

BASIC INFORMATION DOCUMENT

Timor-Leste
Timor-Leste Living Standards Measurement Survey
2001

The World Bank

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1. Introduction

Timor-Leste experienced a fundamental social and economic upheaval after its people voted for independence from Indonesia in a referendum in August 1999. Population was displaced, and public and private infrastructure was destroyed or rendered inoperable. Soon after the violence ceased, the country began rebuilding itself with the support from UN agencies, the international donor community and NGOs. The government laid out a National Development Plan (NDP) with two central goals: to promote rapid, equitable and sustainable economic growth and to reduce poverty.

Formulating a national plan and poverty reduction strategy required data on poverty and living standards, and given the profound changes experienced, new data collection had to be undertaken to accurately assess the living conditions in the country. The Planning Commission of the Timor-Leste Transitional Authority undertook a Poverty Assessment Project along with the World Bank, the Asian Development Bank, the United Nations Development Programme and the Japanese International Cooperation Agency (JICA).

This project comprised three data collection activities on different aspects of living standards, which taken together, provide a comprehensive picture of well-being in Timor-Leste. The first component was the Suco Survey, which is a census of all 498 sucos (villages) in the country. It provides an inventory of existing social and physical infrastructure and of the economic characteristics of each suco, in addition to aldeia (hamlet) level population figures. It was carried out between February and April 2001.

A second element was the Timor-Leste Living Standards Measurement Survey (TLSS). This is a household survey with a nationally representative sample of 1,800 families from 100 sucos. It was designed to diagnose the extent, nature and causes of poverty, and to analyze policy options facing the country. It assembles comprehensive information on household demographics, housing and assets, household expenditures and some components of income, agriculture, labor market data, basic health and education, subjective perceptions of poverty and social capital. Data collection was undertaken between end August and November 2001.

The final component was the Participatory Potential Assessment (PPA), which is a qualitative community survey in 48 aldeias in the 13 districts of the country to take stock of their assets, skills and strengths, identify the main challenges and priorities, and formulate strategies for tackling these within their communities. It was completed between November 2001 and January 2002.

The purpose of the present document is to provide potential data users with the background information they need to understand the TLSS data set and how to use it properly. The report is organized in five sections. Section 2 provides a detailed outline of the household questionnaire. Section 3 contains information on the sample design used in the survey. Section 4 discusses the organization and fieldwork procedures. The final section offers a description of the data set, not only of the basic data but also of the supplemental files.

2. Survey instrument

The 2001 TLSS household questionnaire follows the regular design of that of a Living Standards Measurement Study (LSMS) Survey. It was designed to collect all the necessary information required for a fairly comprehensive assessment of living standards and to provide the key indicators for social and economic planning. It comprises thirteen main sections and several subsections, each covering different topics about household activities. As a result, each household had to be visited at least two times to complete all sections. A complete list of modules as well as a brief explanation of their contents can be found in Table 1. See Appendix A for details on how to obtain a copy of the questionnaire.

Two additional sections are worth noticing when comparing this questionnaire with standard LSMS questionnaires. The first one refers to social capital, which tries to capture the involvement of the population in user or community groups and local networks as means of support for themselves both economic and socially. The second one is about subjective well-being. It covers individual perceptions on living standards, economically and power status and main concerns for the own individual and the country. It also provides information on consumption adequacy for food, housing, health, income, etc. Lastly, vulnerability, understood mainly as food insecurity, is addressed in this section too. Data are gathered on the number of months with inadequate food provision, members who suffered the most and coping strategies.

Table 1: Contents of the household questionnaire

Section	Description	Respondent
1 Household information		
A Household roster	Demographic information about all members of the household such as relationship to the head of the household, sex, age, marital status, languages spoken, etc. Individuals are also asked whether they were displaced by the violence in 1999 and if so, when they returned.	Household head or most informed member
B New members since the violence in 1999	Information on new members who joined the household due to the violence.	Household head or most informed member
C Persons leaving household after violence in 1999	Information on previous members who left the household due to the violence.	Household head or most informed member
D Information on parents of household members	Information about the parents of all household members.	Household head or most informed member
2 Housing		
A Description of the dwelling	Type and condition of the dwelling, number of rooms and floor area.	Most informed member
B Housing state	Information on damages to all structures owned by the household in 1999 and whether they were rehabilitated or not.	Most informed member
C Services	Presence of utilities such as water, sewerage, electricity.	Most informed member
D Ownership and expenditures	Ownership status of the dwelling and expenses on services and utilities.	Most informed member
3 Access	Distance and travel time to aldeia centre and access to vehicle passable roads.	Most informed member

Section	Description	Respondent
4 Consumption/Expenditures		
A Weekly food consumption	Amount and value of food purchased, home-produced and received as aid or in-kind in the last week.	Most informed member
B Monthly and annual non-food expenditure	Expenses on non-food products like personal care items, education, health, clothing during the last month and last year.	Most informed member
C Durable goods	Ownership and present value of durable goods.	Most informed member
5 Education		
A General education	Literacy status as well as highest level of schooling attained.	Members 5 years and older
B Attendance school years 1998/99-2001/02	Data on type of school, grade attended, expenses on education, distance to school, etc for the 2000/01 academic year. It also collects information on attendance for the 1998/99 and 1999/2000 academic years as well as plans to attend the 2001/02 academic year.	Members attending school anytime since September 1998
6 Health		
A Health care use	Health status and use of health services including public facilities, private doctors, traditional health practitioners, etc.	All members. For children under 10 years, parent/guardian to respond
B Immunization	History of vaccinations on BCG, polio, DPT, measles and vitamin A.	Children five years and under, parent/guardian to respond
7 Fertility		
	Fertility history, breastfeeding and contraception methods.	Ever married women aged 10-49 years

Section	Description	Respondent
8 Employment		
A Labour Force Participation	Labour market status during last week.	Members 10 years and older
B Job information	Information on principal and secondary job during the last 3 months including occupation, industry, hours worked, type of job, wages and salaries.	Members 10 years and older who worked during the last year
C Individual time use	Time spent fetching water or wood and on household chores.	Members 10 years and older
9 Farming, livestock, forestry and fisheries		
A Plots	Type of cultivated plots, area, kind of land, present value, presence of irrigation, main crops grown.	Most informed member
B Crops harvested	Crop production, area cultivated, sale price, percentages sold, bartered, lost, selfconsumed, used as wages.	Most informed member
C Agricultural inputs	Use of inputs such as fertilisers, manure, pesticides and seeds.	Most informed member
D Forestry	Information on whether wood is used for cooking, animal hunting and production of wood, honey and candle nut.	Most informed member
E Farming equipment	Ownership and use of farming implements (hoes, axes, picks, etc) and equipment (tractor, plows, mill, pumps).	Most informed member
F Labour and farm produce	Information on workers hired, wages paid and sales of farm products.	Most informed member
G Livestock	Ownership, number and sales value of livestock including buffalos, cows, horses, goats, etc.	Most informed member
H Fishing and aquaculture	Information on fishing activities such as boat used for fishing, gear and earnings.	Most informed member

Section	Description	Respondent
10 Transfers, borrowing and savings		
A Transfers given and loaned	Assistance given to non-household members in the last year, amount of it and reasons for giving it.	Most informed member
B Transfers received	Assistance not to be repaid received from non-household members in the last year, amount of it and reasons for receiving it.	Most informed member
C Borrowing	Loans to be repaid taken in the last year, amount of them, interest rate paid and reasons for taking them.	Most informed member
D Aid assistance	Assistance received from NGO's or the church during the last year, provider, value of it.	Most informed member
E Savings	Information on savings, type, value of them.	Most informed member
11 Other income	Income received from pensions, inheritances, sales of durable goods, etc.	Most informed member
12 Social capital	Participation in user or community groups, fees paid, activities done, benefits obtained, problems encountered.	Members 15 years and older
13 Subjective wellbeing		
A Individual	Perceptions on improvements since the violence, current personal and national priorities, and economic and political positions before and after the violence.	Members 15 years and older
B Household	Consumption adequacy questions on food, clothing, housing, income, health and education.	Principal respondent
C Vulnerability	Information on food insecurity, coping strategies and members most affected.	Principal respondent

3. Sample design

3.1 SAMPLE SIZE AND ANALYTIC DOMAINS

A survey relies on identifying a subgroup of a population that is representative both for the underlying population and for specific analytical domains of interest. The main objective of the TLSS is to derive a poverty profile for the country and salient population groups. The fundamental analytic domains identified are the *Major Urban Centers* (Dili and Baucau), the *Other Urban Centers* and the *Rural Areas*. The survey represents certain important sub-divisions of the Rural Areas, namely two major agro-ecologic zones (*Lowlands* and *Highlands*) and three broad geographic regions (*West*, *Center* and *East*). In addition to these domains, we can separate landlocked sucos (Inland) from those with sea access (Coast), and generate categories merging rural and urban strata along the geographic, altitude, and sea access dimensions. However, the TLSS does not provide detailed indicators for narrow geographic areas, such as postos or even districts¹. The survey has a sample size of 1,800 households, or about one percent of the total number of households in Timor-Leste. The experience of Living Standards Measurement Surveys in many countries – most of them substantially larger than Timor-Leste – has shown that samples of that size are sufficient for the requirements of a poverty assessment.

