
illiterate	0.266		0.187		0.522	
literate	0.427		0.431		0.414	
elementary	0.188		0.227		0.060	
second/more	0.119		0.155		0.003	
Characteristics of spouse						
proportion						
exist	0.772		0.756		0.825	
education						
illiterate	0.294		0.209		0.548	
literate	0.408		0.415		0.384	
elementary	0.196		0.241		0.059	
second/more	0.102		0.134		0.007	
Sample size	17861		13649		4212	

Notes
PCE is *per capita* expenditure; income and expenditure in Cr$ 000 *per annum*.
Education characteristics are proportions of household heads and spouses who are illiterate, literate, complemented elementary school, completed secondary school or more.

Table 4.2

Budget shares : means, standard deviations and proportion of households consuming

Goods	ALL BRAZIL			URBAN			RURAL		
	Mean	Std. Devn.	% HHs consuming	Mean	Std. Devn.	% HHs consuming	Mean	Std. Devn.	% HHs consuming
FOODS									
Cereals									
Rice	4.779	5.73	88	3.956	4.30	91	7.444	8.36	80
Corn	0.853	2.69	48	0.406	1.21	46	2.301	4.81	55
Wheat	3.825	3.40	89	4.068	3.35	93	3.036	3.43	74
Total	**9.525**	**7.34**	**94**	**8.507**	**6.18**	**95**	**12.823**	**9.50**	**93**
Tubers									
Manioc	2.018	4.21	64	1.293	2.96	60	4.366	6.30	75
Potatoes	0.489	0.94	56	0.468	0.74	64	0.558	1.39	31
Total	**2.791**	**4.34**	**89**	**1.978**	**3.07**	**89**	**5.427**	**6.36**	**90**
Sugar	**2.090**	**2.38**	**95**	**1.650**	**1.76**	**95**	**3.516**	**3.36**	**97**
Beans									
Red Beans	1.175	2.76	41	0.856	1.68	42	2.208	4.67	37
Total	**2.424**	**3.44**	**83**	**1.837**	**2.26**	**85**	**4.324**	**5.38**	**76**
Vegetables									
Tomatoes	0.397	0.59	65	0.439	0.54	75	0.260	0.72	32
Onions	0.226	0.32	71	0.239	0.30	78	0.183	0.37	45
Garlic	0.188	0.41	66	0.167	0.33	69	0.258	0.61	58
Leafy vege	0.425	0.78	65	0.412	0.64	70	0.466	1.13	50
Total	**2.835**	**3.89**	**93**	**2.265**	**2.31**	**93**	**4.681**	**6.52**	**92**
Fruit									
Bananas	0.322	0.79	41	0.327	0.69	46	0.308	1.06	24
Oranges	0.243	0.68	36	0.245	0.55	41	0.237	1.00	19
Citrus	0.289	0.71	46	0.291	0.58	52	0.282	1.02	27
Non-citrus	0.851	1.89	57	0.793	1.40	61	1.040	2.98	43
Total	**1.342**	**2.26**	**71**	**1.294**	**1.76**	**75**	**1.499**	**3.41**	**58**
Meat and fish									
Beef	5.307	6.11	71	5.674	5.70	79	4.120	7.15	44
Pork	2.136	4.14	50	1.649	3.20	49	3.716	6.03	51
Chicken	2.253	3.58	51	2.070	3.14	53	2.845	4.69	44
Meat total	**10.066**	**8.00**	**89**	**9.583**	**7.19**	**90**	**11.633**	**10.03**	**84**
Fish	**1.665**	**4.13**	**40**	**1.458**	**3.47**	**42**	**2.335**	**5.72**	**35**
Dairy & eggs									
Eggs	0.891	1.28	70	0.837	1.14	73	1.064	1.65	60
Milk	1.453	2.54	58	1.202	1.81	60	2.265	3.98	54
Total	**3.635**	**3.65**	**86**	**3.419**	**3.02**	**88**	**4.334**	**5.11**	**77**
Oils & fats	**2.969**	**3.22**	**89**	**2.555**	**2.50**	**92**	**4.311**	**4.62**	**79**
Other foods	**7.008**	**9.12**	**99**	**7.046**	**9.29**	**98**	**6.886**	**8.55**	**99**
TOTAL FOOD	**46.282**	**19.69**	**99**	**41.516**	**17.93**	**98**	**61.727**	**17.04**	**99**
NON-FOODS									
Housing	16.237	11.84	100	18.351	11.97	100	9.386	8.32	100
Clothing	7.671	7.32	89	7.652	7.12	90	7.734	7.93	88
Fuel	4.588	3.43	96	5.213	3.31	98	2.564	3.00	89
Transport	4.292	6.47	63	4.927	6.55	71	2.232	5.74	37
HH goods	8.155	6.06	99	8.881	6.16	100	5.800	5.05	98
Other	13.921	11.05	100	14.860	11.07	100	10.881	10.44	100

Notes:

Other foods include meals taken out of the home, coffee, tea and non-alcoholic beverages and condiments. Clothing includes footwear. Household (HH) goods includes personal care items and household furnishings such as cleaning items, linens and small furniture. Expenditures on other non-foods include medical, education and recreation expenditures.

Table 4.3

Budget shares : by region

	SOUTH			NORTHEAST			CENTER-WEST	NORTH
	All	Urban	Rural	All	Urban	Rural	Urban	Urban
FOODS								
Cereals								
Rice	5.35	4.47	8.76	4.04	2.89	5.95	5.92	2.16
Corn	0.74	0.39	2.09	1.31	0.57	2.54	0.36	0.12
Wheat	3.75	3.70	3.91	4.04	5.25	2.04	3.06	3.94
Total	**9.91**	**8.63**	**14.84**	**9.46**	**8.81**	**10.53**	**9.36**	**6.30**
Tubers								
Manioc	0.48	0.29	1.21	4.50	2.42	7.95	0.74	5.84
Potatoes	0.69	0.61	1.02	0.13	0.19	0.03	0.42	0.23
Total	**1.40**	**1.07**	**2.68**	**5.07**	**2.98**	**8.55**	**1.52**	**6.18**
Sugar	**2.04**	**1.61**	**3.73**	**2.40**	**1.88**	**3.27**	**1.46**	**1.42**
Beans								
Red beans	0.88	0.66	1.73	1.96	1.49	2.76	1.44	0.20
Total	**2.38**	**1.85**	**4.42**	**2.73**	**1.83**	**4.22**	**2.05**	**1.66**
Vegetables								
Tomatoes	0.43	0.46	0.34	0.29	0.36	0.17	0.74	0.38
Onions	0.22	0.22	0.22	0.20	0.23	0.14	0.25	0.38
Garlic	0.22	0.19	0.31	0.14	0.11	0.20	0.23	0.08
Leafy vege	0.51	0.46	0.70	0.23	0.26	0.20	0.38	0.51
Total	**2.38**	**2.11**	**3.42**	**4.01**	**2.75**	**6.11**	**2.72**	**1.84**
Fruit								
Bananas	0.22	0.22	0.23	0.50	0.56	0.39	0.44	0.43
Oranges	0.28	0.27	0.29	0.20	0.21	0.18	0.31	0.11
Citrus	0.32	0.31	0.34	0.23	0.24	0.22	0.34	0.25
Non-citrus	0.66	0.63	0.75	1.20	1.10	1.37	1.12	0.98
Total	**1.16**	**1.13**	**1.31**	**1.59**	**1.52**	**1.72**	**1.63**	**1.72**
Meat and fish								
Beef	4.10	4.49	2.62	6.99	7.69	5.83	6.14	8.56
Pork	2.21	1.79	3.84	2.32	1.57	3.57	1.89	0.74
Chicken	2.08	1.88	2.83	2.72	2.64	2.86	1.47	2.15
Meat total	**8.52**	**8.23**	**9.64**	**12.95**	**12.38**	**13.89**	**9.59**	**11.76**
Fish	**0.74**	**0.73**	**0.81**	**2.84**	**2.10**	**4.07**	**0.82**	**5.41**
Dairy & eggs								
Eggs	0.87	0.79	1.15	0.99	1.01	0.96	0.65	0.77
Milk	1.53	1.38	2.08	1.62	1.10	2.47	1.18	0.13
Total	**3.49**	**3.26**	**4.40**	**4.05**	**3.91**	**4.26**	**2.66**	**3.62**
Oils & fats	**3.66**	**2.95**	**6.39**	**1.76**	**1.65**	**1.94**	**4.28**	**1.27**
Other foods	**6.84**	**6.85**	**6.79**	**7.47**	**7.75**	**7.00**	**6.68**	**6.69**
TOTAL FOOD	**42.46**	**38.34**	**58.35**	**54.27**	**47.46**	**65.56**	**42.76**	**47.81**
NON-FOODS								
Housing	18.43	20.32	11.17	11.79	14.47	7.36	16.57	15.57
Clothing	7.70	7.66	7.85	7.55	7.52	7.60	9.20	7.17
Fuel	4.51	5.13	2.14	4.63	5.58	3.05	4.24	5.30
Transport	4.92	5.48	2.78	3.16	4.09	1.61	3.28	4.03
HH goods	8.18	8.85	5.60	7.81	8.88	6.03	9.28	8.87
Other goods	15.08	15.74	12.50	11.62	13.17	9.05	16.01	12.46
PCE	6377	7281	2892	3317	4448	1442	5799	5127
Household size	4.62	4.45	5.31	5.11	5.00	5.30	4.92	5.46
% sample	60.89	48.35	12.54	29.34	18.30	11.04	3.28	6.49

Notes

See Tables 4.2 for definition of goods. South includes Rio de Janeiro, Sao Paulo, Rio Grade do Sul, Parana, Santa Catarina, Minas Gerais, Espirito Santo and Brasilia. Center-West includes Goias, Matto Grosso and Matto Grosso do Sul. North includes Rondonia, Acre, Amazonas, Roraima, Para and Amapa. Northeast is the rest. Only urban households were included in the sample in the North and Center-West.

