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Measuring absolute and relative poverty: The sensitivity of estimated household consumption to survey design[1]

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This paper illustrates that questionnaire design significantly affects estimates of household consumption and absolute poverty. In a between-groups designed experiment in El Salvador, longer, more detailed questions on consumption result in an estimate of mean, household consumption that is 31 percent greater than the estimate derived from a condensed version of the questionnaire. The distribution of household consumption from the long questionnaire first-order stochastically dominates the distribution from the short questionnaire over 96 percent of the range of the distribution. This difference in estimated consumption results in a measure of absolute, severe poverty from the short questionnaire that is 46 percent greater than the estimate derived from the long questionnaire. In contrast, the level of relative poverty is unaffected by the changes in questionnaire design. An implication of this paper is that modifications over time to questionnaires will result in spurious estimates of change in consumption and absolute poverty levels.

Keywords: Household consumption, poverty, El Salvador, questionnaire design, stochastic dominance, bootstrap

1. Introduction

The measurement of total household consumption is an important input to measuring poverty and consequently to designing anti-poverty policies. In order to estimate the level of poverty and to describe characteristics of the poor, it is first necessary to identify who is poor. This paper adds to an extensive literature on the issue of identifying who is poor, but focuses on the relatively neglected aspect of estimating household consumption in order to establish whether consumption is at a level lower than some poverty line.[2]

Much of the literature on identifying who is poor, starts with an estimate of household consumption and proposes methods for adjusting the estimate to correct for the concern that households of various sizes and composition require different levels of total household consumption to attain the same level of welfare. For example, the

[1] The views and opinions expressed in this paper do not reflect the views of the Economic Research Service of the US Department of Agriculture.

[2] For a survey of issues related to measuring poverty and a discussion of why consumption is often the preferred measure of welfare for poverty analysis, see Ravallion [38] and Lipton and Ravallion [33].

literature on adult-equivalence scales discusses how to compare consumption levels across households with varying numbers of males and females of differing ages. [3] The literature on household economies of scale considers the issue that the cost of certain household consumption goods (for example, rent) doesn't necessarily increase as the number of household members increases. [4] There is also a large literature which proposes alternatives to household consumption (or income) to measure poverty, [5] but there exists little research on estimating the fundamental measure of consumption.

This paper highlights the importance of survey instruments for measuring consumption and poverty by showing that estimates of household consumption and thereby poverty are highly sensitive to questionnaire design. World Bank [42] provides an example of this by showing that in 1994, Ecuador had an estimated headcount index of 52 percent and then in 1995 poverty was estimated to decline to 45 percent of the population. This decline in poverty corresponded with no policies to reduce poverty nor with significant growth in the economy. The decline in poverty though, did correspond with a change in the design of the questionnaire whereby more than 25 percent additional items were added to the list of household consumption goods.

In the case of this example from Ecuador, there is no way to determine the extent to which the change in poverty is actual or how much of it is resulting from the change in the questionnaire design. [6] This paper uses data from an experiment carried out in El Salvador in which two questionnaires were designed to elicit the same measure of household consumption, but one was longer and asked more detailed questions on consumption levels while the other was more condensed. For example to determine the value of cheese consumption, the long questionnaire asks a set of questions about the consumption of four types of cheese (fresh, *duro blandito*, curd, and any other cheese), while the short questionnaire only specifies cheese in general. By design both questionnaires should produce the same estimate of household consumption if answered accurately, but the results show that the longer questionnaire results in an estimate of consumption that is significantly higher than that coming from the more

[3] For details on adjusting measured consumption for differences in the consumption needs of children, women and men; see Deaton and Muellbauer [11,12]. Examples of the importance of this are found in Aaberge and Melby [1], Lancaster et al. [30], Ferreira et al. [17], Duclos and Mercader-Prats [15].

[4] See Lanjouw and Ravallion [32] and Deaton and Paxson [13] for a discussion of economies of scale in consumption, and see Dreze and Srinivasan [14] and Lanjouw et al. [31] for examples of the sensitivity of poverty measurement to economies of scale.

[5] Sen [39,40], Nussbaum and Sen [36], and Anand and Sen [2] are proponents for measures which focus on functionings and capability as an alternative or compliment to an income or consumption based measure of poverty. One example of this approach is provided by Klasen [29] who compares an expenditure based measure of poverty with an alternative measure based on deprivation.

[6] World Bank [42] suggests that the standard strategy of adjusting the poverty line to reflect price changes over time is not sufficient when the questionnaire designs. They propose a strategy of re-estimating the poverty line and following this assert that poverty in Ecuador increased to 56 percent in 1995, rather than the estimated decline to 45 percent. This redefining of the poverty line, though, introduces the potential problem that the new poverty line is mistakenly set at a different standard of living, and this change in the definition of poverty affects the estimated change in the level of poverty.

condensed version of the same questionnaire. An important implication of this result is that when questionnaires change over time, it is likely that the estimated value of consumption will change and thereby the estimate of absolute poverty.

Following this introduction, Section 2 of this paper proceeds with a description of the data and design of the experiment. Crucial to the experimental design is that the two samples drawn are random and representative of the same population. Similar samples are necessary to ensure that the differences in the estimated levels of consumption are generated from the differences in the questionnaire design and not due to differences in the sample design. Tests for equality of the two samples show that the randomization was successfully implemented. Section 3 examines the distributions of consumption as measured by the short- and long-questionnaire samples. The primary result is that consumption levels as estimated by the long-questionnaire sample are significantly greater over the entire range of plausible consumption values.

Section 4 focuses on how the observed differences in consumption levels affects measured levels of poverty. Using a poverty line set by the World Bank [43], the estimated levels of absolute poverty are significantly higher when the data from the short-questionnaire sample is used. This section presents the somewhat surprising result, though, that the estimated level of relative poverty for the nation is similar across the two samples.[7] This result is tempered by noting that the distribution of the relatively poor is significantly different across the two samples. Section 5 presents some concluding comments.

2. Data and experimental design

The data used in this paper are from interviews of the 4,229 households in the third round of the 1994 EHPM survey.[8] Of these households, 3,182 were administered the short questionnaire and 1,047 households were administered the long questionnaire. Responses from 100 households in the long-questionnaire sample are considered invalid due to missing data and have been dropped, thereby producing an effective sample size of 947 households.[9] Similarly, 122 households were dropped

[7] Whereas absolute poverty is based on a fixed poverty line, relative poverty is based on a poverty line that is relative to the distribution of the welfare measure. In this paper, I consider relative poverty lines that are equal to one half the median and one half the mean of per capita, household consumption.

[8] 4,234 households were actually interviewed, but five households are dropped from the data base due to missing file identification codes.

[9] The dropped households from the long questionnaire consist of three households which had missing values for total food consumption, 20 households which had missing values for the non-food items, and 77 households which did not answer the food item questions but rather gave an aggregated response to all of the food items.

from the short-questionnaire sample, resulting in an effective sample size of 3,060 households.[10]

A priori, one might be concerned that dropping these observations biases the estimated level of consumption, however comparisons of the samples with and without the excluded observations show that the demographic composition of the samples are quite similar and that the qualitative nature of the results are not affected. A comparison of Table 2 and Table A4 in the Appendix shows that the two samples are very similar with respect to age, sex, literacy status, and household composition. Furthermore, comparisons of estimated consumption levels from the samples with the aggregated responses included and excluded show no statistically significant differences.