The survey domains were defined as follows. The *Urban Area* is divided into the Major Urban Centers (the 31 sucos in Dili and the 6 sucos in Baucau) and the Other Urban Centers (the remaining 34 urban sucos outside Dili and Baucau). The rest of the country (427 sucos in total) comprises the *Rural Area*. The grouping of sucos into urban and rural areas is based on the Indonesian classification. In addition, we separated rural sucos both by agro-ecological zones and geographic areas. With the help of the Geographic Information System developed at the Department of Agriculture, sucos were subsequently qualified as belonging to the *Highlands* or the *Lowlands* depending on the share of their surface above and below the 500 m level curve. The three westernmost districts (Oecussi, Bobonaro and Cova Lima) constitute the *Western Region*, the three easternmost districts (Baucau, Lautem and Viqueque) the *Eastern Region*, and the remaining seven districts (Aileu, Ainaro, Dili, Ermera, Liquica, Manufahi and Manatuto) belong to the *Central Region*.

3.2 SAMPLING STRATA AND SAMPLE ALLOCATION

Our next step was to ensure that each analytical domain contained a sufficient number of households. Assuming a uniform sampling fraction of approximately 1/100, a non-stratified 1,800-household sample would contain around 240 Major Urban households and 170 Other Urban households – too few to sustain representative and significant analyses.² We therefore stratified the sample to separate the two urban areas from the rural areas (see Table 2). The rural strata were large enough so that its implicit stratification along agro-ecological and geographical

¹ Timor-Leste is divided into 13 major units called districts. These are further subdivided into 67 *postos* (sub-districts), 498 *sucos* (villages) and 2,336 *aldeias* (sub-villages). The administrative structure is uniform throughout the country, including rural and urban areas.

² The aldeia-level population numbers were collected by the Suco Survey.

dimensions was sufficient to ensure that these dimensions were represented proportionally to their share of the population. The final sample design by strata was as follows: 450 households in the Major Urban Centers (378 in Dili and 72 in Baucau), 252 households in the Other Urban Centers and 1,098 households in the Rural Areas.

Table 2: Number and percentage of households by analytical domain

	<u>Agro-ecologic zone</u>		<u>Geographic region</u>			Total
	Highlands	Lowlands	West	Center	East	
Urban	5,446	36,008	5,698	28,317	3,792	41,454
Major Urban Centers	2,236	21,945	-	20,530	3,651	24,181
Other Urban Centers	3,210	14,063	5,698	7,787	3,788	17,273
Rural	57,123	81,706	32,749	61,024	45,056	138,829
Total	62,569	117,714	38,447	89,341	52,495	180,283

	<u>Altitude</u>			<u>Geographic region</u>			<u>Sea access</u>		Total
	Lowlands	Midlands	Highlands	West	Center	East	Inland	Coast	
Urban	3	18	3	4	15	4	16	8	24
Major Urban Centers	2	10	1	0	11	2	7	6	13
Other Urban Centers	1	8	2	4	4	2	8	2	10
Rural	7	37	33	18	49	23	69	21	76
Total	9	55	36	22	54	25	77	23	100

Source: 2001 TLSS.

3.3 SAMPLING STRATEGY

The sampling of households in each stratum, with the exception of Urban Dili, followed a 3-stage procedure. In the first stage, a certain number of sucos were selected with *probability proportional to size* (PPS). Hence 4 sucos were selected in Urban Baucau, 14 in Other Urban Centers and 61 in the Rural Areas. In the second stage, 3 aldeias in each suco were selected, again with *probability proportional to size* (PPS). In the third stage, 6 households were selected in each aldeia with *equal probability* (EP). This implies that the sample is approximately *self-weighted* within the stratum: all households in the stratum had the same chance of being visited by the survey.

A simpler and more efficient 2-stage process was used for Urban Dili. In the first stage, 63 aldeias were selected with PPS and in the second stage 6 households with equal probability in each aldeia (for a total sample of 378 households). This procedure reduces sampling errors since the sample will be spread more than with the standard 3-stage process, but it can only be applied to Urban Dili as only there it was possible to sort the selected aldeias into groups of 3 aldeias located in close proximity of each other.

3.4 HOUSEHOLD LISTING

The final sampling stage requires choosing a certain number of households at random with equal probability in each of the aldeias selected by the previous sampling stages. This requires establishing the complete inventory of all households in these aldeias – a field task known as the household listing operation. The household listing operation also acquires importance as a benchmark for assessing the quality of the population data collected by the Suco Survey, which was conducted in February-March 2001. At that time, the number of households currently living in each aldeia was asked from the suco and aldeia chiefs, but there are reasons to suspect that these figures are biased. Specifically, certain suco and aldeia chiefs may have answered about households belonging, rather than currently living, in the aldeias, whereas others may have faced perverse incentives to report figures different from the actual ones. These biases are believed to be more serious in Dili than in the rest of the country.

Two operational approaches were considered for the household listing. One is the classical door-to-door (DTD) method that is generally used in most countries for this kind of operations. The second approach – which is specific of Timor-Leste – depends on the lists of families that are kept by most suco and aldeia chiefs in their offices. The prior-list-dependent (PLD) method is much faster, since it can be completed by a single enumerator in each aldeia, working most of the time in the premises of the suco or aldeia chief; however, it can be prone to biases depending on the accuracy and timeliness of the family lists.

After extensive empirical testing of the weaknesses and strengths of the two alternatives, we decided to use the DTD method in Dili and an improved version of the PLD method elsewhere. The improvements introduced to the PLD consisted in clarifying the concept of a household “currently living in the aldeia”, both by intensive training and supervision of the enumerators and by making its meaning explicit in the form’s wording (it means that the household members are regularly eating and sleeping in the aldeia at the time of the operation). In addition, the enumerators were asked to select a random sample of 10 households from the list, and visit them physically to verify their presence and ask them a few questions.³ Both listing forms can be found in Appendix B.

Training for the listing operation was done on May 18 and 19, 2001 and was conducted by Manuel Mendonca, Juan Muñoz, Rodrigo Muñoz and Valerie Evans. It was stressed that it was important for the aldeia chiefs to understand that there was no aid coming as a result of this listing. The supervisors were also trained by Lourenco Soares and Rodrigo Muñoz to use the program installed on their laptops to record agricultural data being collected for JICA while the teams were in the field for the listing operation. This was an opportunity for the supervisors to become familiar with entering data in the field as a preparation for the TLSS. Finally, the listing operation was carried out by 5 teams, each one comprising one supervisor and three enumerators, between May 21 and June 28.

³ It is generally a good idea to undertake the listing operation as an independent operation. This reduces incentives on the part of enumerators to not list difficult areas, such as households living on the top of the mountain, to ensure that they are not selected in the enumeration.

3.5 SELECTION PROBABILITIES AND WEIGHT FACTOR

In Urban Baucau, the Other Urban Centers and the Rural Areas, the probability of selecting suco ij in stratum i is

$$p_{ij} = \frac{m_i n_{ij}}{n_i} \quad (1.1)$$

where n_{ij} is the number of households in the suco (as reported by the Suco Survey), n_i is the total number of households in the stratum (also as per the Suco Survey) and m_i is the number of sucos selected in the stratum.

The probability of selecting aldeia ijk in suco ij of stratum i is

$$p_{ijk} = p_{ij} \frac{3 \cdot n_{ijk}}{n_{ij}} = \frac{3 \cdot m_i n_{ijk}}{n_i} \quad (1.2)$$

where n_{ijk} is the number of households in the aldeia, as per the Suco Survey.

The probability of selecting household $ijkl$ in aldeia ijk in suco ij of stratum i is

$$p_{ijkl} = p_{ijk} \frac{6}{n'_{ijk}} = \frac{18 \cdot m_i n_{ijk}}{n_i n'_{ijk}} \quad (1.3)$$

where n'_{ijk} is the number of households in the aldeia, as per the household listing operation.

