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Data Watch

The World Bank's Living Standards Measurement Study Household Surveys

Margaret E. Grosh and Paul Glewwe

This section will offer a description of a data source that may be of interest to economists. The purpose is to describe what data are available from that source or in that subject area, what questions can be addressed because of the unique features of the data, and how an interested reader can gain access to the data. Suggestions for data sources that might be discussed here (or comments on past columns) should be sent to Greg J. Duncan, Center for Urban Affairs and Policy Research, Northwestern University, 2040 Sheridan Road, Evanston, Illinois, 60208. His e-mail address is greg-duncan@nwu.edu.

Introduction

The World Bank established the Living Standards Measurement Study (LSMS) in 1980 to explore ways of improving the accuracy, timeliness and policy relevance of household survey data collected by government statistical offices in developing countries. The objective of LSMS surveys is to collect data on many dimensions of household well-being that can be used to assess household welfare, understand household behavior, and evaluate the effect of various government policies on the living conditions of the population. This paper describes the data that have been collected under the LSMS survey program.¹

¹ The World Bank has also supported other household surveys, most notably those under the Social Dimensions of Adjustment (SDA) project for Africa. This paper covers only LSMS surveys because they are the main source of household survey data at the World Bank that are available to outside scholars.

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Table 1
Information on Data Sets in LSMS Archives^a

<i>Data Information</i>				
<i>Country</i>	<i>Access Policy^b</i>	<i>Year of First Survey</i>	<i>Number of Rounds Fielded to Date</i>	<i>Number of Households in Sample</i>
Albania	3	1996	1	1500
Bulgaria	1	1995	1	2500
Côte d'Ivoire	3	1985/86	4	1600
Ecuador	1	1994	2	4500/5500
Ghana	2/3	1987/88	2	3200
Guyana	3	1992/93	1	5340
Jamaica	2	1988	11	2000–6000
Kyrgyzstan	1/2	1994	3	2000
Nepal	2	1996	1	3373
Nicaragua	3	1993	1	4200
Pakistan	1	1991	1	4800
Peru 1985	1	1985/86	1	5120
Peru 1990	1	1990, '91, '94	3	1500/2200/3500
Romania	3	1994/95	continuous	36,000
Russia	1	1992	4	6500
South Africa	1	1993	1	9000
Tanzania				
Kagera Region	1	1991	4	800
Tanzania				
national	1	1993	1	5200
Vietnam	2	1992/93	2	4800/6000

Note: ^aData from surveys either recently completed or currently underway in Brazil, China (Hebei and Liaoning provinces) Kazakstan, Panama, Paraguay, Tunisia and Ukraine may be added to the archives over the next two years. Similarly, data may be included from additional survey rounds in countries already shown. The reader should note that the LSMS program has also assisted surveys in other countries, but because the governments have chosen to handle all dissemination themselves (Latvia, Lithuania) or because the data we have received is incomplete or incompletely documented (Mauritania, Morocco, Bolivia, Venezuela), we do not list these in the LSMS archives.

^b Code 1 means that no prior permission from government is required to use the data. Code 2 means that such permission is required but the track record for a timely, positive response is good. Code 3 means that, according to PRDPH's best information, a substantial proportion of data requests have been denied, left unanswered, or answered affirmatively only after substantial delays.

Since 1985, LSMS surveys have been conducted in nearly 20 developing countries, listed in Table 1. Each year, surveys are done in a few new countries, and several countries that have already conducted surveys carry out new ones. The World Bank provides technical assistance for LSMS surveys. Financing comes from several sources: World Bank loans, grants from other aid agencies, and government funds from the countries implementing the surveys. Each survey project differs in its goals, scope, context and results: some only collect data, some also build capacity for data collection, some even build capacity for data analysis. The cycle from plan-

ning a survey, implementing it, and preparing the abstract and public use data sets can last from 18 to 36 months, usually with 12 months used in field work. Project costs have run from \$200,000 to \$3 million, with the median being about \$750,000. All this variation means that the surveys are not a strictly standardized product, but differ among themselves. In the next section we describe a “composite prototype” LSMS survey, though none of the surveys adheres exactly to the definition, and several differ from it in substantial ways. After describing the typical LSMS survey, we briefly review what has been learned from the analysis of LSMS data, discuss the future of LSMS surveys, and explain how LSMS survey data can be obtained.