An argument for excluding households which failed to answer sections of the questionnaire is that by not completing the questionnaire, they contaminate comparisons of the questionnaire design. By responding with an aggregated response or not responding at all, these households contaminate a test of whether answering a long, disaggregated list of questions results in different responses than a short, aggregated list of items. Similarly it can be argued that for purposes of future questionnaire design, better interviewer training would result in higher compliance with the design of the questionnaire.[11]

In order to test whether a more detailed questionnaire would result in different estimates of poverty (and welfare in general), *the Grupo Asesor Economico y Social* (GAES) and the *Direccion de Informacion* (DI) of the Government of El Salvador, with assistance from the World Bank constructed two consumption modules – one long and the other short. These two consumption modules were integrated with the complete questionnaire for the third round of El Salvador's nationally representative, multi-purpose household survey, or *Encuesta de Hogares de Prop ósitos Multiples de El Salvador* (EHPM), which was in the field from July to September of 1994.

The short questionnaire contains 18 categories of food items, which is intended to include all potential food consumption items, and 6 non-food consumption items. The long questionnaire was constructed from the short questionnaire by expanding each of the food and non-food categories into at least two items.[12] The results from a 1990–1991 income and expenditure survey were used to help expand the questionnaire by selecting those items (within a category from the short questionnaire) which were

[10] The dropped households from the short questionnaire consist of one household which had missing values for non-food consumption and an additional 121 households which did not answer the questions on food consumption separately but rather gave an aggregated response to all food items.

[11] An argument against excluding the households that responded with an aggregated response might be that their decision to respond in this way was affected by the design of the questionnaire. Similarly, even though these households did not answer the questions item by item, it is possible that simply hearing the long list of items prompted their recall and resulted in answers different from the short questionnaire.

[12] An exception to this is the five items which make up the basic nutrition basket (corn tortillas, franés bread, sweet bread, beans, and rice). In this case the long questionnaire is exactly the same as the short questionnaire.

consumed most frequently. This resulted in a longer questionnaire with 72 food items and 25 non-food items. See Table A1 in the Appendix for a comparison of the items contained in each questionnaire.

In addition to varying the list of items, the questions about how much of each item is consumed also differs slightly across the two questionnaires. In the short questionnaire, the respondent is first asked: *En los ultimos 7 dias se consumi ó en este hogar, alguno de los siguientes alimentos?* [In the last seven days did you consume in your home any of the following items?] The items are then read aloud and the respondent for the household responds to each with a yes or no. The respondent then states the frequency of consumption and whether the item was purchased, home-produced and consumed, or from some other source. Finally, the respondent estimates the value of each type of consumption. In the long questionnaire, the first prompting question asks whether the item was consumed at all during the last six months. The next question asks the frequency of consumption in the last month, and finally a set of questions ask the respondent to estimate the value of consumption from purchases, home production, and other sources. The primary difference is that the recall period for the initial prompting questions varies across the questionnaires. For more details, Tables A2 and A3 in the Appendix provide a copy of the short and long questionnaires in Spanish.

The goal of the design of the two questionnaires was to ensure that both would generate the same average estimate of total household consumption if administered to the same households and if answered correctly. Partly due to concerns about respondent fatigue and a desire to increase simplicity of fieldwork (thereby improving data quality), all households answered either the long or the short questionnaire, and none answered both. This decision to use a between-groups design (different subjects in different conditions) eliminates the potential problem of a within-groups design that respondents recognize over the duration of the survey that their answers should be the same for both questionnaires.

Because both questionnaires were not administered to the same household, though, GAES and DI stratified the sample to ensure that those households who received the short questionnaire were similar to those who received the long questionnaire. Successfully implementing this design feature is crucial to the experiment, because it is necessary to assume that the variation in responses to the long and short consumption sections of the survey is due to the questionnaire design and not to differences in the sample design. For this reason, it is important to test for differences across the two samples in characteristics which are likely to be correlated with consumption.

Since consumption levels often differ significantly by region, Table 1 presents information on the regional distributions of the two samples. The first column under the *short* and *long* headings contain the number of sample households in each of the five regions of El Salvador and also in the urban and rural areas. A basic, non-parametric test of whether the two samples are distributed similarly across regions is

Table 1
Regional representation, Comparison of the short- and long-questionnaire samples

	Short questionnaire		Long questionnaire	
	Frequency	Percent	Frequency	Percent
Region:				
Western	662	22%	220	23%
Central 1	656	21%	223	24%
Central 2	602	20%	182	19%
Eastern	632	21%	171	18%
San Salvador (AMSS)	508	17%	151	16%
Total	3060	100%	947	100%
Rural/urban:				
Urban	1747	57%	535	56%
Rural	1313	43%	412	44%
Total	3060	100%	947	100%

Notes: The χ^2 statistic for the independence of region and the two samples is 5.03 with 4 degrees for freedom and a p-value of 0.28. The χ^2 statistic for whether the two samples are distributed similarly across rural and urban regions is 0.09 with 1 degree of freedom and a p-value of 0.76.

to test if the samples are independent of the regions.[13] The p-values are 0.3 and 0.8 for tests of independence of the samples and the five regions, and independence of the samples and the rural/urban distribution. Both tests support the assumption that the geographic distributions of the two samples are similar.

The similarity of the two samples is further illustrated in Table 2 which compares average values of individual-level and household-level characteristics. In both samples average household size is approximately 4.7 individuals, with two children under the age of ten, and 1.7 individuals who are employed. The characteristics of the individuals are also essentially the same with an average age in both samples between 24 and 25 years, and 32 percent of both samples self-classify themselves as illiterate. Most importantly, a constructed figure for household income, calculated by GAES, shows that mean income is also similar across samples. Since income and consumption are typically highly correlated, it is natural to expect that actual mean levels of consumption are the same across the samples. None of the t-statistics supports rejecting the null hypotheses of equality of mean values across the long- and short-questionnaire samples.[14]

[13] The test statistic is: $\Sigma\Sigma$ (Observed – Expected Frequency)^2 / (Expected Frequency) and is distributed as a χ^2 with degrees of freedom equal to (number of columns-1) * (number of rows-1). The expected frequency in each cell is the product of the marginal probability distributions and the total number of households.

[14] While there are no significant differences in means across the two samples, it is noteworthy that average per capita income of the households who were administered the short questionnaire is slightly higher than those households who were administered the long questionnaire. Table A4 in the Appendix replicates Table 2 except that the sample does not exclude the 222 households that are deemed invalid.

Table 2
Household and individual characteristics, comparison of the short- and long-questionnaire samples

	Short questionnaire			Long questionnaire			H_o: Long =
	Mean	Short Std. Dev.	N	Mean	Std. Dev.	N	t-statistic
Household size	4.68	(0.055)	3060	4.70	(0.083)	947	−0.18
Children less than age 10	2.14	(0.044)	3060	2.17	(0.074)	947	−0.38
Number in Hh employed	1.68	(0.023)	3060	1.68	(0.036)	947	0.07
Age in years	24.8	(0.229)	14424	24.3	(0.366)	4417	1.11
Gender (1 = male, 2 = female)	1.52	(0.004)	14424	1.51	(0.007)	4417	0.84
Literate (1 = no, 2 = yes)	1.32	(0.012)	12838	1.32	(0.016)	3961	−0.02
Household income	2610	(143.7)	3060	2360	(145.0)	947	1.23
Household income, per capita	518	(29.01)	3060	463	(29.05)	947	1.35

Notes: The units for income are *Colones* per month. The t-statistics test the null hypotheses that the mean values are the same across the long- and short-questionnaire samples. None of the null hypotheses is rejected at $\alpha = 0.1$ level.