The raising factor w_{ijkl} for household $ijkl$ is the inverse of the selection probability p_{ijkl} . If the number n'_{ijk} of households found at the time of the listing operation were equal to the number n_{ijk} recorded by the Suco Survey in all aldeias, the sample would be self-weighted in each stratum, with a constant raising factor equal to $n_i/18 \cdot m_i$ for all household in the stratum. In practice the numbers n_{ijk} and n'_{ijk} will seldom be equal but often close to each other, meaning that the samples will not be exactly self-weighted, but quite approximately so.

In Urban Dili, the probability of selecting aldeia k is

$$p_k = \frac{m \cdot n_k}{20,530} \quad (2.1)$$

where n_k is the number of households in the aldeia, as per the Suco Survey, and m is the number of aldeias selected in Urban Dili.

The probability of selecting household kl in aldeia k of Urban Dili is

$$p_{kl} = p_k \frac{6}{n'_k} = \frac{6 \cdot m \cdot n_k}{20,530 \cdot n'_k} \quad (2.2)$$

where n'_k is the number of households in the aldeia, as per the listing operation.

The raising factor w_{kl} for household kl is the inverse of the selection probability p_{kl} . As in the case of the other strata, the sample would be self-weighted if n'_k were equal to n_k for all aldeias. However, the n'_k and the n_k are expected to differ significantly in Dili, making the use of formula (2.2) essential at the analytical stage. In fact, the household listing operation will furnish as a by-product revised figures for the total population and the number of households in Urban Dili: the revised number of households will be $\sum_k w_k n'_k$ and the revised population will be $\sum_k w_k P'_k$, P'_k being the population of aldeia k .

Strictly speaking, formula (1.1) is valid only when the size of the suco is such that it can be selected at most once by the PPS procedure. However, the artifact of selecting two aldeias in the next stage whenever a suco is selected twice has the effect of making it applicable even for the large sucos where that may not be the case. Analogously, formulae (1.2) and (2.1) are valid only when the size of the aldeia is such that it can be selected at most once, but selecting 12 or 18 households rather than only 6 in these aldeias corrects the problem. Formula (1.3) may be inadequate if the actual size n'_{ijk} of aldeia k happens to be less than 6. In that case, quite unlikely, all households in the aldeia will need to be visited, and p_{ijkl} simplifies to p_{ijk} . The same can be said of formula (2.2) if n'_k happens to be less than 6; in that case p_{kl} simplifies to p_k .

4. Organization and fieldwork procedures

4.1 RECRUITMENT AND TRAINING

Part of the required workforce to carry out the survey fieldwork was drawn from the same teams that did the household listing. Indeed all of them were involved in this process too. This had the advantage that they knew already the location of the sucos and aldeias and had met their chiefs. Household listing records on how to access each aldeia, whether by vehicle or by foot, and the time to get there from the suco center had also been kept and were used for planning purposes.

However, additional people were also recruited to complete the necessary teams for the fieldwork, specific language requirements were asked for most of them i.e. knowledge of Fataluku, Bunak or Mambae. In the end, 37 people were trained and the best 32 were chosen for the enumeration. The best supervisor from the listing operation, Elias Dos Santos, was chosen to be the Field Coordinator and to assist in the enumerator training. The remaining 4 persons were kept as a backup and to do some work in Dili. Hence, eight field teams, each composed of three interviewers and one supervisor, conducted the household survey. Six teams were outside Dili, one for Oecussi and two in Dili, the main one and the spare team.

4.2 FIELDWORK

The survey was fielded during end August to early December 2001. Each team was responsible to cover one aldeia per week, so each interviewer had to interview 6 households during that period. Several visits to each household were required to complete all modules of the questionnaire. Table 3 shows the weekly advance of the operation. Overall supervision and coordination of the fieldwork was conducted by the management team based at Dili.

Table 3: Fieldwork operation

Week number	Started on	Level of completion
0	27-Aug	Began Week 1 HH's.
1	3-Sep	Completed Week 1 HH's. This two week period was planned for one week of enumeration to leave time to solve problems and for the enumerators to become more comfortable with the questionnaire.
2	10-Sep	Week 2 HH's were not completed this week – only one team finished its 18 HH's but the others ranged from 9-13 HH's. The uncompleted HH's were left to the end of survey.
3	17-Sep	Week 3 HH's completed.
4	24-Sep	Week 4 HH's completed.
5	1-Oct	Week 5 HH's completed.
6	8-Oct	Week 6 HH's completed.
7	15-Oct	Week 7 HH's completed.
8	22-Oct	Week 8 HH's completed.
9	29-Oct	The week was lost for field work outside Dili due to vehicle changeover and holidays. All teams worked Oct 29 and 30th in Dili.
10	5-Nov	Week 9 HH's completed.
11	12-Nov	Week 10 HH's completed.
12	19-Nov	Week 11 HH's completed.
13	26-Nov	Some teams had Week 12 assigned, others returned to finish Week 2 HH's and the rest were redistributed to finish up remaining sucos in Baucau. Almost all teams finished field work outside Dili by Nov 30th.
14	30-Nov	Some HH's were revisited, mostly in Dili, to find HH's previously absent, and returned to aldeias to verify reasons for non-completion of interviews. Whole survey team debriefed.

Each of the 300 selected aldeias was to have 6 households interviewed for a total of 1,800 households. The questionnaires for each aldeia were sent out with a tracking sheet containing the names of the head of household for the 6 selected houses, and three reserve households in case the original households were not available. If an original household (numbered 1-6) was not interviewed, it was to be replaced with the first reserve household, numbered HH 7. If a second

original household, or the first reserve, was not available, it was to be replaced with the second reserve household (HH 8), and so on for the third reserve household (HH9). For any replacement, a full description of why the original household could not be interviewed was to be documented on the tracking sheet by the supervisors.

Overall, there were 303 cases where a household had to be replaced. Among the reasons given for non-completion of the interviews, a few points are interesting. The refusal rate was extremely low: there were only 6 refusals in the entire survey, and of those, only two were outright refusals. Second, there is a great deal of movement in the country and this constitutes the bulk of refusals, 255, although it must be said that most of them appear to be temporal movements. One reason why people leave temporarily their aldeia is because after the harvest they have to go somewhere else where they can find work, otherwise they have nothing to do and can not support themselves. The other explanation is that during planting time they have to move to their land for several weeks because that is at a considerable distance from their dwelling. Finally, the remaining 42 refusals were either because the dwelling could not be found or it was empty, or because the dwelling should not have been included on the listing.

Following completion of the fieldwork, a general debrief was held at the World Bank's Dili offices with the participation of almost all supervisors and interviewers. The intention was to discuss issues and share experiences on the enumeration process such as their perceptions about their work, problems encountered, comments on sections of the questionnaire that were particularly hard to answer, level of cooperation of the chiefs and reception of the households interviewed. For instance, the health section seemed to be of special importance for the interviewees and many of them spoke about the need of more health services, the consumption module was considered a bit long, almost all women answered without major problems the fertility section, the Indonesian wording of some agricultural questions was ambiguous, chiefs were very cooperative and the participation of the households was more than satisfactory.

4.3 DATA ENTRY

A decentralized approach to data entry was adopted in Timor-Leste. Data entry proceeded side by side with data gathering with the help of laptops to ensure verification and correction in the field. The purpose of this procedure was twofold. First, it reduced the time of data processing because it was not necessary to send the questionnaires to the central office to be entered. More important, data were available for analysis very soon after the fieldwork was completed. And second, it allowed for immediate and extensive checks on data quality. Any inconsistency revealed at this stage was to be rectified by revisiting the households while still being in the village, and so, the need for later data editing was minimized. A second round of standard checks on data quality was also implemented in the project office in Dili upon retrieval of the data from the field teams. In general, with a few exceptions, the analysis has confirmed the high quality of the data entry and validation processes.

The data entry program was designed to check for data entry errors, coding mistakes, as well as to search for incomplete or inaccurate data collection. It was based upon two major types of checks. On the one hand, standard value-range checks were included. If the data entry operator

entered data, which was outside the bounds of the programmed range, either because the number was not a pre-coded one or because it was extremely unlikely, the program would alert him. On the other hand, it also contained a series of checks to ensure that the data collected were internally consistent. The skip program used in the questionnaire was programmed into the data entry software to ensure that the information entered was consistent to the desired skip pattern.

For instance, if the code “3” was entered by mistake in a question where the only valid responses were “1” or “2”, the program would alert the operator. Similarly, if the household reported having purchased a particular good, the program would check to see if information on quantities and expenditure was also reported. However if the data entered into the computer matched the information provided in the questionnaires, the data entry operators were instructed not to make any changes to any of them. Such cases were brought to the attention of the supervisor, which either corrected the mistake based on another information collected in the questionnaire or decided if a visit to that household was necessary.