Table 4.4

Budget shares : means and proportion of households consuming by quartiles of per capita expenditure for urban and rural households

	Urban sector								Rural sector							
	1-25Zile		26-50Zile		51-75Zile		76-100Zile		1-25Zile		26-50Zile		51-75Zile		76-100Zile	
	mean	Z>0	mean	Z>0	mean	Z>0	mean	Z>0	mean	Z>0	mean	Z>0	mean	Z>0	mean	Z>0
FOODS																
Cereals																
Rice	7.09	83	5.66	93	3.58	95	1.37	89	8.18	69	8.03	90	4.92	94	3.06	95
Corn	1.13	47	0.50	48	0.25	47	0.10	44	3.08	51	1.75	58	1.06	61	0.33	56
Wheat	6.20	90	5.30	96	3.91	95	2.16	90	2.57	63	3.77	84	3.59	91	2.30	92
Total	**14.50**	**96**	**11.54**	**98**	**7.81**	**96**	**3.71**	**91**	**13.86**	**90**	**13.61**	**97**	**9.62**	**97**	**5.71**	**95**
Tubers																
Manioc	3.89	75	1.72	67	0.68	59	0.18	48	6.65	82	2.32	69	1.04	64	0.31	59
Potatoes	0.42	31	0.57	55	0.55	73	0.34	78	0.33	14	0.81	41	0.93	63	0.58	74
Total	**4.70**	**89**	**2.54**	**91**	**1.43**	**91**	**0.64**	**86**	**7.52**	**90**	**3.66**	**90**	**2.35**	**91**	**1.05**	**91**
Sugar	**3.21**	**97**	**2.13**	**98**	**1.40**	**96**	**0.70**	**90**	**4.36**	**98**	**3.00**	**98**	**2.07**	**97**	**1.21**	**94**
Beans																
Red beans	1.84	42	1.20	44	0.69	44	0.23	37	2.91	35	1.76	40	0.98	37	0.57	38
Total	**3.80**	**77**	**2.57**	**88**	**1.52**	**91**	**0.55**	**81**	**5.41**	**68**	**3.81**	**84**	**2.25**	**91**	**1.18**	**89**
Vegetables																
Tomatoes	0.33	48	0.50	72	0.54	84	0.35	84	0.19	21	0.32	38	0.37	49	0.33	63
Onions	0.24	57	0.31	77	0.27	86	0.16	84	0.15	33	0.24	54	0.22	64	0.16	72
Garlic	0.24	59	0.22	71	0.17	74	0.08	68	0.31	56	0.24	63	0.15	59	0.09	61
Leafy vege	0.45	54	0.48	67	0.46	75	0.30	77	0.42	40	0.54	57	0.54	68	0.40	66
Total	**3.41**	**93**	**2.59**	**96**	**2.24**	**95**	**1.44**	**89**	**6.09**	**90**	**3.58**	**95**	**2.46**	**95**	**1.67**	**93**
Fruit																
Bananas	0.43	30	0.41	42	0.33	50	0.20	54	0.35	22	0.29	24	0.22	28	0.16	29
Oranges	0.17	19	0.25	31	0.29	46	0.24	56	0.20	13	0.28	23	0.30	32	0.22	35
Citrus	0.21	28	0.30	44	0.33	57	0.29	65	0.24	19	0.33	32	0.36	43	0.26	45
Non-citrus	0.99	45	0.84	55	0.78	64	0.67	70	1.17	41	0.95	43	0.86	47	0.62	50
Total	**1.35**	**58**	**1.32**	**72**	**1.36**	**80**	**1.18**	**82**	**1.50**	**51**	**1.50**	**62**	**1.59**	**71**	**1.20**	**73**
Meat and fish																
Beef	5.66	58	6.86	77	6.41	87	4.10	85	3.86	34	4.79	50	4.00	60	3.46	68
Pork	2.18	40	1.92	45	1.76	51	1.06	56	3.74	45	3.79	56	3.87	59	2.48	65
Chicken	2.10	35	2.54	49	2.33	58	1.45	60	2.64	35	3.14	51	3.14	61	2.53	69
Meat total	**10.33**	**82**	**11.56**	**92**	**10.64**	**95**	**6.71**	**89**	**11.43**	**79**	**12.44**	**89**	**11.68**	**92**	**8.94**	**91**
Fish	**3.14**	**44**	**1.89**	**44**	**1.10**	**41**	**0.58**	**38**	**3.20**	**39**	**1.72**	**31**	**0.88**	**28**	**0.43**	**31**
Dairy & eggs																
Eggs	1.00	51	1.09	70	0.92	80	0.48	81	0.93	45	1.24	72	1.26	84	0.95	88
Milk	1.10	34	1.29	51	1.40	66	1.01	74	2.37	44	2.26	58	2.12	74	1.50	82
Total	**3.57**	**75**	**3.93**	**89**	**3.73**	**93**	**2.66**	**90**	**4.04**	**69**	**4.70**	**84**	**4.92**	**90**	**3.63**	**91**
Oils & fats	**3.70**	**84**	**3.38**	**94**	**2.63**	**95**	**1.27**	**90**	**4.05**	**68**	**5.24**	**89**	**4.02**	**94**	**2.64**	**92**
Other foods	**8.12**	**98**	**7.60**	**99**	**6.93**	**99**	**6.18**	**98**	**7.41**	**99**	**6.34**	**99**	**6.49**	**100**	**5.22**	**99**
TOTAL FOOD	**59.74**	**98**	**50.97**	**99**	**40.71**	**99**	**25.55**	**98**	**68.84**	**99**	**59.54**	**99**	**48.29**	**100**	**32.87**	**99**
NON-FOODS																
Housing	13.26	100	15.39	100	18.39	100	23.23	100	8.21	100	10.15	100	11.51	100	11.99	100
Clothing	5.41	81	6.77	89	8.41	92	8.81	93	6.43	84	8.66	92	9.98	94	10.47	95
Fuel	5.45	97	5.71	99	5.46	98	4.49	98	2.68	90	2.50	87	2.35	87	2.24	91
Transport	2.27	45	3.30	65	4.66	75	7.79	86	1.19	27	2.01	39	4.21	56	9.82	73
HH goods	6.04	99	7.36	100	9.12	100	11.31	100	5.03	97	6.17	98	7.49	99	7.29	99
Other goods	8.03	99	10.95	100	14.30	100	21.90	100	7.76	99	11.29	100	16.96	100	26.40	100
PCE	1173		2311		4269		14035		1017		2213		4016		10846	
Household size	6.3		5.5		4.5		3.5		6.0		4.7		4.3		3.4	
Z sample	12.4		18.5		21.6		24.0		12.6		6.5		3.4		1.0	

Notes:

Percentiles of per capita expenditure (PCE) are defined for all Brazil. See Table 4.2 for definitions of goods.

Table 4.5

per capita expenditures by quartiles of PCE for urban and rural households

	Urban sector percentiles of per capita expenditure				Rural sector percentiles of per capita expenditure			
	1-25	26-50	51-75	76-100	1-25	26-50	51-75	76-100
FOODS								
Cereals								
Rice	83.33	128.39	148.14	136.14	89.69	173.85	193.85	307.62
Corn	12.33	11.15	10.09	10.65	30.21	37.49	40.59	27.49
Wheat	72.81	121.11	164.11	231.11	28.06	83.75	142.52	212.57
Total	**169.35**	**262.59**	**325.59**	**386.81**	**148.32**	**296.50**	**378.92**	**551.00**
Tubers								
Manioc	41.46	37.83	27.20	17.18	58.62	49.43	40.60	28.00
Potatoes	5.11	13.10	23.37	37.63	3.96	18.37	36.81	49.75
Total	**51.06**	**56.69**	**58.84**	**68.30**	**68.50**	**79.50**	**92.41**	**92.48**
Sugar	**35.88**	**48.22**	**58.21**	**75.57**	**43.11**	**65.17**	**81.31**	**115.58**
Beans								
Red beans	21.02	27.06	28.30	22.39	27.29	38.02	37.21	51.13
Total	**43.25**	**57.92**	**62.27**	**54.19**	**52.31**	**82.76**	**87.34**	**112.38**
Vegetables								
Tomatoes	4.16	11.77	22.92	38.93	2.19	7.20	14.66	35.43
Onions	3.02	7.21	11.16	16.93	1.66	5.42	8.70	16.07
Garlic	2.91	5.03	7.00	8.80	3.05	5.20	5.88	9.08
Leafy vege	5.29	11.13	19.46	35.15	4.52	12.05	21.92	36.33
Total	**37.97**	**59.45**	**94.86**	**162.01**	**56.68**	**77.70**	**97.54**	**158.30**
Fruit								
Bananas	5.05	9.53	13.94	21.47	3.72	6.35	8.73	17.31
Oranges	2.09	5.80	12.23	28.42	2.29	6.34	11.85	18.84
Citrus	2.59	7.04	14.26	32.98	2.70	7.51	14.30	23.73
Non-citrus	11.42	19.22	33.16	77.98	11.72	21.58	35.11	58.39
Total	**15.74**	**30.59**	**58.10**	**138.27**	**15.69**	**34.24**	**65.41**	**112.20**
Meat and fish								
Beef	68.70	158.93	270.61	459.77	41.44	106.90	162.09	331.98
Pork	25.09	44.58	74.12	115.11	38.14	84.38	152.14	245.51
Chicken	24.93	59.01	98.33	159.40	27.57	69.45	125.14	242.16
Meat total	**123.17**	**267.86**	**449.15**	**744.98**	**118.76**	**276.58**	**466.43**	**879.69**
Fish	**35.83**	**42.36**	**46.07**	**64.81**	**31.13**	**36.76**	**34.70**	**42.42**
Dairy & eggs								
Eggs	12.34	25.29	38.65	50.89	9.90	27.72	50.45	104.36
Milk	12.96	30.11	59.90	110.65	23.73	49.83	83.76	154.62
Total	**42.80**	**91.04**	**158.43**	**302.43**	**41.81**	**104.60**	**196.50**	**370.12**
Oils & fats	**43.64**	**77.39**	**109.96**	**132.01**	**44.28**	**114.88**	**159.14**	**257.52**
Other foods	**96.29**	**174.46**	**293.87**	**834.74**	**74.01**	**139.28**	**258.46**	**491.03**
TOTAL FOOD	**694.09**	**1166.64**	**1712.09**	**2955.21**	**694.22**	**1306.56**	**1917.19**	**3179.39**
NON-FOODS								
Housing	155.54	359.00	795.09	3476.73	82.50	227.40	468.54	1353.35
Clothing	65.09	158.10	361.26	1215.98	68.52	194.27	397.83	1039.47
Fuel	64.10	132.18	231.09	586.38	26.05	55.62	94.39	222.11
Transport	28.86	77.17	202.59	1170.66	13.23	45.70	173.96	1254.39
HH goods	71.71	171.68	392.30	1706.82	52.13	136.88	300.28	772.77
Other goods	96.20	256.42	620.43	3481.65	82.68	253.41	693.71	3157.56
Mean PCE	1173	2311	4269	14035	1017	2213	4016	10846