A final comparison of the samples exploits an unusual characteristic of the questionnaire design. In designing the questionnaire GAES wanted to ensure that both the long and short questionnaires asked about the consumption of corn, bread (franc és and sweet), beans and rice. The result of this is that the first five items on both questionnaires are exactly the same, and if the samples are from the same population then the consumption levels on the sum of these five items should be the same. The mean value of per capita consumption for these five items as measured by the short questionnaire is 95.3 Colones per month, while that for the long questionnaire is 101.5. The t-statistic for the test that these estimates are the same is 0.4. The medians are also very similar, although in this case the short questionnaire has a greater value with a median value of 59.7 compared to a median value of 54.9 from the long questionnaire.

All of the descriptive statistics in this section support the hypothesis that the sample administered the short questionnaire is representative of the same population as the sample administered the long questionnaire. This supports the assumption that the two samples have similar actual consumption levels. The core argument of this paper is that since the samples are properly drawn random samples of the same population, then any significant differences in measured consumption levels is attributable to the design of the questionnaires (and not due to actual differences in consumption levels).

3. Comparison of the distributions-short design vs. long design

In this section, consumption data from the short questionnaire are compared to the consumption data from the long-questionnaire. Table 3 shows that the estimated mean of per capita, household consumption from the long questionnaire is 31 percent greater than the mean value from the short questionnaire. Similarly, the average value of per capita, food consumption from the long questionnaire is 20 percent greater than the average per capita, food consumption from the short questionnaire,

Table 3
Average per capita consumption, comparison of the short- and long-questionnaire samples

	Short questionnaire		Long questionnaire	
	Mean	Std. Dev.	Mean	Std. Dev.
Total household consumption, per capita	342.8	(10.57)	448.5	(21.16)
Food consumption, per capita	294.6	(9.05)	354.5	(16.47)
Non-food consumption, per capita	48.3	(2.74)	91.0	(7.42)

Notes: Consumption is measured in *Colones* per month. Sample size is 3,060 households for the short questionnaire and 947 households for the long questionnaire. Standard errors are corrected for sample design effects, which range from 1.36 for per capita food consumption (long questionnaire) to 2.54 for per capita non-food consumption (long questionnaire).

while average non-food consumption is 88 percent greater in the long than in the short questionnaire. All three of these differences are statistically significant, with p-values of less than 0.01.

While means are commonly used to compare distributions, they typically are not useful statistics for making good policy decisions. This is particularly relevant when considering that household survey data often contain numerous extreme or outlier values which can have a large influence on average values. The distributions of consumption and income also frequently exhibit significant positive skewness resulting in average values which are significantly larger than the median value. Understanding the effect of specific policies almost always requires knowing what the impact of the policies will be to ranges of the distribution and not specific points. One example is that of targeting a poverty-relief program. In this case the policy maker is much more concerned about the shape of the lower end of the distribution rather than the mean.

3.1. Comparison of percentiles

In order to observe more of the two distributions, Table 4 presents nine points on each of the distributions beginning with the 10th percentile, incrementing by 10 percentage-point steps, up to the 90th percentile. From this table, one can see for example, that 30 percent of the observations from the long questionnaire have per capita, monthly consumption levels less than 219.8 *Colones*, while the 30th percentile from the short questionnaire is 172.6. At this percentile the measure of consumption resulting from the long questionnaire is 27 percent greater than the estimate derived from the short questionnaire. It is useful to note that the difference in the means is not driven primarily by outliers but that the estimated value of consumption from the long questionnaire is between 25 and 45 percent greater than the estimate from the short questionnaire at each tested point of the distribution.

In order to determine whether these differences between the percentiles of the short and long consumption figures are statistically significant, each of the percentiles is bootstrapped with 1,000 replications to generate standard errors of the percentiles. One complication to testing for significance is that the standard bootstrap assumes

Table 4
Total household consumption-percentiles comparison of the short- and long-questionnaire samples

	Short questionnaire		Long questionnaire		Difference
Percentile	Consumption	Std. Dev.	Consumption	Std. Dev.	(percentage)
10th	98.5	(5.00)	141.0	(11.2)	43%
20th	137.7	(7.27)	179.0	(10.9)	30%
30th	172.6	(6.83)	219.8	(11.5)	27%
40th	204.2	(7.67)	257.2	(16.4)	26%
50th (median)	245.2	(8.16)	310.8	(20.2)	27%
60th	295.1	(10.4)	375.6	(29.2)	27%
70th	352.3	(15.6)	478.7	(34.0)	36%
80th	452.6	(16.4)	609.0	(34.3)	35%
90th	619.2	(24.1)	869.0	(63.9)	40%

Notes: Units of consumption are per capita, monthly *Colones*. Standard errors are generated at each percentile by bootstrapping with 1,000 replications. 'Difference' is the percentage difference between estimated consumption from the long and the short questionnaire at each percentile. The number of observations in the short-questionnaire sample is 3060, and the number in the long-questionnaire sample is 947.

that the data is a single-stage, random sample of the population. As with most household survey data, this is not descriptive of the design of the EHPM sample, which was collected in two stages by first selecting clusters and then households withing each cluster.

Standard errors for a multi-stage sample are typically significantly larger than for single-stage, random samples because observations drawn from within a cluster are likely to have characteristics which are more similar than observations drawn from different clusters. See Kish [28] and Cochran [6] for a lengthy discussion of the effect of sample design on estimating sampling variance. A simple representation of this effect is that standard errors need to be corrected by the factor: $1 + (m - 1)\rho$, where m is a weighted average cluster size (the average number of households, or the ultimate sampling units, in each of the clusters) and ρ is a measure of the intra-cluster correlation coefficient. See Gleason [21] for details on the estimation of ρ.

Since the EHPM data is not a single-stage random sample, but rather a cluster-based sample, a bootstrap procedure which re-samples the data following a two-stage design similar to the actual design is used to construct the estimates of the standard errors. In the first stage, clusters are randomly selected, and then in the second stage, households are drawn in each of the selected clusters. See Efron and Tibshirani [16] for a general discussion of the bootstrap, and Deaton [10] and Shao and Tu [41] for more discussion on using the bootstrap to replicate sample design. From Table 4 it can be seen that all of the differences in the percentiles are statistically significant.