5. Using the data set

5.1 DESCRIPTION OF THE BASIC DATA FILES

The household data set comprises 87 hierarchical data files. The names of the files follow the same pattern and structure as the questionnaire, for instance, file s05b3 correspond to section 5, part B, page 3. As a general rule, each file corresponds to one page of the questionnaire. Within each of the data files, the name of the variables also reflect the question to which they are referring to, i.e. s05b16g corresponds to section 5, part B, question 16g. The unit of observation of the files varies, mostly it is at the individual or household level, however, it depends on the type of information included in the file. For the purposes of merging information from different files, all files include identification variables that allow for a proper matching among the different units of observation. Table 4 contains a brief description of all original data files. See Appendix A for details on how to obtain the data set.⁴

⁴ Table 4 shows the file names with the extension .dta which is used for STATA software. The files are available in other formats as well, including ASCII and SAS Portable. Those files will have different extensions.

Table 4: Description of the basic data files

SECTION	FILE	UNIT	IDENTIFIER 1/
1. HOUSEHOLD INFORMATION			
0. Cover	s00.dta	Household	identif
A. Household roster	s01a1.dta	Individual	identif s01aide
	s01a2.dta	Individual	identif s01aide
	s01a3.dta	Individual	identif s01aide
B. New members since the violence in 1999	s01b1.dta	Household	identif
	s01b2.dta	Individual	identif s01bide
C. Persons leaving household after violence in 1999	s01c1.dta	Household	identif
	s01c2.dta	Members gone	identif s01cide s01c02
D. Information on parents of household members	s01d.dta	Individual	identif s01dide
2. HOUSING			
A. Description of the dwelling	s02a.dta	Household	identif
B. Housing state	s02b.dta	Building	identif s02bbcod
C. Services	s02c.dta	Household	identif
D. Ownership and expenditures	s02d1.dta	Household	identif
	s02d2.dta	Services	identif s02dcod
3. ACCESS			
	s03.dta	Household	identif
4. CONSUMPTION/EXPENDITURES			
A. Weekly food consumption	s04a.dta	Food	identif s04acod
B. Monthly and annual non-food expenditure	s04b.dta	Good/service	identif s04bcod
C. Durable goods	s04c1.dta	Durable good	identif s04ccod
	s04c2.dta	Household	identif
5. EDUCATION			
A. General education	s05a.dta	Individual	identif s05aide
B. Attendance school years 1998/9 - 2001/2	s05b1.dta	Individual	identif s05bide
	s05b2.dta	Individual	identif s05bide
	s05b3.dta	Individual	identif s05bide
	s05b4.dta	Individual	identif s05bide
	s05b5.dta	Individual	identif s05bide
6. HEALTH			
A. Health care use	s06a1.dta	Individual	identif s06aide
	s06a2.dta	Individual	identif s06aide
	s06a3.dta	Individual	identif s06aide
	s06a4.dta	Individual	identif s06aide
	s06a5.dta	Individual	identif s06aide
B. Immunization	s06b1.dta	Individual	identif s06bide
	s06b2.dta	Individual	identif s06bide
7. FERTILITY			
	s071.dta	Individual	identif s071ide
	s072.dta	Individual	identif s072ide
8. EMPLOYMENT			
A. Labour force participation	s08a1.dta	Individual	identif s08aide
	s08a2.dta	Individual	identif s08aide
B. Job information	s08b1.dta	Individual	identif s08bide
	s08b2.dta	Individual	identif s08bide
	s08b3.dta	Individual	identif s08bide
	s08b4.dta	Individual	identif s08bide
	s08b5.dta	Individual	identif s08bide
	s08b6.dta	Individual	identif s08bide
	s08b7.dta	Individual	identif s08bide
C. Individual time use	s08c.dta	Individual	identif s08cide

SECTION	FILE	UNIT	IDENTIFIER 1/
9. FARMING, LIVESTOCK, FORESTRY AND FISHERIES			
A. Plots	s09a1.dta	Household	identif
	s09a2.dta	Plot	identif s09aplot
	s09a3.dta	Plot	identif s09aplot
	s09a4.dta	Plot	identif s09aplot
	s09a5.dta	Household	identif
B. Crops harvested	s09b1.dta	Crop	identif s09bcrop
	s09b2.dta	Crop	identif s09bcrop
C. Agricultural inputs	s09c1.dta	Household	identif
	s09c2.dta	Input	identif s09cinp
D. Forestry	s09d1.dta	Household	identif
	s09d2.dta	Forest product	identif s09dprod
E. Farming equipment	s09e1.dta	Implement	identif s09eimp
	s09e2.dta	Household	identif
	s09e3.dta	Equipment	identif s09eequi
F. Labour and farm produce	s09f1.dta	Household	identif
	s09f2.dta	Labourer	identif s09flab
	s09f3.dta	Household	identif
	s09f4.dta	Product	identif s09fitem
G. Livestock	s09g1.dta	Household	identif
	s09g2.dta	Animal	identif s09gani
	s09g3.dta	Animal	identif s09gani
H. Fishing and aquaculture	s09h1.dta	Household	identif
	s09h2.dta	Boat	identif s09hboa
	s09h3.dta	Boat	identif s09hboa
	s09h4.dta	Boat	identif s09hboa
	s09h5.dta	Pond	identif s09hboa
	s09h6.dta	Species	identif s09hspe
10. TRANSFER, BORROWING AND SAVINGS			
A. Transfers given and loans	s10a1.dta	Household	identif
	s10a2.dta	Borrower	identif s10aide s10a02
B. Transfers received	s10b1.dta	Household	identif
	s10b2.dta	Lender	identif s10bide s10b02
C. Borrowing	s10c.dta	Household	identif
D. Aid assistance	s10d1.dta	Household	identif
	s10d2.dta	Assistance	identif s10dassi
E. Savings	s10e1.dta	Household	identif
	s10e2.dta	Savings	identif s10esav
11. OTHER INCOME			
	s111.dta	Household	identif
	s112.dta	Source	identif s112sour
12. SOCIAL CAPITAL			
	s121.dta	Individual	identif s121idc
	s122.dta	Individual	identif s122idc
13. SUBJECTIVE WELLBEING			
A. Individual	s13a.dta	Individual	identif s13aidc
B. Household	s13b.dta	Household	identif
C. Vulnerability	s13c.dta	Household	identif

1/ In all the files where the unit of observation is the Individual, a new variable called *idperson* has been added. It is the same as the respective *idcode* for the individual in that file. Thus all these files now have a unique set of variables that identifies each individual: *identif idperson*.

In order to interpret the data, the questionnaire is a key instrument. So it is strongly recommended to use it along with the electronic files. All questions have been laid out clearly and the interviewers were instructed to follow them literally. Most instructions are printed in the respective sections as well as most of the codes needed for the responses. Usually the enumerator had to code the answer given, based on pre-determined codes, although in some cases the list of responses was to be read to the respondent. The second reason why it is so important to consult the questionnaire is the intensive use of skip patterns. These are designed to facilitate data collection and minimize the time spent filling in the questionnaire. It allows including all questions that apply to a particular household or individual but excluding those that are irrelevant. Skip patterns are represented by an arrow followed by the number which refers to the next question (or section) to be asked (e.g. → 9). Questions in between will be skipped and the data there will appear as missing.

5.2 DESCRIPTION OF ADDITIONAL FILES

Three additional files are included beside the core data set. They include a file with information on household weights and geographic variables, another on aggregate consumption and the other on poverty figures. While the first one is clearly crucial to process the data properly, the other two contain data that were created for the purposes of the Timor-Leste Poverty Assessment and, given the complexity and detail involved, reflect diverse assumptions on both subjects. Potential users shall keep that in mind and are advised to read how these two sets of variables were calculated. If they are not satisfied with the assumptions made, they will be able to construct their own estimations based on the household data.

The file *weight* contains the variable *hhweight*, which is the factor of expansion to be applied to the basic data files to obtain significant and representative results at the analytical domain level. In addition to the household weight, variables regarding those particular strata can also be found here. They allow you to identify the location of the household and include the main geographic areas of interest such as urban/rural and analytical domains (Dili/Baucau, Other Major Urban Centers and Rural Areas). Two more variables that allow a further break down of Rural Areas are one on agro-ecologic zones (Lowlands and Highlands) and another on broad regions (West, Center and East).