Notes:

See Tables 4.2 and 4.4

Table 4.6

Price indices : means by region

	SOUTH			NORTHEAST			CENTER-WEST	NORTH
	All	Urban	Rural	All	Urban	Rural	Urban	Urban
Foods								
Rice	101.61	104.32	96.57	99.64	100.26	98.82	105.12	83.18
Corn	94.58	103.93	77.24	94.68	104.23	81.96	169.01	119.30
Wheat	106.94	108.96	103.19	89.32	90.49	87.76	114.14	122.16
Manioc	94.09	102.41	78.65	86.91	91.75	80.45	163.51	141.37
Other tubers	87.08	93.47	75.21	84.68	95.39	70.41	199.87	162.86
Sugar	95.37	93.61	98.64	98.02	96.06	100.64	127.88	105.78
Beans	96.71	99.28	91.95	94.57	98.83	88.88	148.09	88.99
Vegetables	83.03	84.08	81.08	98.52	99.51	97.19	182.61	117.63
Fruit	108.16	111.08	102.75	81.94	90.56	70.45	147.19	123.27
Meat	98.53	101.54	92.94	98.62	102.23	93.80	114.03	96.92
Fish	105.67	107.74	101.83	94.89	99.27	89.05	89.56	123.87
Milk	92.40	96.02	85.66	97.45	107.21	84.45	125.23	110.81
Eggs & other dairy	88.84	92.41	82.21	105.93	107.75	103.50	121.94	107.08
Oils & fats	97.52	96.79	98.87	97.55	98.50	96.29	110.52	105.78
Other foods	94.62	93.93	95.90	99.79	97.76	102.51	121.07	115.23
All foods	**97.17**	**99.69**	**92.50**	**94.36**	**97.74**	**89.87**	**127.68**	**111.28**
Non foods								
Housing	204.11	260.56	99.28	62.68	86.68	30.68	154.75	152.45
Clothing	117.91	131.26	93.12	83.97	95.92	68.04	112.30	132.11
Fuel	114.47	104.87	132.31	92.32	78.92	110.19	94.99	95.61
HH goods	96.62	100.13	90.09	97.95	105.38	88.04	123.76	114.28
All goods	**119.93**	**133.26**	**95.16**	**85.69**	**93.54**	**75.21**	**128.08**	**120.39**

Notes:

Price indices are Tornquist aggregates of median prices of 135 commodities calculated for each state distinguishing metropolitan urban, non-metropolitan urban and rural households. For each commodity group, the all country index is 100. See Appendix 2 for definition of commodities included in price indices. Fuel includes transport; clothing includes footwear.

Table 5.1 : Expenditure elasticities evaluated at 25%ile, median and 75%ile of per capita expenditure

		25%ile	Median	75%ile
FOODS:	Rice	0.747 [0.04]	0.580 [0.03]	0.068 [0.03]
	Wheat	1.102 [0.04]	0.881 [0.02]	0.518 [0.02]
	Corn	-0.224 [0.13]	-0.490 [0.13]	-0.719 [0.13]
	Manioc	-0.075 [0.08]	-0.565 [0.09]	-0.985 [0.11]
	Potatoes and other tubers	0.744 [0.11]	0.705 [0.06]	0.583 [0.03]
	Sugar	0.319 [0.06]	0.266 [0.04]	0.236 [0.03]
	Beans	0.282 [0.08]	0.187 [0.06]	-0.088 [0.04]
	Vegetables	0.330 [0.08]	0.403 [0.05]	0.537 [0.03]
	Fruit	1.060 [0.11]	1.023 [0.06]	0.985 [0.03]
	Meat	1.211 [0.04]	1.025 [0.02]	0.793 [0.02]
	Fish	0.644 [0.11]	0.473 [0.11]	0.407 [0.06]
	Milk	1.193 [0.09]	1.045 [0.05]	0.871 [0.02]
	Eggs and non-milk dairy	1.249 [0.09]	1.065 [0.05]	0.841 [0.02]
	Oils & fats	0.690 [0.05]	0.635 [0.03]	0.423 [0.02]
	Other foods	0.542 [0.08]	0.570 [0.05]	0.623 [0.03]
NON FOODS:	Housing	0.965 [0.04]	1.009 [0.02]	1.042 [0.01]
	Fuel and transport	1.352 [0.04]	1.339 [0.02]	1.303 [0.02]
	Clothing and footwear	1.522 [0.06]	1.316 [0.03]	1.171 [0.02]
	Household goods	1.621 [0.04]	1.426 [0.02]	1.285 [0.02]
	Other goods	1.721 [0.05]	1.644 [0.02]	1.547 [0.02]
NUTRIENTS:	Calories	0.241 [0.01]	0.168 [0.01]	0.085 [0.01]
	Protein	0.295 [0.02]	0.240 [0.01]	0.176 [0.01]

Notes: See Table 4.2. Calories and protein are per capita consumption.

Table 5.2 : Demographic outlay-equivalent ratios

DEMOGRAPHIC GROUP:	infants	young children	adolescent males	adolescent females	prime age males	prime age females	older adult males	older adult females
age (years):	0 - 4	5 - 9	10-14	10-14	15-54	15-54	≥55	≥55
COMMODITY:								
FOODS								
Rice	0.541	0.816	1.181	0.892	1.065	0.708	0.726	0.648
	[0.12]	[0.16]	[0.19]	[0.20]	[0.16]	[0.12]	[0.10]	[0.14]
Wheat	0.477	0.868	0.656	0.560	0.065	-0.017	0.357	0.115
	[0.07]	[0.08]	[0.09]	[0.10]	[0.08]	[0.07]	[0.05]	[0.08]
Corn	-2.858	-2.134	-6.381	-5.085	-5.812	-7.048	-6.178	-6.430
	[1.18]	[0.59]	[2.17]	[2.01]	[2.54]	[3.29]	[2.56]	[2.63]
Manioc	11.522	31.316	29.396	33.591	51.494	41.970	45.469	41.026
	[27.95]	[74.57]	[70.46]	[79.51]	[117.22]	[94.69]	[103.92]	[94.60]
Other tubers	0.028	0.572	0.166	0.387	0.526	0.843	0.800	1.105
	[0.17]	[0.25]	[0.25]	[0.28]	[0.22]	[0.19]	[0.18]	[0.25]
Sugar	1.467	1.527	1.794	1.515	1.662	1.776	1.634	1.996
	[0.29]	[0.36]	[0.41]	[0.41]	[0.32]	[0.27]	[0.26]	[0.36]
Beans	0.797	1.925	3.073	2.526	3.751	2.744	3.024	3.044
	[0.37]	[0.73]	[0.97]	[0.86]	[0.84]	[0.57]	[0.70]	[0.80]
Vegetables	0.087	0.313	0.996	1.336	1.124	1.654	1.126	1.487
	[0.20]	[0.25]	[0.35]	[0.39]	[0.29]	[0.26]	[0.21]	[0.32]
Fruit	0.194	0.404	0.085	0.104	-0.418	0.090	-0.116	0.078
	[0.10]	[0.12]	[0.14]	[0.15]	[0.13]	[0.10]	[0.08]	[0.13]
Meat	-0.073	0.116	0.020	-0.106	-0.035	-0.086	0.069	0.085
	[0.05]	[0.05]	[0.06]	[0.07]	[0.06]	[0.05]	[0.04]	[0.06]
Fish	0.348	0.441	0.746	0.335	0.950	0.198	1.053	0.478
	[0.28]	[0.34]	[0.43]	[0.40]	[0.37]	[0.28]	[0.29]	[0.35]
Milk	1.513	0.259	-0.123	-0.115	-0.322	-0.188	-0.149	0.124
	[0.14]	[0.12]	[0.13]	[0.14]	[0.12]	[0.09]	[0.06]	[0.10]
Eggs & other dairy	1.141	-0.073	-0.178	-0.189	-0.363	-0.270	-0.256	-0.183
	[0.11]	[0.08]	[0.10]	[0.10]	[0.08]	[0.08]	[0.05]	[0.09]
Oils & fats	0.259	0.569	0.681	0.551	0.586	0.512	0.657	0.427
	[0.10]	[0.14]	[0.16]	[0.16]	[0.13]	[0.10]	[0.09]	[0.13]
Other foods	-0.184	0.102	0.192	0.384	0.968	0.869	0.472	0.083
	[0.13]	[0.16]	[0.19]	[0.20]	[0.20]	[0.16]	[0.12]	[0.17]
NON FOODS								
Housing	-0.364	-0.177	-0.178	-0.176	-0.488	-0.190	-0.040	0.249
	[0.04]	[0.03]	[0.05]	[0.05]	[0.05]	[0.05]	[0.04]	[0.06]
Fuel & transport	-0.096	-0.112	-0.163	-0.179	-0.150	-0.270	-0.271	-0.233
	[0.04]	[0.03]	[0.04]	[0.05]	[0.05]	[0.04]	[0.03]	[0.04]
Clothing & footwear	-0.026	-0.297	-0.286	-0.150	0.126	0.082	-0.247	-0.294
	[0.04]	[0.04]	[0.05]	[0.06]	[0.05]	[0.05]	[0.03]	[0.05]
Household goods	-0.039	-0.191	-0.332	-0.241	-0.421	-0.173	-0.479	-0.473
	[0.03]	[0.03]	[0.03]	[0.04]	[0.04]	[0.04]	[0.02]	[0.04]
Other goods	-0.134	-0.233	-0.203	-0.205	-0.156	-0.365	-0.187	-0.337
	[0.03]	[0.02]	[0.03]	[0.04]	[0.03]	[0.03]	[0.02]	[0.04]
NUTRIENTS								
Calories	-3.218	-2.202	-1.086	-1.719	-0.664	-1.706	-1.382	-2.363
	[0.14]	[0.06]	[0.10]	[0.11]	[0.12]	[0.13]	[0.08]	[0.13]
Protein	-2.350	-1.851	-1.025	-1.546	-0.631	-1.387	-1.081	-1.687
	[0.10]	[0.05]	[0.08]	[0.10]	[0.10]	[0.11]	[0.06]	[0.11]