3.2. Tests of stochastic dominance

Tables 3 and 4 above show that the measure of consumption resulting from the long questionnaire is significantly (statistically and qualitatively) greater than the estimated

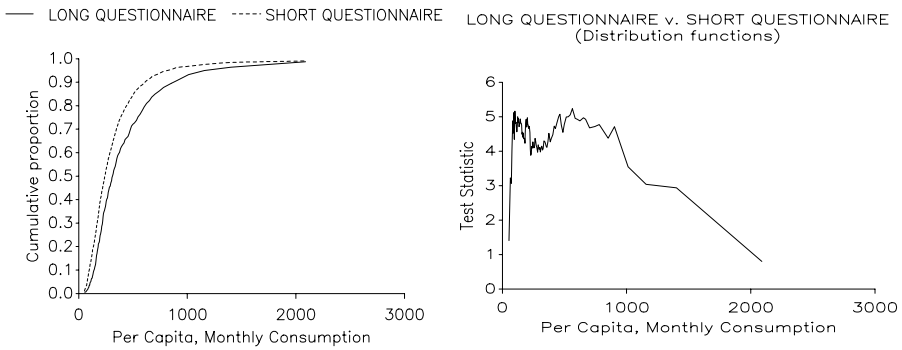

Fig. 1. Test of first-order stochastic dominance, total consumption.

value of consumption from the short questionnaire. One way to explore how this difference in consumption levels affects poverty measurement is to examine the range over which the long questionnaire stochastically dominates the short questionnaire. To see how dominance relates to poverty measurement, assume that x represents some measure of welfare, in this paper it is per capita household consumption, and let $F(x)$ be the cumulative density function. Consider two distributions of x: $F_1(x)$ and $F_2(x)$. If $F_2(x) > F_1(x) \forall x$, then the distribution of x described by $F_1(x)$ first-order stochastically dominates distribution $F_2(x)$. What we know from the inequality is that distribution 2 always has more mass in the lower part of the distribution, and as such is 'poorer' than distribution 1.

Stochastic dominance can be restricted in such a way that it need not hold over all x, but for some range in which we are particularly interested. An example of this is to look at first-order stochastic dominance over some range of feasible poverty lines, so we consider all z such that $z_0 \leqslant z \leqslant z_1$. Since the headcount index, P_0, is the fraction of the population below the poverty line, z, then $P_0(z; F) = F(z)$. If it is the case that: $F_2(z) > F_1(z)\ \forall z$ such that $z_0 \leqslant z \leqslant z_1$ then we know that the headcount index will be higher for distribution 2 over all candidate poverty lines ranging from z_0 to z_1. For definitions of higher-order dominance and more details on the connection between stochastic dominance and poverty and inequality analysis, see Cowell [7], Davidson and Duclos [9], and Howes [22].

Figure 1 presents the results from testing whether first-order stochastic dominance holds between the two distributions of consumption. The left-hand graph in Fig. 1 presents the cumulative distribution functions of total consumption resulting from the long and short questionnaire. The graph on the right-hand side presents the test statistic for whether the observed difference between the two cdf's is significant. The density function and the test statistics are constructed following Howes [22,23] where t-statistics are calculated over a grid of points and which implements the corrections for complex survey design. Dardanoni and Forcina [8] show that the Howes test produces conservative estimates as it does not use information on the asymptotic covariance structure of the difference in the poverty incidence curves. Davidson and

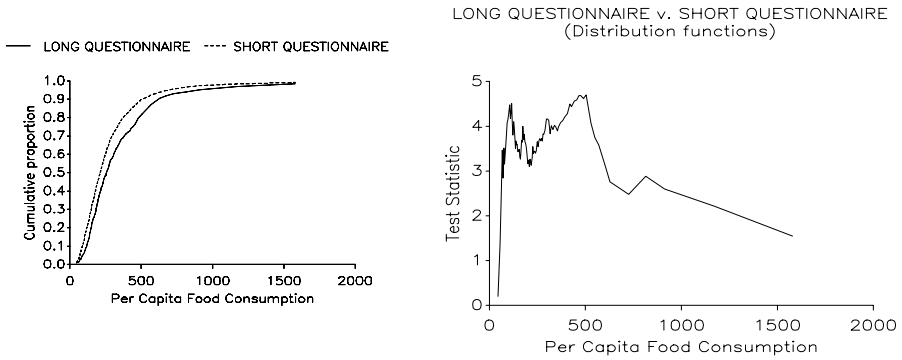

Fig. 2. Test of first-order stochastic dominance, food consumption.

Duclos [9] propose an alternative, more powerful test, but they employ the untenable assumption for this case that data are drawn in a pure random draw, and not any sort of complex design.

The primary result is that the distribution of the estimated total consumption variable generated from the long questionnaire stochastically dominates the distribution of consumption data from the short questionnaire. This dominance is significant at the 95 percent confidence level for 96 percent of the distribution, in terms of the combined samples, and covers the range from 64 to 1,402 *Colones*. An implication of this is that for a candidate poverty line in this range of values, the long questionnaire will generate a significantly lower estimate of the incidence of absolute poverty. Similarly, the long-questionnaire sample second-order stochastic dominates the short-questionnaire at the 95 percent confidence level for 98 percent of the distribution, in terms of the combined samples. The range of this dominance begins at 64 *Colones* and continues with no crossing of the deficit curves at any higher value. An implication of this is that for any candidate poverty line greater than 64 *Colones* per month, the long questionnaire will generate a significantly lower estimate of the poverty-gap index, or the depth of poverty.

This basic result of first-order stochastic dominance over almost the entire range also holds true when examining the food and non-food components of total household consumption (see Figs 2 and 3). The difference in CDF's between food consumption from the long questionnaire and the short questionnaire is significant (at the 95 percent confidence level) over the range from 64 to 1173 *Colones*, or 95 percent of the distribution. Similarly non-food consumption, as measured by the long questionnaire, first-order stochastically dominates non-food consumption from the short questionnaire from two to 456 Colones (or 98 percent of the distribution).

The stochastic dominance analysis provides the basic result that the incidence and depth of poverty will be significantly worse if measured using data from the short questionnaire than if measured using data from the long questionnaire. This result is robust to an extremely wide range of candidate poverty lines, and it is

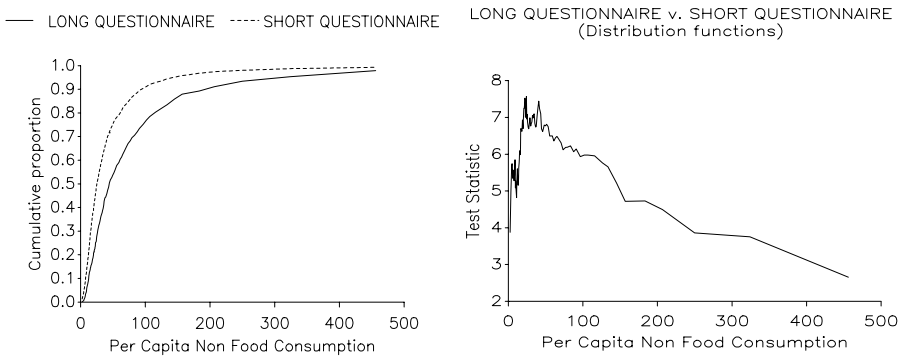

Fig. 3. Test of first-order stochastic dominance, non-food consumption.

robust to whether considering the headcount index or the poverty-gap index. The decomposition of consumption into food and non-food components illustrates that the result that measured poverty will be worse from the short questionnaire is also robust to variations in the definition of the welfare indicator, for example the result will be robust to a food-only indicator.