The second file, *consumption01*, contains the aggregate household consumption variable that was used as the welfare indicator. Its estimation involved going through a series of steps and was guided both by theoretical and by practical considerations. Total household consumption is comprised of several components such as expenditures on goods and services, and a value for home produced consumption items as well as in-kind receipts from employers and donors. Aggregate consumption is then composed of four main categories of goods and services: food items, non-food items, consumer durables and housing. Finally, all these components are converted into real terms using a price index that accounts for differences in regions and interview dates. The specific items included in each component, as well as the methodology used to ascribe a consumption value to each of these items, are outlined in the Appendix C.

Lastly, the poverty variables are also included in the file called *consumption01*. The poverty line determines the minimum level of standard of living that a person should attain in order to not be considered “poor”. Setting poverty lines is often the hardest, and most contentious, step in constructing a poverty profile from household survey data. As in the case of consumption, the chosen method has implications for the poverty profile and for policy-making decisions. The data is at the household level and contains information regarding the upper and lower poverty lines, as well as the food poverty line, from which the previous both lines are derived. It also includes dummy variables that characterize households as poor or not based on the two poverty lines considered. The Appendix D provides a brief description of the procedure followed to derive the poverty line.

5.3 MERGING DATA SETS

As it was pointed out before, each observation from any data file contains information for a particular unit of interest, it may be a household, an individual, a food item or any other such entity. Hence each one of them must have a different way to be identified. In the case of households, the unique identification number is contained in a variable called *identif*. This variable consists of 6 digits, the first 3 refer to a sequential code identifying sucos and goes from 1 to 100. The fourth digit relates to the aldeia, it takes values from 1 to 3, whereas the fifth refers to the field team and goes from “A” to “H”. The last digit corresponds to the sequential number of the selected households and ranges from 1 to 9. Of course, individuals within the same household share the same household code. So in addition to *identify*, each individual was assigned an additional variable named *idperson*, and by using both each person can be uniquely identified. Similarly, files at a different level of aggregation have different identifiers. For example, when crops harvested are the unit of observation, the unique code for each crop that has been grown by the household will be *s09bcrop*. Table 4 also shows the identifiers for all units of observation.

The practice of assigning unique household, individual and other identifiers ensures that the data are stored in the most efficient way, but essentially it helps significantly to data users in combining different sections of the questionnaire and thus to create data sets tailored to their particular purposes. When merging files, users must be careful about the units of observation involved. Usually mergers take place among similar units of interest and the most common cases are among households, individuals or combining information from both. Household level files can be merged together using the variable *identif*, while in the case of individual files *identif* and *idperson* are required. If household information must be added to an individual level file, the proper variable is just *identif*. The weight file can be merged with any other data file using the variable *id4*, which matches the first four digits of the household identifier i.e. contains information of the suco and the aldeia where the household is located. Finally, as in the case of any other household level file, the consumption and poverty files should be merged by using the variable *identif*.

References

Evans, Valerie, 2001, "Report on the Listing Operation and the Poverty Assessment Survey for East Timor", mimeo, World Bank, Washington, DC.

Muñoz, Juan, 2001, "Timor Loro Sa'e Living Standards Survey Sampling Design and Implementation", mimeo, World Bank, Washington, DC.

World Bank, May 2003, "Timor Leste, Poverty in a New Nation: Analysis for Action", Washington, DC.

Appendix A

How to obtain the 2001 TLSS data and supporting documents

Copies of the documentation for the 2001 TLSS can be downloaded from the LSMS web site:

<http://www.worldbank.org/lsms/lsmshome.html>

Household Questionnaire
Other documentation
Codebook
Interviewer manual, Tetun
Interviewer manual, English
Supervisor manual, Tetun
Basic Information Document

There is an open access policy for the data collected in the 2001 TLSS. This means that users do not need to obtain the permission of the Timor Leste government to receive a copy of the data. The data can be downloaded free of charge from the LSMS web site (see address above).

Individuals who receive copies of the data agree to: (a) cite the National Statistics Directorate as the collector of the data in all reports, publications and presentations; (b) provide copies of all reports, publications and presentations to the National Statistics Directorate and the LSMS Office; and (c) not pass the data to any third parties for any reasons. Researchers found to be in violation of these agreements will not be able to receive copies of other data sets from the LSMS Office in the future.

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Appendix B

Household Listing Operation Forms

The forms that were developed for the household listing operation are reproduced in this appendix. The first two pages are the door-to-door (DTD) form. Its format follows the design of that used by the SUSENAS survey before independence. It will be used for all aldeias selected in Dili and, exceptionally, in some aldeias outside Dili, when, for instance, the aldeia chief lists are not available or are judged to be unreliable. The last four pages are the prior-list-dependent (PLD) form used in most areas outside Dili.

Cover page of the door-to-door (DTD) listing form.

Timor Lorosa'e Census and Statistics Agency Door-to-door household listing

Section A: Identification of the Aldeia

Name (1)	Code (2)	Comments (3)
Distrito:		
Posto:		
Suco:		
Aldeia:		

Section B: Particulars of the operation

Name and signature (1)	Code (2)	Day	Month	Year
Conducted by				
Interviewer				
Supervised by				
Supervisor				
Aldeia chief				

Section C: Summary

	Number of households (1)	Population (2)
Households living in the aldeia now		

Cover page of the prior-list-dependent (PLD) form.

Timor Lorosa'e Census and Statistics Agency Office Household Listing

Section A: Identification of the Aldeia

Name (1)	Code (2)	Comments (3)
Distrito:		
Posto:		
Suco:		
Aldeia:		

Section B: Particulars of the operation

Name and signature (1)	Code (2)	Day	Month	Year
Conducted by	Interviewer			
Supervised by		Supervisor		
	Aldeia chief			

Section C: Summary

	Number of households (1)	Population (in the aldeia list) (2)	Population (living in the aldeia now) (3)
Households in the aldeia list that are living in the aldeia now (from Section D, Columns 5 - 7)			
Households not in the aldeia list that are living in the aldeia now (from Section E)			
Total ▶			
Households in the aldeia list that are not living in the aldeia now (from Section D, Columns 8 - 12)			

Section F of the prior-list-dependent (PLD) form. It is used to select a random sample of 10 households in each aldeia, in order to physically verify their presence by the expedient of asking them a few questions. Box (2) is actually a sticker with a random permutation of Household Serial numbers that is different for all aldeias.

Section F: Random sample of 10 households in the aldeia

(1)
 Number of households in the aldeia:

Use the numbers on sticker (2) to select ten households at random from the aldeia. Read each row from left to right, starting with the upper row, to get the Serial Numbers of the selected households. Ignore any numbers that are larger than the total number of households in the aldeia (1). Transfer the selected Serial Numbers to Column (3) below

(2)

084	002	092	034	079	078	086	011	007	027
059	040	163	019	151	053	198	001	009	069
119	161	048	098	135	148	023	110	153	089
013	170	082	025	144	192	162	006	029	038
149	160	030	143	132	123	112	003	106	062
032	133	066	136	109	193	177	191	142	182
067	037	026	156	055	166	137	096	052	087
108	105	012	114	068	044	080	188	155	045

Household Serial Number (3)	Name of the Household Head (4)	How many members are now living in this household? (5)	Do you own land? (6)	How much land do you own? (7)	Do you regularly listen to the radio in this house? (8)	Has somebody from this family left the Aldeia after 1999? (9)	Where did s/he go? (10)
			Yes 1 No 2 ▶ 8	(ha)	Yes 1 No 2	Yes 1 No 2 ▶ Next	

Appendix C

The Consumption Measure

1. Introduction

This appendix explains how we constructed the consumption measure. The first part lays out the treatment of the four main types of goods and services consumed (food, non-food, consumer durables, and housing). The second section presents the procedure for adjusting household consumption to cost of living differences across time and space, and some basic statistics on the final consumption figures.

2. Consumption measure

2.1 Food items

Conceptually, constructing a food consumption aggregate is a straightforward exercise. We need to aggregate the total value of the food consumed during the recall period. Practical difficulties arise for three reasons. First, households receive food from different sources (purchases, home-production, gifts or remittances, in-kind payments), and all of them should be included to obtain an aggregate welfare measure, even though they may well be recorded with different recall periods. In the TLSS, households were asked to record the consumption of a list of 129 food items and beverages, composed of fourteen food categories/subgroups (cereals, tubers, fish, meat, eggs and milk products, vegetables, legumes/nuts, fruit, oil and fat, beverages/drinks, spices and honey, miscellaneous foods, alcoholic drinks, tobacco & betel). The common recall period of all items is *the last 7 days*. These items were deemed to be purchased relatively frequently so that this short recall period was adequate. The list⁵ and recall period match those from the SUSENAS, the Indonesian household survey, in order to ensure comparability between the TLSS and the SUSENAS. For each item, households were asked separately about the consumption of *purchased*, *self-produced*, and *in-kind* items to ensure all sources are included. Second, the non-purchased items need to be valued in monetary terms to include them in the welfare measure. This involves typically identifying reference prices at which food quantities can be valued. The TLSS recorded both quantities and Rupiah values for each food item by source. It was therefore not necessary to refer to price information from other sections or alternative data sources to calculate food expenditures. Third, some less-perishable food items may be stored for a long time, so that food purchases may differ from food consumption. For most items in the TLSS food list, differences between purchases and consumption are likely to be unimportant. We also phrased the questions carefully to emphasize that only quantities and values of food actually consumed, rather than the total amount and value purchased, should be recorded.