Notes: See Table 5.1.

Table 5.3 : Uncompensated elasticities with respect to food prices

FOOD PRICE:	Rice	Wheat	Corn	Manioc	Other Tubers	Sugar	Bean	Vege-tables	Fruit	Meat	Fish	Milk	Eggs & dairy	Oils	Other foods
COMMODITY:															
FOODS															
Rice	-3.618	2.584	-0.336	0.257	0.074	0.412	2.422	-1.404	-0.106	-2.813	-0.208	-0.413	-1.487	2.761	0.008
	[0.15]	[0.11]	[0.06]	[0.09]	[0.09]	[0.18]	[0.15]	[0.10]	[0.09]	[0.24]	[0.10]	[0.17]	[0.20]	[0.27]	[0.14]
Wheat	0.357	-2.004	-0.256	-0.378	0.359	0.515	-0.121	-0.724	0.623	2.713	0.436	1.194	-0.923	0.742	-0.263
	[0.13]	[0.08]	[0.05]	[0.06]	[0.07]	[0.17]	[0.11]	[0.10]	[0.07]	[0.18]	[0.08]	[0.13]	[0.14]	[0.20]	[0.12]
Corn	1.775	-2.261	-0.112	2.276	-0.939	1.991	-2.263	-0.924	0.096	-0.764	-1.079	0.053	-2.483	4.264	-1.023
	[0.47]	[0.34]	[0.23]	[0.28]	[0.42]	[0.56]	[0.37]	[0.34]	[0.25]	[0.63]	[0.36]	[0.51]	[0.70]	[0.87]	[0.42]
Manioc	3.250	-1.822	0.809	0.280	-1.160	2.561	0.191	2.298	-0.451	-2.761	-0.477	-2.011	3.277	-5.891	2.705
	[0.29]	[0.20]	[0.10]	[0.16]	[0.18]	[0.36]	[0.25]	[0.20]	[0.16]	[0.50]	[0.17]	[0.30]	[0.34]	[0.57]	[0.25]
Other tubers	-1.177	-0.672	-0.173	-0.221	-1.959	0.553	-0.462	0.474	1.172	2.740	1.349	0.454	-1.778	-1.308	0.826
	[0.28]	[0.22]	[0.12]	[0.16]	[0.20]	[0.36]	[0.25]	[0.22]	[0.16]	[0.44]	[0.21]	[0.33]	[0.41]	[0.56]	[0.27]
Sugar	0.913	-0.095	-0.389	0.167	0.114	-0.011	-0.287	-1.003	0.611	-0.667	0.259	0.494	-1.416	3.291	-0.535
	[0.16]	[0.10]	[0.06]	[0.07]	[0.10]	[0.19]	[0.11]	[0.12]	[0.09]	[0.21]	[0.10]	[0.15]	[0.21]	[0.31]	[0.14]
Beans	0.530	1.258	-0.534	-0.112	0.224	-1.221	-1.685	0.489	0.260	1.015	0.726	-0.857	-0.872	1.304	-0.519
	[0.19]	[0.16]	[0.07]	[0.10]	[0.12]	[0.22]	[0.17]	[0.14]	[0.09]	[0.30]	[0.13]	[0.20]	[0.27]	[0.35]	[0.15]
Vege-tables	-0.528	0.051	0.443	-0.184	-0.163	0.367	-0.190	-0.800	-0.504	0.961	-0.476	0.226	0.174	-0.339	-0.401
	[0.22]	[0.18]	[0.08]	[0.12]	[0.14]	[0.25]	[0.18]	[0.14]	[0.10]	[0.31]	[0.16]	[0.20]	[0.30]	[0.37]	[0.16]
Fruit	-0.339	0.028	-0.202	0.044	-0.070	0.134	0.526	0.326	-0.840	-0.989	0.927	0.487	-0.441	-2.118	-0.056
	[0.30]	[0.28]	[0.11]	[0.17]	[0.17]	[0.36]	[0.27]	[0.20]	[0.15]	[0.53]	[0.20]	[0.30]	[0.45]	[0.63]	[0.26]
Meat	0.566	0.118	-0.134	-0.391	-0.050	-0.403	-0.324	0.703	-0.177	-0.526	0.297	-0.021	0.480	-1.193	-0.188
	[0.12]	[0.08]	[0.05]	[0.06]	[0.07]	[0.16]	[0.10]	[0.09]	[0.07]	[0.18]	[0.08]	[0.12]	[0.14]	[0.19]	[0.11]
Fish	1.523	-1.882	0.211	0.788	0.371	2.920	2.564	0.343	0.276	-1.641	-2.571	-0.235	1.508	-3.579	2.357
	[0.44]	[0.30]	[0.15]	[0.22]	[0.24]	[0.54]	[0.37]	[0.31]	[0.25]	[0.76]	[0.27]	[0.42]	[0.48]	[0.74]	[0.40]
Milk	-1.701	-1.009	1.026	-0.301	-1.213	-1.678	0.336	0.377	0.158	-0.264	0.064	-3.386	2.288	-1.275	0.915
	[0.27]	[0.20]	[0.12]	[0.14]	[0.21]	[0.33]	[0.24]	[0.19]	[0.14]	[0.33]	[0.18]	[0.28]	[0.35]	[0.42]	[0.23]
Eggs & dairy	0.904	-1.159	-0.191	-0.475	0.457	1.180	-0.209	0.205	0.418	2.461	0.298	1.047	-2.494	-0.748	-0.367
	[0.20]	[0.13]	[0.07]	[0.10]	[0.11]	[0.24]	[0.17]	[0.15]	[0.10]	[0.28]	[0.12]	[0.21]	[0.23]	[0.35]	[0.18]
Oils & fats	-0.838	1.198	-0.911	-0.168	0.801	0.613	0.405	-0.979	0.460	-0.586	0.718	0.641	-3.611	2.714	-0.229
	[0.15]	[0.10]	[0.05]	[0.07]	[0.09]	[0.17]	[0.12]	[0.10]	[0.08]	[0.19]	[0.11]	[0.15]	[0.19]	[0.27]	[0.13]
Other food	-0.306	-0.342	-0.279	0.083	0.463	-0.593	-0.028	-0.101	0.087	0.281	-0.087	0.099	-0.258	0.007	-1.477
	[0.19]	[0.12]	[0.08]	[0.09]	[0.11]	[0.21]	[0.15]	[0.13]	[0.10]	[0.26]	[0.12]	[0.20]	[0.21]	[0.30]	[0.17]
NON FOODS															
Housing	-0.139	0.306	0.261	0.016	-0.109	-0.259	-0.079	-0.083	-0.127	-0.140	0.093	-0.168	0.731	-0.022	-0.045
	[0.09]	[0.06]	[0.04]	[0.04]	[0.05]	[0.11]	[0.07]	[0.07]	[0.05]	[0.13]	[0.06]	[0.09]	[0.09]	[0.13]	[0.09]
Fuel	-0.002	-0.399	0.079	0.235	-0.014	-1.238	-0.202	0.089	-0.068	-0.234	-0.558	-0.185	0.524	-0.118	-0.674
	[0.13]	[0.07]	[0.05]	[0.06]	[0.07]	[0.14]	[0.10]	[0.09]	[0.08]	[0.17]	[0.08]	[0.12]	[0.14]	[0.25]	[0.11]
Clothing	0.101	0.166	-0.007	-0.019	-0.150	0.718	-0.578	0.166	0.028	0.742	-0.138	0.209	-0.095	-0.349	0.027
	[0.15]	[0.10]	[0.06]	[0.07]	[0.09]	[0.18]	[0.12]	[0.11]	[0.08]	[0.21]	[0.10]	[0.15]	[0.17]	[0.24]	[0.14]
HH goods	0.283	-0.082	0.112	0.020	-0.076	-0.278	-0.425	0.044	-0.012	-0.037	-0.101	0.479	0.693	0.161	-0.065
	[0.11]	[0.07]	[0.04]	[0.05]	[0.06]	[0.13]	[0.09]	[0.08]	[0.06]	[0.16]	[0.07]	[0.11]	[0.12]	[0.17]	[0.10]
Other goods	-0.124	-0.252	0.027	-0.124	0.078	-0.080	0.078	-0.057	-0.148	-0.370	-0.027	-0.110	-0.150	-0.040	0.503
	[0.11]	[0.07]	[0.04]	[0.05]	[0.06]	[0.13]	[0.09]	[0.08]	[0.06]	[0.14]	[0.07]	[0.11]	[0.11]	[0.16]	[0.10]
NUTRIENTS															
Calories	0.008	0.016	0.023	0.078	-0.168	0.267	-0.065	0.014	0.075	-0.055	0.029	-0.144	-0.308	0.055	0.060
	[0.04]	[0.02]	[0.01]	[0.02]	[0.02]	[0.04]	[0.03]	[0.03]	[0.02]	[0.05]	[0.02]	[0.04]	[0.04]	[0.06]	[0.03]
Protein	-0.004	-0.277	0.138	0.085	-0.146	0.474	0.057	0.009	-0.021	0.273	-0.137	-0.179	-0.157	-0.115	-0.128
	[0.05]	[0.03]	[0.02]	[0.02]	[0.03]	[0.05]	[0.04]	[0.03]	[0.02]	[0.06]	[0.03]	[0.04]	[0.05]	[0.07]	[0.04]