Sample Design, Data Collected and Data Quality

LSMS surveys tend to use small samples, usually on the order of 2,000 to 5,000 households. The typical approach is first to draw areas from census-based sampling units (such as census tracts or enumeration districts), and then to draw dwellings from a list of all dwellings within that sampling unit. LSMS surveys usually have equal numbers of dwellings, typically 16, drawn from each sampling unit. The samples are usually representative of the country as a whole and they are large enough to allow consideration of certain subgroups, such as rural vs. urban, or a few major agro-climatic zones. However, the samples are rarely large enough to allow meaningful analysis at the state or province level. Although larger samples would reduce sampling errors, they would also be far more difficult to manage well and therefore would tend to have higher non-sampling errors. Moreover, larger samples would also greatly increase the cost of the whole survey effort.

In some countries, only one LSMS survey has been done, while in others multiple cross-sectional data sets are available. In a few countries, panel data sets with two or three rounds of data have been collected, often separated by a year. For example, two-year panels exist for Cote d’Ivoire and Ghana. Jamaica has a four-year panel. The 1992–93 Tanzania survey (Kagera region) interviewed households four times over a period of two years. The series of Peruvian surveys has a panel of households in Lima for 1985, 1990 and 1991, and a nationwide panel exists for 1991 and 1994. By the end of 1998, there will be panel data from Vietnam for two points in time, five years apart.

A standard, “full-size” LSMS survey normally uses three different kinds of questionnaires: a household questionnaire, a community questionnaire, and a price questionnaire. A fourth type, a school or health facility questionnaire, is sometimes used as well.

The *household questionnaire* collects comprehensive consumption data. There are detailed questions on cash expenditures and on the value of food items grown by the household or received as gifts. In addition, sufficient information is collected on the ownership of housing and durable goods to calculate an annual use value. A wide range of income information is also usually collected. For individuals in formal sector jobs, most surveys contain detailed questions about wages, bonuses

and various forms of in-kind compensation. In most surveys, lengthy agriculture and small enterprise modules are included to yield estimates of net household income from these activities. Finally, non-labor income is recorded as well, such as the receipt of private inter-household transfers, public transfers (in cash or in kind), lottery winnings and interest income. Other parts of the household survey collect information on outcomes and behaviors pertaining to education, health, migration, fertility and nutrition. Collecting data on a variety of household characteristics from the same households makes it possible both to describe the multiple dimensions of living standards and to analyze relationships among different dimensions of household welfare and behavior, such as the impact of parents' education on child nutrition or the effect of health status on employment and school enrollment.

Information on local conditions that are common to households living near each other is gathered in a *community questionnaire*. In most countries, these questionnaires have been used in rural areas, where local communities are easier to define than in urban areas. The community questionnaire usually includes the location and quality of nearby health facilities and schools, local agricultural conditions and practices, prevailing wage rates for unskilled labor, and the condition of local infrastructure such as roads, sources of fuel, water, electric power and means of communication. The information is provided by interviewing community leaders (mayors, headmen, village elders) and service providers (teachers, health workers, agricultural extension agents) as appropriate depending on the governance structure in the country and the content of the questionnaire.

Price questionnaires are important because in many countries, prices vary considerably among regions, so information on the prices that households actually face is needed. Thus, most LSMS surveys include short questionnaires to record local prices of commonly purchased goods, including food items, basic non-food goods, medicines and selected agricultural inputs.

Sometimes detailed information on the availability, quality or prices of schools or health clinics is desired. When this is the case, special *facility questionnaires* are developed to supplement and/or replace those sections of the community questionnaire.

Concerns are often expressed about the quality of data from developing countries. LSMS surveys are designed and carried out in ways that should produce high quality data. For example, interviewers receive a full month of training prior to field work, and supervision ratios are high—one supervisor for every two or three interviewers. The design of the household questionnaire includes explicit wording of each question, prompts, skip patterns and detailed interviewer instructions, all of which reduces the potential for variation among interviewers. Interviewers are instructed to administer the schooling, health, employment, migration and fertility modules individually to each household member, and to avoid having one adult provide answers for another. Data entry and editing are carried out concurrently with field work either in local field offices or by data entry operators who accompany the field teams with laptop computers. The data are checked with custom-designed software programs to minimize data entry errors and to detect inconsistencies and

out-of-range values. These can usually be resolved during a second visit to the household. For in-depth discussions of LSMS data quality control procedures see Grosh and Muñoz (1996).