4. Comparison of poverty indices – absolute and relative measures

The tests of stochastic dominance show that absolute poverty will be greater when measured with the short questionnaire regardless of the magnitude of the poverty line (except for the implausibly low value of less than 64 *Colones* per month – less than $0.25 per day in 1994). To get a sense of the magnitude of the difference, Table 5 lists estimates of the headcount, poverty-gap, and squared poverty-gap indices, as well as their standard errors. (For details on these three common indices, see Foster et al. [19].) When standard errors for poverty indices are discussed, it is typically assumed that the data come from a single-stage, random draw of the population. (See Kakwani [27] for example.) Since the EHPM is a multi-stage draw and it is to be expected that this characteristic of the sample design will dramatically increase the estimated standard errors. See Howes and Lanjouw [24] for examples supporting this assertion and for correct estimates of the sampling variance under various sample designs. The standard errors in Table 5 correct for sample weights and design using the program described in Jolliffe and Semykina [25].

In order to provide a comparison of poverty estimates for El Salvador in a policy-relevant context, I follow the methodology used to estimate the 1994 level of poverty in World Bank [43]. In this report, the authors estimate their reference poverty line to be 667 *Colones* per month (approximately $75 per month in 1994). This poverty line is the sum of the per capita cost of a basic food bundle as estimated by the *Ministerio de Planificacion* (MIPLAN), and a per capita allowance for non-food consumption

Table 5
Absolute and relative poverty, comparison of the short- and long-questionnaire samples

	Short questionnaire	Long questionnaire	H_0: Long = Short	
			t-statistic	p-value
Absolute Poverty Line (667 Colones per month)				
Headcount	0.888 (0.007)	0.787 (0.017)	5.49	0.000
Poverty-gap	0.484 (0.008)	0.372 (0.014)	6.95	0.000
Squared poverty-gap	0.305 (0.007)	0.212 (0.011)	7.13	0.000
Absolute Poverty Line, Severe (333.5 Colones per month)				
Headcount	0.566 (0.014)	0.387 (0.022)	6.86	0.000
Poverty-gap	0.204 (0.007)	0.118 (0.010)	7.04	0.000
Squared poverty-gap	0.100 (0.005)	0.051 (0.005)	6.93	0.000
Relative Poverty Line (half of median)				
Headcount	0.132 (0.010)	0.117 (0.016)	0.80	0.427
Poverty-gap	0.032 (0.003)	0.027 (0.004)	1.00	0.317
Squared poverty-gap	0.012 (0.001)	0.010 (0.002)	0.89	0.371
Relative Poverty Line (half of mean)				
Headcount	0.271 (0.013)	0.261 (0.022)	0.391	0.696
Poverty-gap	0.074 (0.005)	0.071 (0.008)	0.318	0.751
Squared poverty-gap	0.030 (0.002)	0.028 (0.004)	0.447	0.655

Notes: The absolute poverty line refers to a monthly per capita consumption level of 667 *Colones*. This poverty line is the sum of the cost of a basic food basket and an allowance for non-food consumption. See World Bank [43] and MIPLAN [34, 35] for details. Standard errors are corrected for sample weights and design. See Jolliffe and Semykina [25] for details.

which is equal to the average amount spent on non-food items by households with food expenditures equal in value to the MIPLAN food basket. Following World Bank [43], rural consumption levels are inflated by a factor of 60 percent to account for spatial price variation. This correction is based on MIPLAN [34,35] which estimates the cost of the basic food basket in urban areas and then observes a 60 percent cost difference in purchasing this bundle in rural and urban areas. World Bank [43] also considers an estimate of a severe poverty line, which is one half the value of the reference poverty line, or 333.5 *Colones* per month.

Table 5 shows that in terms of all three poverty indices and in terms of both the reference and severe poverty lines, measured absolute poverty is statistically significantly higher when estimated using the data from the short questionnaire than when considering the long questionnaire. The incidence of poverty, or the headcount, is 13 percent higher for the reference poverty line and 46 percent higher for the severe poverty line. Considering that the population of El Salvador in 1994 was approximately 5.5 million persons, the estimate from the short questionnaire implies that about 3.1 million persons live in severe poverty, while the long-questionnaire estimates suggest that 2.1 million persons are severely poor. In terms of the squared-poverty gap index, the measure of severe poverty is almost twice as large when estimated from the short questionnaire.

Table 6
Gini coefficient of inequality, national and by region and sector

	Long questionnaire	Short questionnaire	t-statistics	P-value (two-tailed)
National:	0.401 (0.022)	0.404 (0.017)	0.118	0.91
Region:				
Western	0.438 (0.053)	0.455 (0.046)	0.242	0.81
Central 1	0.388 (0.032)	0.398 (0.042)	0.189	0.85
Central 2	0.480 (0.088)	0.391 (0.032)	0.950	0.34
Eastern	0.361 (0.038)	0.355 (0.017)	0.144	0.89
San Salvador (AMSS)	0.341 (0.026)	0.367 (0.024)	0.735	0.46
Urban/Rural:				
Urban	0.375 (0.021)	0.382 (0.016)	0.265	0.79
Rural	0.424 (0.041)	0.426 (0.031)	0.039	0.97

Notes: Standard errors for Gini index were calculated using bootstrap procedure on 500 replications. See Jolliffe and Krushelnytskyy [26] for details.

The comparisons of poverty indices over the two samples assumes that there exists a definition of absolute poverty which is embodied in a fixed poverty line. Similarly the discussion of using stochastic dominance to examine the robustness of poverty comparisons to changes in the poverty line, also assumes a fixed poverty line over the compared samples. In many developed countries, though, poverty comparisons are made using poverty lines which are determined relative to the distribution of welfare. Two common methods used to estimate relative poverty is to set the poverty line at one half of the mean and the other is set at one half of the median. [15] Table 5 presents evidence that while there are statistically significant and qualitatively very important differences in measured absolute poverty over the two samples, there is essentially no difference at all in the estimated level of relative poverty. The level of relative poverty is the same over the two samples whether considering a poverty line set at half the mean or half the median, and it is the same whether considering the headcount, poverty-gap, or squared poverty-gap index.

This result of no difference in the level of relative poverty suggests that the shape of the distributions are somewhat similar. Measures of inequality also provide some information on the shape of the distribution, and comparisons of Gini inequality indices show that there are also no statistically significant differences in these measures over the two samples. Table 6 lists the Gini coefficient of inequality for the nation as well as for each region and by rural and urban sectors. Across all comparisons, there are no statistically significant differences in estimated inequality resulting from the long and short questionnaires.

While this result of no significant differences in relative poverty may encourage practitioners using data from modified questionnaires, it needs to be tempered by

[15] Fuchs [20] proposes the relative poverty line at half of the median and O'Higgins and Jenkins [37] propose relative poverty equal to half of the mean. For examples of analysis which uses relative poverty lines, see Blackburn [3,4] who uses half the median and Blackwood and Lynch [5] who use half the mean. For a discussion of absolute versus relative poverty, see Foster [18].