⁵ The list of food items was reviewed to ensure that it reflected the Timor-Leste conditions. A few changes to the list were made to include items that were eaten more commonly in Timor-Leste. Food names were also provided in Tetun on the questionnaire.

2.2 Non-food items

The TLSS collected information on consumption of over 50 non-food categories, belonging to six subgroups (goods and services, including health and education expenditures; clothing, footwear and headgear; durable goods; taxes and insurance; festivities and ceremonies; and other expenses). In line with other household surveys, both the Indonesian SUSENAS and the Living Standards Measurement Surveys, the TLSS asked for information on expenditures only, as most non-food items are too heterogeneous to permit the collection of information on quantities consumed. It recorded expenditures during the past 30 days and during the past 12 months, whether purchased or received in-kind as aid or as payment for work. The computation of the non-food aggregate involves a simple aggregation over the relevant items. The main difficulties related to which items to include, and which recall period to choose. The items in the non-food list also very closely follow the Indonesian SUSENAS non-food module.

Concerning the first issue, the basic principle is that only those non-food items, which can be considered to add to the consumption of the household, should be included into the consumption aggregate. For example, expenditures on taxes and levies or interest on loans are deductions from income, and therefore are not included. In any case, such expenditures are very small and infrequent. In the case of taxes, only 14 households in the data report paying them. The average monthly per capita expenditure is only US\$0.0079, which represents only 0.03 percent of total monthly per capita expenditure. More complicated is the issue of lumpy or infrequent expenditures, such as marriages, dowries, births and deaths. Ideally, we would want to smooth these expenditures linked to rare events over several years but lack the information to do so. Including them would risk to potentially overestimating substantially the longer-term average of consumption of those households that happened to incur in such expenditures during the survey period. We therefore followed common practice and excluded such items.

By contrast, in line with most poverty assessments, we included expenditure on education and health, even though such items can be viewed as, in the case of health, as “regrettable necessities”, and, in the case of education, as investments, and therefore not directly add to consumption. Yet, excluding them would imply that we make no distinction between two households, both of whom are sick (or have children in school age), but only one pays for treatment (or sends their children to school). Furthermore, most poverty analysis includes these expenditures. Education and health expenses were recorded not just in the consumption section but also in the education and health sections. Unsurprisingly, the latter sources result in higher numbers due to more detailed questions. In education, expenditures are asked for each child. However, education and health amount on average to no more than 2% of total expenditures even with the higher numbers. In order to have consistent recall periods, to ensure comparability with the SUSENAS, and to avoid double counting of related expenditures like transport, we opted to include the expenditure figures from the consumption section⁶. This also ensures that we can construct in future rounds of the survey a consistent consumption measure, even if we do not include separate health and education modules.

⁶ We also calculated the consumption and poverty measures using the expenditures from the health and education modules. Total nominal per capita consumption is 1% higher compared to the corresponding measure with health and education from the consumption module.

Another issue for non-food expenditures relates to the choice of recall period. Non-food expenditures, including health and education, were recorded for both the last 30 days and the last year. We found that nominal per capita consumption expenses for non-food items for the shorter recall period were on average 40 percent higher than for the longer recall period. This evidence is in line with macroeconomic data, which shows that the economy improved substantially during the course of the year preceding the survey. As we are interested in capturing as well as possible the longer-term well-being of households at the time of the survey, we decided to stick with the shorter recall period. This brings the recall period for non-food expenditures also in line with the other components of consumption, food and rent, which are measured (as discussed below for rent) with recall periods of the last 7 days and the last 30 days.

2.3 Consumer Durables

Finally, durable goods require special treatment as they last typically for several years, so that lumpy and infrequent expenditures on durable goods are not a good indicator of the utility derived from these goods during the reference period. Instead of including purchases of durable goods, the standard procedure is to estimate the flow of services accruing to the household from the total stock of durable goods it owns. However, since we only have information on the estimate for the current value of a durable good, we would need to adopt arbitrary assumptions on the rates of depreciation and inflation of a durable good to derive this value. This would add a noisy, and controversial, component to the measure of longer-term well-being. Furthermore, only very few households report the ownership of durable goods. Overall, we decided to exclude durable goods from our measure of consumption in view of their rare occurrence and measurement difficulties.

2.4 Housing

Housing is often the most problematic area to include especially when rental markets are thin, as is the case in many developing countries. The underlying principle for housing is the same as for other consumer durables. We would like to include in the consumption aggregate a measure of the flow of services received by the household from occupying its dwelling. If all households rented their dwelling, and rental markets were well functioning, we could use the value of rent paid. However, outside Dili, the incidence of rent payments is very sparse, and even within Dili, only a fraction of households report rent payments. Many households own the dwelling in which they reside, and others do not pay rent as such. Dili/Baucau, the primary urban center, reports the highest percentage of renters with 26%. Only 7 percent rent houses in other urban areas, 3% in the rural highlands, and 6% in the rural lowlands. Nationally, only 8% of households rent their houses.

While rent payments are reported only for some households, the questionnaire also asked households for estimates of how much their dwelling could be rented out for. This implicit rental value can in principle be used in the consumption aggregate whenever actual rents are not reported. Implicit rents are a hypothetical concept, and the estimates may not always be credible or usable. We inspected the numbers carefully and identified only a few outliers. In addition, we did a simple cross-check on the validity of the imputed rent estimates. For those households reporting actual rent payments, we run a typical hedonic housing regression which includes the

rental value for households as the dependent variable and characteristics of the house (such as the construction material of the house, number of rooms etc), and used this model to predict rent payments for the other households that did not report rent. We found that predicted rent payments and imputed rent estimates matched each other fairly closely nationally, though there are some differences by different regions. Predicted rents in Dili are significantly lower than those reported by households, but imputed values in the rural lowlands and other urban centers are close. For the consumption aggregate, we therefore used actual rents if available, and otherwise imputed rents as estimates for the flow of services from housing.

3. Cost of Living Differences

The discussion in the previous section concentrated on the construction of a consumption aggregate. Before this measure could be used to compare standards of living of individuals residing in different parts of the country, we have to adjust for differences in cost of living. In particular, prices of goods and services vary considerably across different regions and this spatial variation in prices should be taken into account when comparing welfare levels across different parts of the country. In Timor-Leste transportation is difficult and expensive, and local markets are not well connected, giving rise to possibly large variations in the cost of living. In this section we explain how we adjust for differences in the cost of living due to either temporal or spatial price differences.

Adjusting for temporal price differences is in principle straightforward. The survey was implemented over a period of three and a half months, and we have to account for the changes in the price level over this time span. Households interviewed at the beginning of the survey period faced a different price vector than households at the end of the period. This adjustment is especially important in situations of high inflations or deflations. We only have information on monthly changes in the Consumer Price Index (CPI) for Dili, not for the country as a whole, for which the CPI is released only quarterly. The price changes were relatively minor: the CPI increased by about 0.5 percent between the beginning of September to the end of November. Assuming the time trend in the Dili CPI was representative for other regions of the country, we deflated consumption to prices as of the beginning of September 2001.

In a cross-sectional survey, most price variation is due to spatial differences. Before we turn to the calculation of the spatial price index, we should clarify our data source for regional price information. The TLSS collected price information in the consumption section and in a separate suco-level price survey. We decided to construct the price index using the implicit price information from the consumption section, obtained by dividing expenditures by quantities. This has a number of advantages over price information from local markets. First, it is likely to reflect more accurately the prices faced by households. Local consumers may pay different prices than survey enumerators – for example through haggling or because of their long-term relationship with the vendor. Second, prices quoted at the local market within a suco may not be the relevant ones for a household located in this suco, as the household may be located closer to a different market that lies outside its suco. The disadvantage of using the price information from the consumption section is that dividing values by quantities gives unit values rather than prices. Better-off households typically purchase higher quality even of relatively homogenous goods like rice, so that the higher price they face is at least partially a reflection of the better

quality. We followed the recommended method to deal with this unit value problem by replacing household specific prices with the median of the unit price within each region (Deaton and Zaidi, 2002).