These procedures have produced some impressive results (Grosh and Glewwe, 1995, offer further details). Very little data is missing; for example, in four surveys in Côte d'Ivoire, Peru and Ghana, covering 86,827 persons, only 48 persons are missing data on their age. There are also very few missing modules. In Côte d'Ivoire, at least one height and weight measurement was obtained for almost 90 percent of all household members, both children and adults. Internal consistency of the data, which can be checked by comparing answers from different adults within a household, seems quite high. There is less evidence comparing the LSMS data to external sources, but what there is generally finds that the averages from LSMS data are very close to the averages from other sources (Deaton and Grosh, 1997; Bhushan, 1997). Overall, compared to other household surveys conducted in developing countries, the quality of LSMS data is well above average.

Research Uses

LSMS data have supported work done by hundreds of researchers in recent years, including government analysts, World Bank staff, academics, graduate students and independent researchers. In this section we review some recent research based on LSMS data.

Much of the analysis done using LSMS data has focused on documenting regularities concerning the nature of poverty in developing countries. In particular, they have shown that the poor are: disproportionately found in rural areas; very likely to be self-employed (particularly in small-scale agriculture); usually *less* likely to be unemployed; not necessarily likely to bear the brunt of structural adjustment programs; more likely to have stunted (low height for age) children; *less* likely to *report* suffering an illness in the past month; less educated; and less likely to send their children to school.² Such analysis has been used by the World Bank and the governments of the countries with LSMS surveys to quantify the dimensions, causes and consequences of poverty, and to design policies to reduce it.

Information on poverty from LSMS surveys can be used to examine the distribution of benefits from price subsidies and from publicly provided services. The health, education, housing, and consumption modules include questions about expenditures on and use of subsidized services or commodities (schools, health clinics, electricity, public water supply, staple foods, kerosene, and more), and the community questionnaire provides information about the availability of services

² These findings can be found in Glewwe (1990), Glewwe and Hall (1994) and Grootaert and Kanbur (1995). They are also documented in the various World Bank Poverty Assessments, which are summarized in World Bank (1996).

(health clinics, schools, post offices) and infrastructure (roads, electric supply, sewerage networks, and so on). Accompanying background information about households can then be used to show who benefits from price subsidies and publicly provided services (Grosh, 1994; Benjamin and Deaton, 1993).

LSMS data have been used for policy analysis on topics that reflect the policy issues in each country. In Ecuador, for example, the data were used to help refine poverty maps, which are used to target government programs. In Jamaica, the data were used to reformulate the benefit levels and eligibility thresholds for the food stamp program. In Ghana, the data were used in considering whether to subsidize kerosene. In South Africa, the data helped in evaluating the potential of programs such as public works and old age pensions to alleviate poverty. In Bolivia, the LSMS data helped in evaluating the benefits to workers of employment in a labor-intensive public works scheme. In Jamaica, the data helped evaluate the targeting of the student loan program. Most of this work is not published, and sometimes not even formally written up in government documents, but it is influential nonetheless.

LSMS surveys have also been used to support a great deal of academic work, including articles in professional journals, several books, and a large number of official government and World Bank working papers and reports. Much of this work has focused on topics that had proved difficult to handle with previously existing data. For example, how can one determine the price elasticity of demand for health care in developing countries, given that in such countries the public sector dominated service delivery and provided most services for free? The detailed LSMS data on travel time to health facilities and labor market information allowed calculating price elasticities based on travel time, which found that these elasticities can be fairly high, especially for the poor (Gertler and van der Gaag, 1990; Alderman and Lavy, 1996). This work has implications for the extent to which the poor should be required to pay for health care; location decisions for public health facilities; and the issue of whether to provide higher quality health care at a higher cost to users. Another question is whether child malnutrition leads to substantially lower school performance. The LSMS data have been used to investigate whether malnutrition delays enrollment in school and/or reduces school attainment (Glewwe and Jacoby, 1995). Yet another set of questions involves the labor supply behavior of rural households, which is difficult to measure because most rural workers are self-employed on family farms. The detailed LSMS data allow estimation of labor supply functions that incorporate productivity in self employment and time allocation in other activities, including leisure (Jacoby, 1993; Newman and Gertler, 1994).