Table 7
Distribution of absolute and relative poor individuals by region, comparison of short- and long-questionnaire samples

	Short questionnaire		Long questionnaire		H_0: Long = Short
	Frequency	Percent	Frequency	Percent	[χ^2 statistic, p-value]
Absolute Poverty Line (667 Colones per month)					
Region:					
Western	2705	21.2%	857	24.7%	
Central 1	3094	24.2%	945	27.2%	
Central 2	1365	10.7%	308	8.9%	
Eastern	2962	23.2%	703	20.2%	
San Salvador, AMSS	2650	20.7%	661	19.0%	
Total	12776	100%	3474	100%	$[\chi^2 = 61.4,\ p = 0.000]$
Rural/Urban:					
Urban	6643	52.0%	1745	50.2%	
Rural	6133	48.0%	1729	49.8%	
Total	12776	100%	3474	100%	$[\chi^2 = 4.29,\ p = 0.117]$
Relative Poverty Line (half of median)					
Region:					
Western	549	28.9%	157	30.4%	
Central 1	444	23.4%	149	29.0%	
Central 2	238	12.5%	53	10.3%	
Eastern	584	30.7%	120	23.3%	
San Salvador, AMSS	86	4.5%	36	7.0%	
Total	1901	100%	515	100%	$[\chi^2 = 25.3,\ p = 0.000]$
Rural/Urban:					
Urban	789	41.5%	266	51.6%	
Rural	1111	58.5%	249	48.4%	
Total	1901	100%	515	100%	$[\chi^2 = 21.6,\ p = 0.000]$

Notes: The absolute poverty line refers to a monthly per capita consumption level of 667 *Colones*. This poverty line is the sum of the cost of a basic food basket and an allowance for non-food consumption. See World Bank [43] and MIPLAN [34,35] for details. The relative poverty line varies for each sample and is equal to one half the median value of monthly per capita consumption. Standard errors are calculated following See Jolliffe and Semykina [25].

considering that frequently poverty estimates are used to geographically target (or target on demographic characteristics) poverty-reduction policies. Table 7 shows that in terms of the geographic distribution of poor persons, there are significant differences over the two samples whether considering relative or absolute poverty. In fact, the difference in the distribution of the relative poor individuals over the two samples is statistically significant whether considering the five geographic regions of El Salvador, or simply just the rural / urban split.

In terms of relative poverty, the short questionnaire indicates that the large majority of poor persons are urban residents (59 percent of poor persons live in urban areas), whereas the data from the long questionnaire indicate that the majority of poor persons reside in rural areas (52 percent of poor persons live in rural areas). Again in terms of relative poverty, if the short questionnaire were used to target a geographic region, the data indicate that the highest incidence of poverty is in the Eastern region of El Salvador suggesting poverty-reduction policies should focus on this region.

When considering the long questionnaire, though, the data indicate that the highest incidence of poverty is in the Western region of El Salvador. While the relative poverty rates are unaffected by the two questionnaire designs for estimating the incidence of poverty at the national level, when used to examine the distribution of poor individuals for targeting purposes the measures of relative poverty have dramatically different implications.

5. Conclusion

Using data from an experiment carried out by the Government of El Salvador, this paper shows that the estimated level of consumption is highly sensitive to questionnaire design. Responses to a longer, more detailed questionnaire on consumption result in a significantly higher estimate of total household consumption than the responses to a more condensed version of the same questionnaire. This paper also shows that measures of absolute poverty are significantly affected by the differences in measured consumption levels. In terms of absolute poverty, the data from the short questionnaire estimate that 1 million more persons live in severe poverty than when estimated using the results from the long questionnaire. Given the large and significant differences in the level of absolute poverty over the two questionnaire designs, this paper presents the somewhat surprisingly robust result that the measured level of relative poverty at the national level is the same regardless of questionnaire design. This lack of difference in relative poverty at the national level, though, is tempered by noting that the geographic distribution of (relatively) poor persons is significantly different across the two questionnaire designs.

These results are particularly important for policy makers and researchers who are tracking changes in standards of living over time or across countries. Frequently the design of a questionnaire changes from year to year for a particular country, and the results in this paper show that the change in the questionnaire can dramatically alter the estimate of poverty, even when no real changes occur. Similarly, when comparing across countries it is very rare that the same questionnaire is used in the countries being compared, and the results of this paper also suggest that the effect of variation in the questionnaires can be significant when making cross-country comparisons of welfare and poverty.

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References

[1] R. Aaberge and I. Melby, The Sensitivity of Income Inequality to Choice of Equivalence Scales, *Review of Income and Wealth* **44** (1998), 565–569.
[2] S. Anand and A. Sen, Human Development Index: Methodology and Measurement, *Human Development Report Office Occasional Papers* **12** (1994).
[3] M.L. Blackburn, International Comparisons of Poverty, *American Economic Review* **84** (1994), 371–374.
[4] M.L. Blackburn, The Sensitivity of International Poverty Comparisons, *Review of Income and Wealth* **44** (1998), 449–472.
[5] D.L. Blackwood and R.G. Lynch, The Measurement of Inequality and Poverty: A Policy Maker's Guide to the Literature, *World Development* **22** (1994), 567–578.
[6] W.G. Cochran, *Sampling Techniques,* (Third ed.), Wiley, New York, 1997.
[7] F.A. Cowell, Measurement of Inequality, in: *Handbook of Income Distribution,* (Vol. 1), (Cha. 2), A. Atkinson and F. Bourguignon, eds, Amsterdam, London and New York: Elsevier, North-Holland, 2000.
[8] V. Dardanoni and A. Forcina, Antonio, Inference for Lorenz Curve Orderings, *Econometrics Journal* **2** (1999), 49–75.
[9] R. Davidson and J.Y. Duclos, Statistical Inference for Stochastic Dominance and for the Measurement of Poverty and Inequality, *Econometrica* **68** (2000), 1435–1464.
[10] A. Deaton, *The Analysis of Household Survey,* John Hopkins, Baltimore, 1997.
[11] A. Deaton and J. Muellbauer, *Economics and Consumer Behavior,* Cambridge University Press, Cambridge, 1980.
[12] A. Deaton and J. Muellbauer, On Measuring Child Costs: With Applications to Poor Countries, *Journal of Political Economy* **94** (1986), 720–744.
[13] A. Deaton and C. Paxson, Economies of Scale, Household Size, and the Demand for Food, *Journal of Political Economy* **106** (1998), 897–930.
[14] J. Dreze and P.V. Srinivasan, Widowhood and Poverty in Rural India: Some Inferences from Household Survey Data, *Journal of Development Economics* **54** (1997), 217–234.
[15] J.Y. Duclos and M. Mercader-Prats, Household Needs and Poverty: With Application to Spain and the UK, *Review of Income and Wealth* **45** (1999), 77–98.
[16] B. Efron and R.J. Tibshirani, *An Introduction to the Bootstrap,* Monographs on Statistics and Applied Probability, 57, Chapman Hall, New York, 1993.
[17] L. Ferreira, R. Buse and J.P. Chavas, Is There Bias in Computing Household Equivalence Scales? *Review of Income and Wealth* **44** (1998), 183–198.
[18] J.E. Foster, Absolute versus Relative Poverty, *American Economic Review* **88** (1998), 335–341.
[19] J.E. Foster, J. Greer and E. Thorbecke, A Class of Decomposable Poverty Measures, *Econometrica* **52** (1984), 761–765.
[20] V. Fuchs, Comment on Measuring the Size of the Low-Income Population, in: *Six papers on the size distribution of wealth and income,* L. Soltow, ed., NBER, New York, 1969, pp. 198–202.
[21] J. Gleason, Computing Intraclass Correlations and Large ANOVAS, *Stata Technical Bulletin* **35** (1997), 25–31.
[22] S. Howes, *Income Distribution: Measurement, Transition and Analysis of Urban China, 1981–1990,* Ph.D. Dissertation. London School of Economics and Political Science, University of London, 1993.
[23] S. Howes, SAS Dominance Module, software package, 1994.