Notes: See Table 5.1

Table 5.4 : Compensated elasticities with respect to food prices

FOOD PRICE:	Rice	Wheat	Corn	Manioc	Other Tubers	Sugar	Bean	Vege-tables	Fruit	Meat	Fish	Milk	Eggs & dairy	Oils	Other foods
COMMODITY:															
FOODS															
Rice	-3.590	2.606	-0.331	0.269	0.079	0.424	2.436	-1.388	-0.099	-2.755	-0.199	-0.405	-1.475	2.778	0.042
	[0.15]	[0.11]	[0.06]	[0.09]	[0.09]	[0.18]	[0.15]	[0.10]	[0.09]	[0.24]	[0.10]	[0.17]	[0.20]	[0.27]	[0.14]
Wheat	0.398	-1.971	-0.248	-0.360	0.366	0.533	-0.100	-0.700	0.635	2.800	0.450	1.206	-0.904	0.768	-0.210
	[0.13]	[0.08]	[0.05]	[0.06]	[0.07]	[0.17]	[0.11]	[0.10]	[0.07]	[0.18]	[0.08]	[0.13]	[0.14]	[0.20]	[0.12]
Corn	1.764	-2.269	-0.114	2.272	-0.941	1.986	-2.269	-0.931	0.093	-0.787	-1.082	0.049	-2.488	4.258	-1.037
	[0.47]	[0.35]	[0.23]	[0.28]	[0.42]	[0.56]	[0.37]	[0.34]	[0.25]	[0.62]	[0.36]	[0.51]	[0.70]	[0.87]	[0.42]
Manioc	3.251	-1.821	0.809	0.280	-1.160	2.561	0.192	2.299	-0.451	-2.758	-0.476	-2.011	3.277	-5.891	2.707
	[0.29]	[0.20]	[0.10]	[0.16]	[0.18]	[0.36]	[0.25]	[0.20]	[0.16]	[0.50]	[0.17]	[0.30]	[0.34]	[0.57]	[0.25]
Other tubers	-1.144	-0.645	-0.167	-0.208	-1.954	0.567	-0.445	0.493	1.181	2.809	1.360	0.464	-1.763	-1.287	0.868
	[0.28]	[0.22]	[0.12]	[0.16]	[0.20]	[0.36]	[0.25]	[0.22]	[0.16]	[0.44]	[0.21]	[0.33]	[0.41]	[0.56]	[0.26]
Sugar	0.929	-0.082	-0.386	0.174	0.117	-0.004	-0.279	-0.993	0.615	-0.631	0.265	0.499	-1.408	3.302	-0.513
	[0.16]	[0.10]	[0.06]	[0.07]	[0.10]	[0.19]	[0.11]	[0.12]	[0.09]	[0.21]	[0.10]	[0.15]	[0.21]	[0.31]	[0.14]
Beans	0.542	1.268	-0.531	-0.107	0.226	-1.215	-1.679	0.497	0.264	1.042	0.731	-0.853	-0.866	1.312	-0.502
	[0.19]	[0.16]	[0.07]	[0.10]	[0.12]	[0.22]	[0.17]	[0.14]	[0.10]	[0.30]	[0.13]	[0.20]	[0.27]	[0.35]	[0.15]
Vege-tables	-0.506	0.069	0.447	-0.175	-0.160	0.376	-0.179	-0.786	-0.498	1.008	-0.468	0.232	0.184	-0.325	-0.372
	[0.22]	[0.18]	[0.08]	[0.12]	[0.14]	[0.25]	[0.18]	[0.14]	[0.10]	[0.31]	[0.16]	[0.20]	[0.30]	[0.37]	[0.16]
Fruit	-0.288	0.069	-0.193	0.065	-0.062	0.157	0.551	0.356	-0.826	-0.882	0.944	0.503	-0.418	-2.086	0.008
	[0.30]	[0.28]	[0.11]	[0.17]	[0.17]	[0.36]	[0.27]	[0.20]	[0.15]	[0.53]	[0.20]	[0.30]	[0.45]	[0.63]	[0.26]
Meat	0.616	0.158	-0.125	-0.370	-0.041	-0.382	-0.298	0.732	-0.163	-0.421	0.314	-0.006	0.502	-1.162	-0.125
	[0.12]	[0.08]	[0.05]	[0.06]	[0.07]	[0.16]	[0.10]	[0.09]	[0.07]	[0.18]	[0.08]	[0.12]	[0.14]	[0.19]	[0.12]
Fish	1.552	-1.859	0.216	0.800	0.375	2.932	2.579	0.360	0.284	-1.581	-2.561	-0.226	1.521	-3.561	2.393
	[0.44]	[0.30]	[0.15]	[0.22]	[0.24]	[0.54]	[0.37]	[0.31]	[0.25]	[0.76]	[0.27]	[0.42]	[0.48]	[0.74]	[0.40]
Milk	-1.650	-0.968	1.035	-0.280	-1.205	-1.656	0.362	0.407	0.172	-0.156	0.082	-3.371	2.311	-1.243	0.980
	[0.27]	[0.20]	[0.12]	[0.14]	[0.21]	[0.33]	[0.24]	[0.20]	[0.14]	[0.33]	[0.18]	[0.28]	[0.35]	[0.42]	[0.23]
Eggs & dairy	0.956	-1.118	-0.182	-0.453	0.466	1.203	-0.183	0.236	0.433	2.571	0.317	1.063	-2.470	-0.716	-0.301
	[0.20]	[0.13]	[0.07]	[0.10]	[0.11]	[0.24]	[0.17]	[0.15]	[0.10]	[0.28]	[0.12]	[0.21]	[0.23]	[0.35]	[0.18]
Oils & fats	-0.809	1.221	-0.906	-0.156	0.806	0.626	0.420	-0.961	0.468	-0.525	0.728	0.650	-3.598	2.732	-0.192
	[0.15]	[0.10]	[0.05]	[0.07]	[0.09]	[0.17]	[0.12]	[0.10]	[0.08]	[0.19]	[0.11]	[0.15]	[0.19]	[0.27]	[0.13]
Other foods	-0.277	-0.319	-0.274	0.095	0.468	-0.580	-0.014	-0.083	0.096	0.342	-0.076	0.108	-0.245	0.025	-1.440
	[0.19]	[0.12]	[0.08]	[0.09]	[0.11]	[0.21]	[0.15]	[0.13]	[0.10]	[0.26]	[0.12]	[0.20]	[0.21]	[0.30]	[0.17]
NON FOODS															
Housing	-0.088	0.346	0.270	0.037	-0.101	-0.237	-0.054	-0.053	-0.112	-0.033	0.110	-0.152	0.754	0.009	0.019
	[0.09]	[0.06]	[0.04]	[0.04]	[0.05]	[0.11]	[0.07]	[0.07]	[0.05]	[0.13]	[0.06]	[0.09]	[0.09]	[0.13]	[0.09]
Fuel	0.064	-0.346	0.091	0.262	-0.003	-1.209	-0.168	0.128	-0.050	-0.095	-0.535	-0.165	0.554	-0.077	-0.590
	[0.13]	[0.07]	[0.05]	[0.06]	[0.07]	[0.14]	[0.10]	[0.09]	[0.08]	[0.17]	[0.08]	[0.12]	[0.14]	[0.25]	[0.11]
Clothing	0.166	0.218	0.004	0.008	-0.139	0.747	-0.545	0.205	0.046	0.880	-0.115	0.229	-0.065	-0.309	0.109
	[0.15]	[0.10]	[0.06]	[0.07]	[0.09]	[0.18]	[0.12]	[0.11]	[0.08]	[0.21]	[0.10]	[0.15]	[0.17]	[0.24]	[0.14]
HH goods	0.353	-0.026	0.124	0.049	-0.065	-0.248	-0.390	0.085	0.007	0.110	-0.077	0.500	0.725	0.204	0.023
	[0.11]	[0.07]	[0.04]	[0.05]	[0.06]	[0.13]	[0.09]	[0.08]	[0.06]	[0.16]	[0.07]	[0.11]	[0.12]	[0.17]	[0.10]
Other goods	-0.045	-0.188	0.041	-0.090	0.091	-0.045	0.118	-0.009	-0.125	-0.201	0.000	-0.086	-0.114	0.009	0.605
	[0.11]	[0.07]	[0.04]	[0.05]	[0.06]	[0.13]	[0.09]	[0.08]	[0.06]	[0.14]	[0.07]	[0.11]	[0.11]	[0.16]	[0.10]
NUTRIENTS															
Calories	0.016	0.023	0.024	0.081	-0.167	0.271	-0.061	0.019	0.077	-0.039	0.032	-0.142	-0.304	0.060	0.070
	[0.04]	[0.02]	[0.01]	[0.02]	[0.02]	[0.04]	[0.03]	[0.03]	[0.02]	[0.05]	[0.02]	[0.04]	[0.04]	[0.06]	[0.03]
Protein	0.007	-0.268	0.140	0.090	-0.144	0.479	0.063	0.016	-0.018	0.297	-0.133	-0.176	-0.152	-0.108	-0.114
	[0.05]	[0.03]	[0.02]	[0.02]	[0.03]	[0.05]	[0.04]	[0.03]	[0.02]	[0.06]	[0.03]	[0.04]	[0.05]	[0.07]	[0.04]