Table 2 lists some papers using LSMS data that have recently been published in leading economics journals. Note that this is something of a biased sample of all the work done using the data. It underrepresents the work done on the most recent surveys due to the lag between data availability and publication; it overrepresents analysis done by World Bank staff and consultants because the first countries to implement LSMS surveys initially restricted access to the data, denying it to academic researchers; and it underrepresents in-country and policy uses of the data because the table is based on

Table 2
Recent Journal Articles Based on LSMS Data

Welfare and Poverty Analysis	Glewwe and Hall (1997), Grootaert (1995), Kakwani (1993a, 1993b), Lanjouw and Ravallion (1995), Newman, Jorgensen and Pradhan (1991), Sahn and Sarris (1991)
Labor Markets and Returns to Schooling	Alessie et al. (1992), Angrist and Lavy (1997), Glewwe (1996), Hoddinott (1996), Jacoby (1993), Newman and Gertler (1994), Moll (1997), Pradhan and van Soest (1997), Schaffner (1997), Stelcner et al. (1989), van der Gaag and Vijverberg (1988), Vijverberg (1993)
Pricing Policies on Health and Education	Gertler and Glewwe (1990), Gertler and Sturm (1997), Gertler and van der Gaag (1990), Seldon and Wasylenko (1995)
Determinants of School Performance	Glewwe (1997), Glewwe et al. (1995), Glewwe and Jacoby (1994, 1995), Handa (1996), Jacoby (1994), Lavy (1996)
Savings and Consumption Smoothing	Cox and Jimenez (1992), Deaton (1992)
Health, Nutrition Status and Food Policies	Jacoby (1997), Lavy et al. (1996), Schultz and Tansel (1997), Strauss et al. (1993), Thomas et al. (1996)
Gender Issues	Deaton (1989), Higgins and Alderman (1997) Jacoby (1995), Thomas (1994)
Fertility	Ainsworth, et al. (1996), Appleton (1996), Benefo and Schultz (1996)

information from the *Journal of Economic Literature*, which often excludes government policy papers and academic dissemination within developing countries.

The Future of LSMS Surveys

When the first LSMS surveys were started in 1985 they were considered experimental. Their complexity led some survey statisticians to doubt whether they could be implemented successfully. Their feasibility has since been demonstrated. We expect that such surveys will be undertaken in a growing number of countries and that additional rounds will be done in countries that have already completed them. The trend toward increasing diversity in the surveys' objectives, questionnaires and sample design will continue.

The World Bank's Development Research Group is currently undertaking a major evaluation of the design of LSMS surveys. Comprehensive guidelines for planning and implementing LSMS surveys are found in Grosh and Muñoz (1996). New and extremely detailed recommendations for questionnaire design should be ready in early 1998. The range of survey possibilities will be much broader, since survey designers will be able to choose different combinations of modules, and yet the resulting surveys will still incorporate the lessons from the experience of the

past 10 to 15 years. This new set of tools should allow a wide range of actors to develop their own LSMS surveys, by customizing the standard prototype to fit their needs and interests.

One especially exciting technical innovation that will affect future LSMS activities is the use of global positioning system technology based on satellite signals. This technology will make it easier to estimate distances between households and key services, such as schools and health facilities. It should also improve the accuracy of the sample by assisting interviewers in finding sampled households. Finally, use of global positioning technology will make it easier to merge LSMS data with other geographically referenced data, especially with soil, climate and topographical maps and with maps of government provided services such as schools, clinics, roads and the like.

Obtaining LSMS Data

When the first LSMS surveys were completed in the mid- to late 1980s, the data were often not accessible to economists outside the World Bank, since the data were the property of the national statistical agencies of the countries carrying out the surveys. However, many countries have now agreed to allow the World Bank's Development Research Group to distribute the data to potential users around the world. Information is available at the LSMS web site (<http://www.worldbank.org/lsm/lsmshome.html>), and is available by mail from LSMS Surveys, DECRG, World Bank, 1818 H Street NW, Washington, D.C. 20433. The e-mail address is LSMS@worldbank.org. The fax number is 202-522-1153.

Those interested should begin with the broad overview of data availability, found both on the website and in paper form as Grosh and Glewwe (1995). A second, more detailed, level of information is contained in the Basic Information documents for each country that summarize the questionnaire, sample design, organization of field work, contents and structure of data sets and data access rules for each country's survey. The actual questionnaires are also available for review. Third, there are the actual data. Whether obtained from the web site or through the mail, data sets can usually be obtained as ASCII, SAS-portable, or STATA files. There is a small processing fee charged if these data are sent by mail.

In some cases, it will be necessary to receive country permission before receiving the data, which involves writing to the address for that country given at the LSMS website. When the researcher has obtained written permission to use the data from the country, it should be sent to the LSMS mailing address, and the data will then be made available.

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