[24] S. Howes and J.O. Lanjouw, Does Sample Design Matter for Poverty Comparisons, *Review of Income and Wealth* **44** (1998), 99–109.
[25] D. Jolliffe and A. Semykina, Robust Standard Errors for the Foster-Greer-Thorbecke Class of Poverty Indices: SEPOV, *Stata Technical Bulletin* **51** (1999), 34–36.
[26] D. Jolliffe and B. Krushelnytskyy, Bootstrap Standard Errors for Indices of Inequality: INEQERR, *Stata Technical Bulletin* **51** (1999), 28–32.
[27] N. Kakwani, Statistical Inference in the Measurement of Poverty, *Review of Economics and Statistics* **75** (1993), 632–639.
[28] L. Kish, *Survey Sampling*, Wiley Classics Library Edition, New York, 1995.
[29] S. Klasen, Measuring Poverty and Deprivation in South Africa, *Review of Income and Wealth* **46** (2000), 33–58.
[30] G. Lancaster, R. Ray and M.R. Valenzuela, A Cross-Country Study of Equivalence Scales and Expenditure Inequality on Unit Record Household Budget Data, *Review of Income and Wealth* **45** (1999), 455–482.
[31] P. Lanjouw, B. Milanovic and S. Paternostro, Economies of Scale and Poverty: The Impact of Relative Price Shifts During Economic Transition, *World Bank Policy Research Series*, Working Paper No. 2009, 1998.
[32] P. Lanjouw and M. Ravallion, Poverty and Household Size, *The Economic Journal* **105** (1995), 1415–1434.
[33] M. Lipton and M. Ravallion, Poverty and Policy, in: *The Handbook of Development Economics*, (Vol. III), J. Behrman and T.N. Srinivasan, eds, Elsevier Science, 1995.
[34] Ministerio de Planificacion, Evaluacion de los Factores de Persistencia de La Pobreza en Los Hogares Pobres, MIPLAN, San Salvador, El Salvador, 1995.
[35] Ministerio de Planificacion, Principales Resultados: Encuesta de Hogares de Propositos Multiples, MIPLAN and Ministerio de Relaciones Exteriores, San Salvador, El Salvador, 1995.
[36] M. Nussbaum and A. Sen, eds, *The Quality of Life*, Clarendon Press, Oxford, 1993.
[37] M. O'Higgins and S. Jenkins, Poverty in the EC: Estimates for 1975, 1980 and 1985, in: *Analysing poverty in the European Community: Policy issues, research options, and data sources*, R. Teekens and M.S. van Praag, eds, Office of Official Publications of the European Communities, Luxembourg, 1990, pp. 187–212.
[38] M. Ravallion, *Poverty Comparisons*, Harwood Academic Press, Chur, Switzerland, 1993.
[39] A. Sen, *Inequality Reexamined*, Harvard University Press, Cambridge, 1992.
[40] A. Sen, Quality of Life and Economic Evaluation, *Academia Economic Papers* **25** (1997), 269–316.
[41] J. Shao and D. Tu, *The Jackknife and Bootstrap*, Springer Series in Statistics, New York, 1995.
[42] World Bank, How Should We Assess Poverty Using Data from Different Surveys? *Poverty Lines* **3** (1996).
[43] World Bank, El Salvador. Rural Development Study, A World Bank Country Study, The World Bank, Washington, DC, 1998.

Appendix

Table A1

Items in Long and Short Questionnaire

Long Questionnaire	Short Questionnaire
1. Corn Tortillas 2. Bread (*francés*) 3. Bread (sweet) 4. Beans (*frijoles*) 5. Rice	1. Corn Tortillas 2. Bread (*francés*) 3. Bread (sweet) 4. Beans (*frijoles*) 5. Rice
6. Noodles and Macaronis 7. Cereals, Pastas, and Other Grains	6. Cereals, Pastas, and Other Grains
8. Chicken 9. Hen 10. Other Poultry	7. Chicken, Hen, and other Poultry
11. Beef 12. Pork 13. Processed Meat 14. Fish and Seafood 15. Other Meats, Fish, and Seafood	8. Other Meats (beef, pork, fish, and seafood)
16. Hen Eggs 17. Other Eggs	9. Eggs
18. Fresh Milk 19. Pasteurized Milk 20. Powdered Milk	10. Milk
21. Fresh Cheese 22. Cheese (*duro blandito*) 23. Other Cheeses 24. Cheese Curd	11. Cheese
25. Fresh Cream 26. Packaged Cream 27. Butter 28. Other Dairy Products	12. Other Dairy Products
29. Oil (in carton) 30. Oil (in bottle) 31. Margarine and Lard 32. Other Oils and Fats	13. Oils and Fats
33. Plantains 34. Cherries 35. Oranges 36. Watermelon 37. Mangos 38. Apples 39. Other Fruits 40. Potato 41. Onions 42. Green Beans 43. Green Chilies 44. Tomatoes 45. *Guisquil* 46. Carrots 47. Other Veg. and Legumes (excluding beans-*frijoles*)	14. Fruits, Vegetables, and Legumes (excluding beans-*frijoles*)
48. Refined Sugar 49. Raw Sugar 50. Other Sugars and Candies 51. Honey	15. Sugar, Sweets, and Candies
52. Powdered Soups 53. Potatoes (fried/deep-fried) 54. Other Packaged Foods 55. *Tamales* 56. *Pupusas* 57. Other Prepared Foods 58. Mustard and Mayonnaise 59. Spaghetti & Tomato Sauce 60. Salt and Garlic 61. Other Condiments	16. Packaged and Prepared Foods, and Condiments
62. Breakfast Outside of the House (food & beverages) 63. Lunch Outside of the House (food & beverages) 64. Dinner Outside of the House (food & beverages) 65. Refreshments Outside of the House	17. Food and Beverages Outside of the House
66. Carbonated Beverages 67. Coffee (instant) 68. Coffee (beans) 69. Other Non-Alcoholic Beverages 70. Beer (consumed in or out of the house) 71. Other Alcoholic Beverages 72. Cigarettes	18. Non-Alcoholic Beverages, Alcoholic Beverages, and Tobacco
73. Soap and Shampoo 74. Toothpaste 75. Toilet Paper 76. Other Personal Hygiene Products 77. Haircuts 78. Other Personal Hygiene Services	19. Personal Hygiene - Products and Services
79. Bars of Soap and Detergents 80. Brooms and Mops 81. Other Household Cleaning and Maintenance Products	20. Household Cleaning and Maintenance Products
82. Public Transportation 83. Gas for Private Transportation 84. Taxes (*cuota*) for Private Transportation 85. License (*tramites*) Fees for Private Transportation	21. Public Transportation 22. Private Transportation
86. Clothing and Shoes for Men 87. Clothing and Shoes for Boys 88. Clothing and Shoes for Women 89. Clothing and Shoes for Girls 90. Accessories for Men 91. Accessories for Women	23. Clothing and Shoes
92. Presentations (*lectura*) 93. Recreational Trips 94. Recreational Equipment 95. Other Recreational Expenditures	24. Entertainment

Table A2
The short questionnaire

MIPLAN – DGM
FORM EHPM–FSA
1994–III

HOGAR No.