Notes: See Table 5.1

Table 5.5 : Elasticities with respect to non-food prices

	Uncompensated				Compensated			
	Housing	Fuel	Clothing	HH goods	Housing	Fuel	Clothing	HH goods
FOODS								
Rice	-0.202	-1.509	0.298	-1.021	-0.116	-1.461	0.339	-0.977
	[0.05]	[0.08]	[0.16]	[0.14]	[0.05]	[0.08]	[0.16]	[0.14]
Wheat	-0.229	-0.175	0.856	-0.224	-0.097	-0.102	0.919	-0.157
	[0.04]	[0.06]	[0.11]	[0.11]	[0.04]	[0.06]	[0.11]	[0.11]
Corn	-0.477	1.114	0.143	-2.576	-0.512	1.094	0.127	-2.594
	[0.14]	[0.31]	[0.40]	[0.44]	[0.14]	[0.31]	[0.40]	[0.44]
Manioc	-0.322	1.158	0.267	0.748	-0.318	1.161	0.269	0.750
	[0.08]	[0.17]	[0.26]	[0.24]	[0.08]	[0.17]	[0.26]	[0.24]
Other tubers	-0.095	1.132	0.320	-0.189	0.009	1.190	0.369	-0.136
	[0.10]	[0.16]	[0.30]	[0.27]	[0.10]	[0.16]	[0.30]	[0.28]
Sugar	-0.206	-0.211	-0.146	-0.697	-0.153	-0.182	-0.121	-0.670
	[0.05]	[0.09]	[0.15]	[0.16]	[0.05]	[0.10]	[0.15]	[0.16]
Beans	-0.071	0.821	-0.756	1.278	-0.030	0.844	-0.736	1.299
	[0.06]	[0.11]	[0.20]	[0.20]	[0.06]	[0.11]	[0.21]	[0.20]
Vegetables	0.007	0.096	-0.517	-1.441	0.077	0.136	-0.483	-1.404
	[0.07]	[0.11]	[0.24]	[0.21]	[0.07]	[0.11]	[0.24]	[0.21]
Fruit	-0.179	-0.303	-0.692	0.816	-0.018	-0.213	-0.615	0.899
	[0.12]	[0.14]	[0.40]	[0.28]	[0.12]	[0.14]	[0.40]	[0.28]
Meat	-0.106	0.156	-0.249	1.374	0.052	0.244	-0.173	1.455
	[0.04]	[0.06]	[0.11]	[0.11]	[0.04]	[0.06]	[0.11]	[0.11]
Fish	-0.536	0.092	1.101	-0.475	-0.444	0.143	1.145	-0.428
	[0.12]	[0.23]	[0.38]	[0.36]	[0.12]	[0.23]	[0.38]	[0.36]
Milk	-0.014	1.606	0.305	0.145	0.148	1.696	0.383	0.228
	[0.08]	[0.16]	[0.24]	[0.25]	[0.08]	[0.16]	[0.24]	[0.25]
Eggs & other dairy	-0.061	-0.112	-0.388	-0.180	0.104	-0.020	-0.309	-0.096
	[0.06]	[0.09]	[0.18]	[0.16]	[0.07]	[0.09]	[0.18]	[0.16]
Oils & fats	-0.082	-0.726	0.035	-0.980	0.010	-0.674	0.079	-0.933
	[0.04]	[0.08]	[0.13]	[0.13]	[0.05]	[0.08]	[0.13]	[0.13]
Other foods	0.100	-0.071	-0.057	0.013	0.193	-0.019	-0.012	0.061
	[0.05]	[0.09]	[0.15]	[0.16]	[0.05]	[0.09]	[0.15]	[0.16]
NON FOODS								
Housing	-0.606	0.145	-0.198	-0.046	-0.445	0.234	-0.122	0.036
	[0.03]	[0.04]	[0.07]	[0.08]	[0.03]	[0.04]	[0.07]	[0.08]
Fuel & transport	0.170	-1.213	-0.018	0.422	0.379	-1.096	0.082	0.529
	[0.03]	[0.06]	[0.09]	[0.11]	[0.03]	[0.06]	[0.09]	[0.11]
Clothing & footwear	-0.187	-0.011	-0.682	-0.410	0.020	0.104	-0.583	-0.304
	[0.04]	[0.07]	[0.13]	[0.14]	[0.04]	[0.07]	[0.13]	[0.14]
HH goods	-0.027	0.116	-0.073	-0.964	0.194	0.240	0.033	-0.850
	[0.03]	[0.05]	[0.09]	[0.10]	[0.03]	[0.05]	[0.09]	[0.10]
Other goods	-0.014	-0.026	0.088	-0.151	0.240	0.115	0.209	-0.021
	[0.03]	[0.05]	[0.09]	[0.10]	[0.03]	[0.05]	[0.09]	[0.10]
NUTRIENTS								
Calories	-0.045	0.100	-0.038	-0.090	-0.020	0.114	-0.026	-0.077
	[0.01]	[0.02]	[0.03]	[0.03]	[0.01]	[0.02]	[0.03]	[0.03]
Protein	-0.045	0.129	-0.062	0.001	-0.008	0.150	-0.045	0.020
	[0.01]	[0.02]	[0.04]	[0.04]	[0.01]	[0.02]	[0.04]	[0.04]

Notes: See Table 5.1

Appendix 1

Table A1.1

Budget shares : means and proportion of households consuming by quartiles of per capita expenditure