The literature proposes two main competing methods to calculate price indexes to deflate nominal consumption. They differ in the choice of weights. Spatial price indexes compare price vectors at different locations by means of a set of quantities or weights. The Paasche Index uses for each household a different set of weights, namely the purchases of the household, while the Laspeyres Index uses a fixed set of reference weights for all households. In principle, the Paasche and Laspeyres indexes give different results in the presence of either variations in regional price differences or differing expenditure patterns of households. Nevertheless, in view of other conceptual and practical problems in the poverty analysis, like accounting for housing in the consumption aggregate or allowing for differences in household composition, the choice of the deflation techniques is unlikely to be of paramount importance. We follow standard practice adopted in poverty analysis in several countries in the East Asia region and use a Laspeyres Index that uses a fixed consumption bundle. We do however test the sensitivity of our poverty estimates to the choice of this index and find that the results are remarkably robust⁷.

As explained, the Laspeyres Index involves comparing the prices a household living in a particular region faces with a set of reference prices, using a fixed consumption bundle. In terms of picking regions, we pick regions where prices are relatively homogeneous and people face reflect similar cost-of-living indices; and regions that are disaggregated enough to capture price variations across the country. While a very disaggregated grouping is desirable, the geographic regions have to be large enough to allow us to get reasonable estimates of prices. Based on these considerations, we pick five regions: Dili/Baucau, other urban areas, and rural areas divided into three groups: the rural central, the rural east and the rural west regions. For the fixed consumption bundle, we pick the reference basket of those at the lower end of the consumption distribution – to capture the tastes of the poor, not the well-off. Based on these considerations, we pick the group in the 2nd to 5th decile based on nominal consumption for Timor-Leste as a whole as the reference group. We take the expenditure pattern of this group and take the average quantities consumed by this group as the fixed consumption bundle. The Laspeyres price index for each region is computed by comparing the cost of buying the reference bundle in that region compared to a reference region. The choice of the reference price vector is a matter of convenience. We followed common practice and chose the national median of the prices observed. The use of medians rather than means limits the sensitivity to outliers. Basing the reference price vector on a national price vector brings our consumption measure closely in line with national income accounting practice, and eliminates results that depend on specific relative price patterns that occur only in some areas. The Laspeyres price index, therefore compares prices in the five regions as discussed above, to the national average.

⁷ Dividing nominal consumption by a Paasche Index leads to “money metric utilities”, and by a Laspeyres Index gives rise to “welfare ratios”. Both concepts have theoretical flaws. Money metric utility violates the transfer principle: an equalizing transfer from a rich to a poor household may widen their gap in money metric utilities, as money metric utility is in general not a concave function of expenditures. The welfare ratio violates the Pareto principle: it is possible for a policy to make a household better off yet its welfare ratio to decline (Blackorby and Donaldson 1987, Deaton and Zaidi 2002).

Constructing Laspeyres food price indexes is readily done, as in principle we have price information on each food item for each region. Apart from food, the other major item in the consumption basket is housing. Since rents, or imputed rents, are highly location specific, it is important to account for differences in the cost of living deriving from housing. In particular, the same apartment or house is likely to be more expensive in Dili than in a remote rural area. Ignoring such differences would risk overestimating the living standards in urban relative to rural areas. Deriving price indexes is more involved for housing than for food. In principle, we need to identify a reference “housing bundle”, and then determine the average price of this reference bundle for each region (Lanjouw et. al 1997). However, in practice, defining a reference bundle for housing is more difficult than in the case of food. In contrast to food items, housing is a heterogeneous bundle of goods and services comprising different attributes (number and size of rooms, quality of construction material, accessibility of services, location, etc.). In order to derive a price index for housing using the same methodology as for food, we would need to identify housing units in each region that were exactly alike in terms of all conceivable attributes, and then compare average rental values across regions to derive the housing price index. This would clearly be impossible to implement in practice. Instead, we estimated a hedonic housing regression model using actual rental values for those households in the sample that reported rents and the rents imputed by households that lived in owner-occupied or free housing as the dependent variable. The set of explanatory variables included a wide range of housing characteristics, measures of quality of housing, regional dummy variables and other factors that helped determine the rental value of dwellings. We then used the parameter estimates of this model to get a measure of the “price” of housing in each region. The model was used to estimate the cost of renting a typical house, based mostly on mode housing characteristics for the reference group, setting all variables other than the regional dummies to zero⁸. The housing price index was then derived by taking the ratio of the rents in each region to the national mean.

The Laspeyres price indexes for food and housing constructed from the TLSS data are presented in Table C.1. The TLSS did not collect price data for non-food items, so we could not use the data to construct price indices. As food and housing for the reference group (2nd to 5th decile of national consumption expenditure) account on average for about 87 percent of total consumption, we simply ignored the price differences arising from spending on non-food items. To compute the aggregate index, we used fixed weights of housing and food for the reference group. The fixed weights are 89.8 percent for food and 10.2 for housing. This is like assuming that this expenditure-weighted average of the Laspeyres food and housing indexes reflects adequately the cost differences for non-food items.

⁸ The “reference” house has three rooms, is 36 square meters large, was built in 1997, has bamboo walls, metal sheets/zinc roof, earth/clay floor, no toilet, uses a spring as the main source for bathing and washing, and has a lamp as the main source of light.

Table C.1: Regional Laspeyres Price Indexes

	Price Index		Overall
	Food	Housing	
Urban	1.071	1.371	1.102
Dili/Baucau	1.141	1.672	1.196
Other urban	0.984	0.994	0.985
Rural	0.978	0.886	0.969
Rural highland	0.980	0.896	0.972
Rural lowland	0.976	0.877	0.966
Rural center	0.988	0.845	0.974
Rural east	0.980	0.629	0.944
Rural west	0.954	1.266	0.986
Total	1.000	1.000	1.000

Note: All Rupiah values from the survey were converted to US Dollars using an exchange rate of 10,000 Rupiah/US Dollar.

Source: 2001 TLSS.

Table C.1 shows the price indices by region (Dili/Baucau, other urban areas, rural east, rural central and rural west.). The food price index shows significant price differences in Dili/Baucau relative to the rest of the country. Dili/Baucau face prices that are fourteen percent higher than the national average, and the prices other urban areas, the rural east and the rural central regions are slightly lower than the national average, while prices in the rural west are about 4 percent lower than the national average. Including housing prices alters the picture significantly. The Dili/Baucau housing price index is 70 percent higher than the national average. Prices in the rural west are 27 percent higher than the national average, while prices in other urban areas are at the national average. The rural east has the lowest housing price index, 40 percent below the national average. Combining both the food and the housing price indices shows that the cost-of-living in Dili/Baucau are 20 percent higher than the national average, while prices in the rest of the country are between 1-5 percent lower than the national average.

Table C.2 contains some basic statistics on the final consumption measure. It shows the mean and the cumulative share of the per capita aggregate household consumption by percentile. Twenty percentiles were calculated, so each one represents 5% of the population. All estimations, percentiles as well as means and shares, were done separately for both nominal and real per capita consumption figures.

Table C.2: Distribution of monthly per capita consumption

Percentile 1/	Per capita agregate household consumption			
	Real prices		Nominal prices	
	Mean (US Dollars)	Cumulative share (%)	Mean (US Dollars)	Cumulative share (%)
1	6.15	1.28	6.01	1.22
2	7.79	1.62	7.66	1.55
3	9.06	1.86	8.85	1.81
4	10.47	2.18	10.25	2.08
5	11.71	2.40	11.44	2.32
6	12.81	2.65	12.56	2.62
7	13.94	2.89	13.70	2.72
8	14.99	3.14	14.74	2.99
9	16.07	3.29	15.87	3.21
10	17.44	3.61	17.34	3.50
11	18.88	3.89	18.80	3.82
12	20.69	4.27	20.50	4.28
13	22.38	4.64	22.10	4.34
14	24.50	5.06	24.44	5.10
15	27.17	5.64	27.37	5.41
16	30.63	6.35	30.83	6.25
17	35.05	7.25	34.93	7.29
18	41.64	8.60	42.93	8.50
19	51.27	10.63	53.83	10.90
20	91.08	18.75	98.98	20.09
Total	24.17	100.00	24.63	100.00

1/ Percentiles were calculated for each set of figures i.e. for the real prices numbers, percentiles are based on real consumption, whereas for the nominal prices figures, they are based on nominal consumption.