CONSUMO – GASTO

(SOLO PARA EL JEFE DEL HOGAR O PERSONA ENCARGADA DEL GASTO DEL HOGAR)

1 En los ultimos 7 días se consumió en este hogar, alguno de los siguientes alimentos ?

ALIMENTOS	Consumió SI = 1 NO = 2	Con que Frecuencia lo adquirió Dia = 1 Semana = 2 quincena = 3 mensual = 4 bimensual = 5 trimestral = 6 semestral = 7 Código	otro	Como lo Adquirió 1 Compra 2 Autoconsumo 3. Autosuministro	4 Ayuda Familiar 5 Ayuda del Estado 6 Ayuda Privada 7 Otros	Valor de Compra	A
1 Tortilla de Maíz							
2 Pan Francés							
3 Arroz							
4 Frijoles							
5 Pan Dulce							
6 Otras Harinas, Cereales, Pastas							
7 Carne de Pollo, Gallina y otras Aves							
8 Otras Carnes (Res, Cerdo, Pescado, y Mariscos)							
9 Huevos							
10 Leche							
11 Queso							
12 Otros productos lácteos							
13 Aceites y Grasas							
14 Frutas, Vegetales y Legumbres (Excluir Frijoles)							
15 Azúcar, Dulces, Confites							
16 Comida envasada, preparada y condimentos							
17 Comida y Bebidas fuera de casa							
18 Bebidas no alcohólicas, Bebidas alcohólicas y tabaco							

2 Cuanto se gastó en el hogar el mes pasado en ?

a Artículos y Servicios de Higiene Personal + _____
b Artículos de Empleza y Mantenimiento del Hogar + _____
c Transporte Público + _____
(Excluyendo el transporte de Salud, Educación y Mano de obra)

3 Cuanto se gastó en el hogar en los últimos seis meses en ?

a Vestuario y Calzado + _____
b Entretenimiento + _____
c Transporte Privado + _____

Table A3
The long questionnaire

MIPLAN – DIM
FORM EHPM-F5
1994–III

CONSUMO – GASTO

HOGAR No.

(SOLO PARA EL JEFE DEL HOGAR O PERSONA ENCARGADA DEL GASTO DEL HOGAR)

		1			2		3				4		
		Alguno de los miembros de su familia ¿ ha consumido alguno de los siguientes alimentos en los últimos 6 meses ? (MENCIONE LOS 72 PRODUCTOS ANTES DE PASAR A PREGUNTA # 2) (SI = 1 Y NO = 2) luego siga con el siguiente artículo	SI	NO	¿ Durante los últimos 30 días que tan a menudo adquirió los siguientes productos ? Diario = 1 Semanal = 2 Quincenal = 3 Mensual = 4 Bimensual = 5 Trimestral = 6 Semestral = 7 No lo adquirió = 8 Frecuencia	Código	Cómo lo Adquirió 1 Compra 2 Auto consumo 3 Auto suministro 4 Ayuda Familiar 5 Ayuda del Estado 6 Ayuda Privada 7 Otros			Valor de Compra	Valor Autoconsumo o Autosuministro	Valor Otras
1.	1	Tortilla de maiz	1	2									
1.	2	Pan francés	1	2									
1.	3	Pan dulce	1	2									
1.	4	Frijoles	1	2									
1.	5	Arroz	1	2									
1.	6	Pastas y Macarrones	1	2									
1.	7	Otras harinas, cereales y Pastas	1	2									
1.	8		1	2									
1.	9		1	2									
1.	10		1	2									
2.	1	Carne de pollo	1	2									
2.	2	Carne de gallina	1	2									
2.	3	Otras Aves	1	2									
2.	4	Carne de res	1	2									
2.	5	Carne de cerdo	1	2									
2.	6	Carne procesada	1	2									
2.	7	Pescado y Mariscos	1	2									
2.	8	Otras carnes, pescados y mariscos	1	2									
2.	9		1	2									
2.	10		1	2									
2.	11		1	2									
3.	1	Huevos de gallina	1	2									
3.	2	Otros huevos	1	2									
3.	3		1	2									
3.	4		1	2									
3.	5		1	2									
4.	1	Leche fresca	1	2									
4.	2	Leche pasteurizada	1	2									
4.	3	Leche en polvo	1	2									
4.	4	Queso fresco	1	2									
4.	5	Queso duro blandito	1	2									
4.	6	Otros quesos	1	2									
4.	7	Requesón	1	2									
4.	8	Crema fresca	1	2									
4.	9	Crema procesada	1	2									
4.	10	Mantequilla	1	2									
4.	11	Otros productos lácteos	1	2									
4.	12		1	2									
5.	1	Aceite vertiente envasado	1	2									
5.	2	Aceite vertiente traspasado	1	2									
5.	3	Margarina y mantecas	1	2									
5.	4	Otros Aceites y grasas	1	2									
5.	5		1	2									
6.	1	Paternos	1	2									
6.	2	Guineos	1	2									
6.	3	Naranjas	1	2									
6.	4	Sandías	1	2									
6.	5	Mangos	1	2									
6.	6	Manzanas	1	2									
6.	7	Otras Frutas	1	2									
6.	8	Pepa	1	2									
6.	9	Cebollas	1	2									
6.	10	Ayotes	1	2									
6.	11	Chile Verde	1	2									
6.	12	Tomate	1	2									
6.	13	Quisquil	1	2									
6.	14	Zanahoria	1	2									
6.	15	Otros Vegetales y Legumbres (Excluir Frijoles)	1	2									
6.	16		1	2									
7.	1	Azucar Refinada	1	2									
7.	2	Azucar no Refinada	1	2									
7.	3	Otros azucares, dulces y confites	1	2									
7.	4	Miel de abeja	1	2									
7.	5		1	2									
7.	6		1	2									

Table A3 (continued)

Table A3 (continued)

Table A4
Comparison of full samples household and individual characteristics

	Short			Long			H_o: Long = Short
	Mean	Std. Dev.	N	Mean	Std. Dev.	N	T-Statistic
Household Size	4.66	(0.053)	3182	4.67	(0.076)	1047	−0.12
Children (<10 yrs. old)	2.12	(0.043)	3182	2.14	(0.067)	1047	−0.21
# in Hh Employed	1.69	(0.197)	3182	1.67	(0.036)	1047	0.26
Age (years)	24.9	(0.228)	14938	24.6	(0.353)	4864	0.80
Gender	1.52	(0.000)	14938	1.52	(0.006)	4864	0.82
Literate	1.31	(0.011)	13313	1.31	(0.016)	4371	0.43
Household Income	2802	(158.7)	3182	2713	(215.2)	1047	0.33
Per Capita Income	556	(31.24)	3182	534	(41.60)	1047	0.43

Notes: 1. The t-statistics test the null hypothesis that the mean values from the short sample are the same as the mean values from the long sample. All support the conclusion that the two samples consist of individuals and households with very similar characteristics. (None of the null hypotheses are rejected at $\alpha = 0.1$ level.)