South

	Urban SOUTH								Rural SOUTH							
	1-25Zile		26-50Zile		51-75Zile		76-100Zile		1-25Zile		26-50Zile		51-75Zile		76-100Zile	
	mean	%>0	mean	%>0	mean	m %>0	mean	%>0	mean	%>0	m mean	%>0	mean	%>0	mean	%>0
FOODS																
Cereals																
Rice	10.60	95	7.35	98	4.09	97	1.44	88	12.16	93	8.98	98	4.92	97	3.14	97
Corn	1.60	64	0.53	57	0.24	50	0.09	44	3.34	66	1.81	64	1.13	65	0.33	56
Wheat	5.84	91	5.11	97	3.89	96	2.16	89	3.91	76	4.32	90	3.78	94	2.43	95
Total	**18.11**	**97**	**13.08**	**98**	**8.29**	**97**	**3.76**	**90**	**19.48**	**98**	**15.20**	**99**	**9.90**	**98**	**5.93**	**97**
Tubers																
Manioc	1.00	49	0.48	48	0.19	45	0.07	39	2.02	58	0.94	56	0.69	58	0.22	57
Potatoes	0.89	55	0.84	72	0.66	82	0.36	80	0.90	36	1.18	58	1.09	72	0.64	78
Total	**2.20**	**81**	**1.52**	**88**	**1.01**	**90**	**0.54**	**85**	**3.46**	**79**	**2.58**	**88**	**2.15**	**90**	**1.01**	**92**
Sugar	**3.79**	**97**	**2.33**	**98**	**1.45**	**97**	**0.72**	**89**	**5.70**	**99**	**3.26**	**99**	**2.16**	**97**	**1.26**	**96**
Beans																
Red beans	1.72	35	1.07	38	0.60	39	0.20	32	2.46	35	1.79	40	0.88	34	0.49	36
Total	**5.26**	**95**	**2.90**	**96**	**1.55**	**94**	**0.55**	**81**	**6.69**	**91**	**4.19**	**95**	**2.26**	**95**	**1.16**	**91**
Vegetables																
Tomatoes	0.40	43	0.55	70	0.56	85	0.34	83	0.27	23	0.38	39	0.38	49	0.35	65
Onions	0.25	57	0.29	77	0.25	86	0.15	83	0.18	33	0.26	56	0.23	65	0.17	74
Garlic	0.42	72	0.28	76	0.19	76	0.09	67	0.50	66	0.28	63	0.15	57	0.09	62
Leafy vege	0.65	56	0.56	70	0.50	77	0.32	77	0.82	54	0.71	66	0.59	73	0.44	71
Total	**3.01**	**94**	**2.60**	**97**	**2.29**	**96**	**1.43**	**89**	**4.42**	**93**	**3.37**	**96**	**2.46**	**96**	**1.76**	**95**
Fruit																
Bananas	0.21	19	0.26	33	0.26	45	0.16	51	0.27	20	0.24	21	0.18	24	0.13	26
Oranges	0.20	20	0.29	33	0.31	48	0.25	57	0.26	17	0.30	24	0.33	33	0.24	38
Citrus	0.23	28	0.33	44	0.36	58	0.28	65	0.29	22	0.36	35	0.39	45	0.28	47
Non-citrus	0.66	33	0.58	48	0.66	61	0.63	68	0.90	35	0.69	38	0.67	45	0.61	48
Total	**0.96**	**50**	**1.05**	**68**	**1.23**	**79**	**1.13**	**81**	**1.25**	**49**	**1.27**	**62**	**1.48**	**73**	**1.24**	**73**
Meat and fish																
Beef	3.42	44	4.92	72	5.45	86	3.76	84	1.55	23	3.04	44	3.33	58	3.56	68
Pork	2.25	42	2.29	49	2.02	57	1.18	59	3.81	44	4.00	57	4.17	62	2.32	66
Chicken	1.57	27	2.36	47	2.26	58	1.40	59	2.21	34	3.20	52	3.33	65	2.59	69
Meat total	**7.34**	**75**	**9.65**	**91**	**9.80**	**95**	**6.40**	**88**	**7.96**	**71**	**10.49**	**87**	**11.25**	**92**	**8.85**	**93**
Fish	**1.12**	**26**	**0.94**	**35**	**0.74**	**37**	**0.49**	**34**	**1.00**	**24**	**0.82**	**25**	**0.63**	**26**	**0.41**	**30**
Dairy & eggs																
Eggs	0.88	53	1.10	76	0.94	85	0.47	82	0.94	56	1.31	80	1.32	89	0.96	89
Milk	1.21	42	1.57	63	1.65	77	1.11	80	2.02	50	2.27	65	2.14	79	1.35	83
Total	**3.20**	**74**	**3.77**	**90**	**3.73**	**95**	**2.60**	**89**	**3.69**	**74**	**4.90**	**89**	**5.06**	**93**	**3.44**	**92**
Oils & fats	**5.97**	**96**	**4.35**	**97**	**2.96**	**97**	**1.32**	**90**	**7.99**	**93**	**6.77**	**98**	**4.48**	**98**	**2.83**	**96**
Other foods	**8.01**	**98**	**7.52**	**99**	**6.54**	**99**	**6.40**	**98**	**7.69**	**99**	**6.43**	**100**	**6.52**	**100**	**4.94**	**100**
TOTAL FOOD	**58.92**	**98**	**49.62**	**99**	**39.52**	**99**	**25.26**	**98**	**69.26**	**99**	**59.19**	**100**	**48.29**	**100**	**32.81**	**100**
NON-FOODS																
Housing	15.21	100	17.15	100	19.94	100	23.83	100	9.57	100	11.84	100	12.19	100	12.69	100
Clothing	5.03	95	5.61	98	5.50	99	4.57	98	1.93	83	2.32	84	2.16	86	2.23	92
Fuel	4.90	75	6.50	87	8.09	91	8.73	93	5.59	79	8.15	91	10.13	94	10.31	95
Transport	2.57	48	3.50	65	4.88	76	7.90	86	1.23	27	2.05	40	3.87	57	10.24	75
HH goods	5.32	98	6.92	100	8.72	100	11.04	100	4.08	95	5.75	98	7.30	99	7.03	100
Other goods	8.25	99	11.09	100	14.30	100	21.65	100	8.48	99	11.02	100	16.73	100	25.71	100
PCE	**1218**		**2341**		**4309**		**14191**		**1128**		**2245**		**4038**		**10831**	
HH size	6.37		5.50		4.42		3.34		6.40		5.13		4.47		3.46	
% sample	5.0		10.3		14.8		18.2		4.5		4.3		2.8		0.9	

Notes:
See Table 4.4

Table A1.2

Budget shares : means and proportion of households consuming by quartiles of per capita expenditure

Northeast

	Urban NORTHEAST								Rural NORTHEAST							
	1-25%ile		26-50%ile		51-75%ile		76-100%ile		1-25%ile		26-50%ile		51-75%ile		76-100%ile	
	mean	%>0	mean	%>0	mean	%>0	mean	%>0	mean	%>0	mean	%>0	mean	%>0	mean	%>0
FOODS																
Cereals																
Rice	4.45	72	3.09	85	2.09	87	0.97	90	6.02	56	6.16	76	4.89	78	2.32	79
Corn	1.00	42	0.55	46	0.33	48	0.15	51	2.94	43	1.65	44	0.71	44	0.30	63
Wheat	6.86	90	6.15	96	4.33	92	2.33	92	1.84	56	2.67	72	2.64	78	1.12	68
Total	**12.41**	**95**	**9.89**	**98**	**6.83**	**93**	**3.56**	**92**	**10.79**	**86**	**10.49**	**92**	**8.25**	**92**	**3.77**	**79**
Tubers																
Manioc	4.88	95	2.20	95	1.03	89	0.33	81	9.17	95	5.05	95	2.79	92	1.17	79
Potatoes	0.09	15	0.19	35	0.27	52	0.25	76	0.01	2	0.08	7	0.10	19	0.06	32
Total	**5.46**	**95**	**2.79**	**96**	**1.63**	**92**	**0.73**	**89**	**9.74**	**96**	**5.79**	**95**	**3.38**	**92**	**1.46**	**79**
Sugar	**2.98**	**96**	**1.97**	**98**	**1.27**	**93**	**0.65**	**92**	**3.63**	**97**	**2.49**	**96**	**1.63**	**93**	**0.78**	**79**
Beans																
Red beans	2.18	53	1.71	66	1.14	73	0.42	72	3.15	35	1.70	39	1.46	52	1.25	58
Total	**2.71**	**62**	**2.03**	**75**	**1.41**	**82**	**0.59**	**82**	**4.71**	**55**	**3.05**	**64**	**2.19**	**70**	**1.34**	**68**
Vegetables																
Tomatoes	0.27	56	0.43	83	0.42	83	0.33	88	0.15	20	0.20	37	0.32	52	0.13	42
Onions	0.21	55	0.29	78	0.26	84	0.15	87	0.12	33	0.20	50	0.16	58	0.15	58
Garlic	0.13	54	0.14	68	0.10	70	0.06	74	0.21	50	0.16	63	0.16	70	0.13	58
Leafy vege	0.26	54	0.29	68	0.27	73	0.17	79	0.20	33	0.19	40	0.26	42	0.03	26
Total	**4.16**	**92**	**2.75**	**96**	**2.02**	**92**	**1.26**	**91**	**7.00**	**89**	**4.00**	**92**	**2.45**	**89**	**0.93**	**74**
Fruit																
Bananas	0.61	41	0.69	59	0.53	65	0.30	70	0.40	23	0.39	31	0.42	44	0.36	58
Oranges	0.17	21	0.22	37	0.25	50	0.22	60	0.16	11	0.24	20	0.14	27	0.07	16
Citrus	0.19	29	0.25	46	0.29	59	0.26	70	0.20	18	0.28	26	0.20	35	0.08	26
Non-citrus	1.31	56	1.23	68	0.99	75	0.67	79	1.32	45	1.48	51	1.81	55	0.70	68
Total	**1.59**	**65**	**1.64**	**79**	**1.54**	**85**	**1.20**	**87**	**1.63**	**53**	**1.96**	**61**	**2.18**	**65**	**0.91**	**68**
Meat and fish																
Beef	7.36	68	9.36	84	8.27	87	5.01	88	5.12	41	8.23	61	7.35	73	2.62	63
Pork	2.36	44	1.61	47	1.20	43	0.62	50	3.70	46	3.40	54	2.35	47	3.86	47
Chicken	2.63	44	3.18	58	2.72	61	1.72	66	2.87	35	3.03	48	2.21	40	1.97	63
Meat total	**13.01**	**89**	**14.68**	**96**	**12.62**	**92**	**7.56**	**90**	**13.32**	**83**	**16.28**	**93**	**13.79**	**91**	**9.67**	**79**
Fish	**3.45**	**53**	**2.08**	**49**	**1.39**	**46**	**0.73**	**50**	**4.40**	**47**	**3.49**	**44**	**2.15**	**42**	**0.67**	**37**
Dairy & eggs																
Eggs	1.17	52	1.20	67	0.97	73	0.50	80	0.93	39	1.12	56	0.96	59	0.84	74
Milk	1.22	32	1.21	43	1.01	50	0.86	66	2.56	40	2.26	45	2.02	51	2.83	68
Total	**4.16**	**77**	**4.30**	**88**	**3.82**	**88**	**3.03**	**91**	**4.24**	**67**	**4.32**	**76**	**4.21**	**75**	**5.29**	**79**
Oils & fats	**1.91**	**75**	**1.89**	**91**	**1.59**	**90**	**0.89**	**91**	**1.90**	**54**	**2.20**	**72**	**1.72**	**73**	**0.97**	**63**
Other foods	**8.17**	**98**	**7.97**	**99**	**8.86**	**99**	**5.44**	**98**	**7.26**	**99**	**6.16**	**98**	**6.34**	**98**	**7.67**	**89**
TOTAL FOOD	**59.92**	**98**	**51.90**	**99**	**42.89**	**99**	**25.51**	**98**	**68.61**	**99**	**60.23**	**99**	**48.29**	**98**	**33.43**	**89**
NON-FOODS																
Housing	11.64	100	12.76	100	14.60	100	21.58	100	7.47	100	6.82	100	8.12	100	5.86	100
Clothing	5.97	99	6.09	100	5.55	98	4.21	99	3.09	94	2.87	93	3.28	93	2.35	79
Fuel	5.90	85	7.10	91	8.92	92	9.20	95	6.88	87	9.68	93	9.19	91	11.92	95
Transport	2.14	44	3.27	68	4.49	77	8.10	88	1.17	27	1.92	37	5.88	55	6.14	58
HH goods	6.55	99	8.15	100	10.12	99	12.41	100	5.55	98	6.99	99	8.42	98	9.62	95
Other goods	8.11	100	11.28	100	14.73	100	22.55	100	7.37	99	11.83	100	18.12	100	32.49	100
PCE	**1115**		**2262**		**4150**		**13624**		**957**		**2149**		**3903**		**11076**	
HH size	6.02		5.22		4.29		3.82		5.84		3.90		3.43		2.79	
% sample	5.6		5.2		4.0		3.4		8.2		2.2		0.6		0.1	

Notes:

See Table A1.1

Table A1.3

Budget shares : means and proportion of households consuming by quartiles of per capita expenditure

Urban Center-West and North

	Urban CENTER WEST								Urban NORTH							
	1-25Zile		26-50Zile		51-75Zile		76-100Zile		1-25Zile		26-50Zile		51-75Zile		76-100Zile	
	mean	Z>0	mean	Z>0	mean	m Z>0	mean	Z>0	mean	Z>0	m mean	Z>0	mean	Z>0	mean	Z>0
FOODS																
Cereals																
Rice	12.58	99	8.37	98	4.49	96	1.83	93	2.74	80	2.67	89	2.06	94	1.06	89
Corn	0.40	29	0.53	33	0.37	42	0.18	48	0.07	11	0.20	18	0.10	22	0.06	25
Wheat	3.71	73	4.03	86	3.08	93	1.81	90	5.58	92	4.59	94	3.58	97	2.07	92
Total	**16.69**	**99**	**12.96**	**98**	**7.95**	**96**	**3.84**	**93**	**8.43**	**97**	**7.51**	**96**	**5.85**	**98**	**3.28**	**93**
Tubers																
Manioc	1.62	71	1.01	68	0.55	72	0.25	63	12.03	97	6.90	96	4.16	97	1.09	84
Potatoes	0.33	24	0.49	38	0.53	62	0.28	74	0.09	13	0.19	31	0.29	52	0.34	74
Total	**2.41**	**79**	**1.96**	**82**	**1.40**	**88**	**0.77**	**88**	**12.30**	**98**	**7.16**	**96**	**4.57**	**97**	**1.54**	**90**
Sugar	**2.31**	**95**	**1.91**	**97**	**1.29**	**95**	**0.80**	**92**	**2.23**	**97**	**1.62**	**97**	**1.30**	**97**	**0.61**	**93**
Beans																
Red beans	2.98	70	2.09	73	1.09	68	0.46	65	0.39	13	0.25	12	0.16	12	0.03	4
Total	4.34	93	2.95	95	1.54	94	0.62	92	2.57	69	2.10	81	1.43	82	0.55	77
Vegetables																
Tomatoes	0.70	43	0.77	65	0.83	81	0.62	89	0.21	36	0.39	61	0.49	83	0.40	85
Onions	0.21	44	0.35	72	0.26	77	0.17	86	0.38	67	0.44	81	0.41	90	0.26	87
Garlic	0.28	64	0.33	80	0.22	85	0.11	81	0.06	29	0.10	50	0.09	52	0.07	59
Leafy vege	0.43	35	0.40	45	0.41	60	0.28	72	0.49	52	0.55	65	0.54	73	0.42	76
Total	**3.43**	**94**	**3.21**	**96**	**2.72**	**96**	**1.91**	**92**	**1.59**	**86**	**1.93**	**94**	**2.08**	**96**	**1.66**	**90**
Fruit																
Bananas	0.69	40	0.59	45	0.36	48	0.27	57	0.34	24	0.42	40	0.49	54	0.45	62
Oranges	0.27	20	0.32	29	0.31	38	0.33	52	0.06	8	0.07	10	0.14	22	0.19	38
Citrus	0.28	24	0.36	30	0.34	40	0.37	59	0.19	25	0.24	42	0.27	53	0.31	61
Non-citrus	1.33	49	1.39	61	1.15	63	0.74	70	0.78	38	0.94	53	1.09	66	1.09	76
Total	**1.71**	**57**	**1.83**	**65**	**1.71**	**74**	**1.33**	**81**	**1.65**	**58**	**1.69**	**74**	**1.86**	**82**	**1.69**	**85**
Meat and fish																
Beef	6.02	63	6.71	76	7.17	84	4.47	90	6.87	64	10.23	86	9.85	93	6.08	89
Pork	2.07	34	2.15	41	2.02	46	1.39	54	1.05	18	0.82	20	0.67	21	0.44	33
Chicken	1.90	33	1.66	43	1.39	43	1.17	56	1.93	34	2.23	39	2.60	53	1.71	57
Meat total	**10.14**	**81**	**10.69**	**91**	**10.62**	**94**	**7.07**	**92**	**10.34**	**77**	**13.57**	**90**	**13.35**	**96**	**8.48**	**90**
Fish	**1.19**	**22**	**1.39**	**29**	**0.45**	**27**	**0.55**	**28**	**10.76**	**88**	**6.32**	**85**	**3.88**	**78**	**1.41**	**62**
Dairy & eggs																
Eggs	0.63	48	0.80	52	0.71	67	0.44	75	0.92	43	0.90	54	0.80	60	0.45	68
Milk	1.14	45	1.12	45	1.40	64	0.97	77	0.04	7	0.15	13	0.14	12	0.18	19
Total	**2.05**	**71**	**3.03**	**80**	**3.04**	**86**	**2.20**	**91**	**3.01**	**73**	**4.18**	**90**	**3.97**	**95**	**2.92**	**92**
Oils & fats	**7.24**	**97**	**5.62**	**95**	**3.83**	**96**	**2.01**	**93**	**1.22**	**73**	**1.35**	**89**	**1.44**	**95**	**0.99**	**90**
Other foods	**10.01**	**99**	**7.84**	**98**	**6.35**	**99**	**4.25**	**98**	**7.56**	**98**	**6.94**	**98**	**6.08**	**99**	**6.31**	**99**
TOTAL FOOD	**61.52**	**99**	**53.37**	**98**	**40.89**	**99**	**25.32**	**98**	**61.60**	**98**	**54.31**	**98**	**45.70**	**99**	**29.35**	**99**
NON-FOODS																
Housing	12.46	99	13.62	100	17.37	100	20.50	100	13.07	100	13.92	99	14.44	100	21.36	100
Clothing	3.66	97	4.55	96	4.42	98	4.05	96	5.47	96	5.71	98	5.53	98	4.32	97
Fuel	7.02	86	7.80	89	10.56	95	10.06	99	4.58	83	6.82	94	8.68	94	8.09	93
Transport	0.82	23	0.82	32	2.88	47	7.30	77	2.25	47	3.42	69	4.25	79	6.14	86
HH goods	6.15	99	7.90	100	10.00	100	11.36	99	6.62	100	7.36	100	9.68	100	12.00	100
Other goods	8.57	99	12.66	99	14.95	99	24.27	100	6.56	100	8.81	100	12.93	100	22.10	100
PCE	**1286**		**2289**		**4331**		**13124**		**1214**		**2288**		**4154**		**13628**	
HH size	6.26		5.57		4.65		3.94		7.08		6.01		5.01		3.85	
Z sample	0.5		0.8		1.1		0.9		1.2		2.1		1.7		1.5	

Notes:
See Table A1.1

APPENDIX 2
Components of commodity price indices

Group	Component
RICE	rice
CORN	green corn
	corn flour
WHEAT	bread
	french bread
	other wheat bread
	biscuits
	pasta
	flour
MANIOC	fresh manioc
	manioc farinha
POTATOES	English potatoes
	sweet potatoes
SUGAR	raw sugar
	sugar juice
	other sugars
BEANS	black beans
	mulatto beans
	lentils, sweet peas
	other beans
MEAT	beef with bones
	beef without bones
	dried beef
	pork with bones
	pork without bones
	bacon
	chicken
	chicken giblets
	canned pork meat
	sausage
FISH	fillet
	non-fillet
	salted
	bacalhao
	canned sardines
MILK	fresh milk, unpasteurized
	pasteurized milk
	canned milk
NON-MILK DAIRY & EGGS	cheeses
	yogurt
	dairy products
	eggs
OILS & FATS	pork fat
	shortening
	margarine
	soybean & other vegetable oils
HOUSEHOLD GOODS	liquid soap
	bar soap
	sapoleo
	disinfectant
	insecticide
	tile & light cleaning materials
	cleaning materials
	lighting services
	shaving products
	toothbrushes & toothpaste
	skin products
	mouth products
	talcum
	deodorant
	toilet paper
VEGETABLES	lettuce
	collard
	cabbage
	spicy vegetables
	tomatoes
	chayote
	squash
	cucumber
	haricot bean
	tomato paste
	onions
	garlic
	carrots
	beets
	avocado
FRUITS	orange
	tangerine
	lemon
	common banana
	large banana
	small banana
	papaya
	pineapple
	apple
	fruit juice
OTHER FOODS	beer
	other non-alcoholic beverages
	carbonated beverages
	coffee
	maté and tea
	salt
	vinegar
	condiments
HOUSING	market & imputed rents
FUEL & TRANSPORT	gasoline
	wood
	coal
	keros
	bus transport
CLOTHING & FOOTWEAR	children's uniforms
	men's long pants
	women's long pants
	women's shirts
	girls' dresses
	women's slacks
	children's clothes
	men's underwear
	men's shirts
	children's shirts
	women's undershirts
	children's undershirts
	women's lingerie
	men's socks
	children's socks
	men's shoes
	women's shoes
	childen's shoes
	women's sandals
	children's sandals
	Japanese sandals
	cloth