Note: All Rupiah values from the survey were converted to US Dollars using an exchange rate of 10,000 Rupiah/US Dollar.

Source: 2001 TLSS.

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Appendix D

The Poverty Line

Following common practice in East Asia, we defined a poverty line that is “absolute” and “objective”. A poverty line is *absolute* if it fixes a given standard of living over time and space, or, in the terminology of economists, a given level of utility. Such a poverty line guarantees that two individuals with the same standard of living are always treated in the same way⁹. Furthermore, a poverty line is *objective* if the standard of living is anchored in the attainment of certain basic capabilities, rather than in individual perceptions of welfare, as in subjective methods. In particular, we correlate directly the standard of living with the capability to meet the nutritional requirement for maintaining a certain activity level. The poverty line is then set so as to meet the cost of these requirements.

The leading method to implement nutrition-based poverty lines is the Cost-of-Basic-Needs (CBN) approach. It sets a consumption bundle deemed to be adequate for basic consumption needs, and then estimates the costs to obtain such bundle for the relevant population subgroups. A person is considered to be poor if s/he cannot meet the cost of the consumption bundle. Two points are important to bear in mind. First, a person’s poverty status is linked not to whether the actual consumption meets the stipulated needs, but rather to whether the person would have the means to do so. In other words, while nutritional requirements are used to set the reference standard of living, nutritional status is not itself the welfare indicator. Second, there are many ways to determine the consumption bundle that provides for the basic needs. Current practice favors to set this bundle with reference to actual consumer behavior.

The poverty line is composed of two elements, the food and the non-food components. The food component requires setting food-energy requirement. We followed common practice in East Asia and used as basic nutritional requirement 2100 calories per person per day. We defined the food bundle that yields this level of nutrition by looking at the prevailing consumption patterns. There are a number of ways to calculate such a bundle. In particular, we took the average food bundle consumed by the lowest second to fifth decile of the population as ranked in terms of real consumption per capita. This reference group is our first guess for the poverty head-count. Then we used caloric conversion on factors to convert the food bundle into total calories. We identified the caloric content of the over 100 food items represented in the food basket of the reference group, drawing on two sources. Whenever possible, we took caloric conversion factors from Pradhan et al (2000), used for the poverty line calculations with Indonesian Susenas data. In case a closely matching food item was missing, we referred to the nutritional database from the US Ministry of Agriculture¹⁰. Following standard convention, we excluded alcoholic drinks, tobacco and betel, and residual sub-categories “other”. We were left with 102 out of 129 food items, from which we identified the caloric nutrients of 93 items. Overall, this covered 99.9

⁹ More formally, it guarantees that a Pareto improvement in terms of welfare, whereby at least one person is better off, and no one else is worse off, cannot increase measured poverty (Ravallion 1998).

¹⁰ The website for the nutrient database of the US Department of Agriculture is located at http://www.nal.usda.gov/fnic/cgi-bin/nut_search.pl.

percent of the food expenditure basket of our reference group. Table D.1 provides a description of the food bundle, the budget shares of the main food items and the caloric conversion factors. Finally, we calculated the nutritional content of the food basket and scaled it proportionately to ensure it provides the required 2100 calories per person. The resulting food poverty line is US\$10.81 per month per person.

The most controversial part of setting a poverty line concerns the non-food component. The rationale for allowing a non-food component is closely tied to the normative judgment involved in choosing the food component. Setting the food-energy needs requires determining an activity level. Yet, maintaining a certain activity level involves participating in society, and therefore, according to prevalent social norms, a minimum level of spending on clothing, shelter and health care. In order to allow for basic-needs non-food expenditures, common practice is to divide the food component of the poverty line by some estimate of the budget share devoted to food. How do we fix the food share? Standard practice looks at the share of non-food expenditures of a person, whose total expenditure is just enough to reach the food poverty line. This can be interpreted as the minimum necessary allowance for non-food spending, since the person has substituted this spending for basic food needs¹¹. This estimate is referred to as the “lower poverty line”. A higher allowance for non-food expenditures looks at those households in which individual food expenditures actually equal the food poverty line. The non-food spending of these households is added as the allowance for non-foods. The more generous allowance for non-food expenditures gives us the “higher poverty line”.

We calculated the non-food shares for both the lower and higher poverty lines with a simple non-parametric technique (triangular kernel density estimation), as suggested in Ravallion (1998)¹². First, we considered those households whose overall consumption lie within plus and minus one percent around the food poverty line, and derived their mean non-food expenditure. We then repeated this calculation another nine times, each time increasing the interval on each side by one percent of the food poverty line. Finally, we took the average of all the mean non-food share of expenditures¹³, which provided us with our estimate for the non-food components of the poverty line. We repeated these calculations for those households whose food consumption matches the food poverty line. Finally, we obtained a lower national monthly per capita poverty line of US\$14.41 and a higher national poverty line of US\$15.43. The food share accounts for 75 percent in the case of the lower poverty line and 70 percent in the case of the upper poverty line.

¹¹ Under certain assumptions, this method identifies the lower bound of the poverty line. The corresponding upper bound is defined by the food share of households whose actual food spending equals the food poverty line. Once “survival” food needs are satisfied, basic non-food needs will have to be satisfied before basic food needs as total expenditure rises. And food and non-food are “normal” goods, so that their demand increases with total expenditures. They ensure that a person whose food expenditures match the food poverty line has already covered at least the basic non-food needs.

¹² Alternatively, the food share can be estimated parametrically with an Engel curve. The non-parametric approach is both simpler and requires no assumptions on the functional form of the Engel curve.

¹³ This method gives highest weight on the households within the narrowest interval, and lowest weight to households within the widest interval. The weights are declining linearly around the food poverty line.

References

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- Ravallion, Martin. 1998. "Poverty Lines in Theory and Practice." LSMS Working Paper 133. World Bank, Washington, DC.

Table D.1: Food bundle

Code	Item	Unit	Calories per unit	Per capita expenditure	
				US Dollars per month	%
TOTAL FOOD EXPENDITURE				10.03	100.00
1000	Cereals			2.97	29.59
1001	Local rice	kg	3,614	0.72	7.13
1002	Unhusked rice	kg	3,614	0.04	0.41
1003	Imported rice	kg	3,614	1.18	11.71
1004	Corn	kg	3,200	1.03	10.25
1005	Wheat flour	kg	3,330	0.00	0.03
1006	Corn flour	kg	3,200	0.01	0.06
1007	Other cereals	kg			0.00
1010	Tubers			0.98	9.80
1011	Cassava	kg	1,309	0.41	4.11
1012	Sweet potatoes	kg	1,252	0.27	2.71
1013	Sago (ambon sago)	kg	n.a.	0.02	0.20
1014	Taro	kg	1,120	0.23	2.25
1015	Potatoes	kg	270	0.03	0.33
1016	Other tubers	kg		0.02	0.20
1020	Fish			0.23	2.28
1021	Tuna	kg	904	0.02	0.15
1022	V. small sea fish (sardines, teri, etc)	kg	824	0.07	0.72
1023	Other fresih fish	kg	824	0.07	0.74
1024	Salted fish	kg	824	0.01	0.15
1025	Canned fish	100 gms	82	0.02	0.18
1026	Squid	kg	920	0.01	0.11
1027	Fresh shrimp	kg	1,060	0.02	0.22
1028	Dried shrimp	100 gms	106		0.00
1029	Other seafood	kg		0.00	0.01
1030	Meat			0.61	6.11
1031	Beef	kg	2,070	0.25	2.52
1032	Buffalo meat	kg	990	0.04	0.42
1033	Goat	kg	1,090	0.02	0.16
1034	Pork	kg	4,165	0.13	1.32
1035	Chicken	kg	3,020	0.11	1.14
1036	Canned meat	kg	2,070		0.00
1037	Meat scraps and bones	kg	n.a.	0.00	0.03
1038	Other meat	kg		0.05	0.53
1040	Eggs and milk product			0.20	1.94
1041	Chicken eggs	each	66	0.09	0.91
1042	Other eggs	each	66	0.00	0.01
1043	Fresh milk	litre	630	0.01	0.12
1044	Canned sweet milk	390 gms	1,334	0.05	0.50
1045	Powdered milk	kg	5,090	0.00	0.00
1046	Baby milk	400 gms	1,984	0.04	0.39
1047	Other eggs/milk and dairy	100 gms			0.00

Code	Item	Unit	Calories per unit	Per capita expenditure	
				US Dollars per month	%
1050	Vegetables			1.51	15.06
1051	Spinach	kg	114	0.02	0.24
1052	Kangkung	kg	220	0.08	0.76
1053	Cabbage	kg	250	0.05	0.49
1054	Light mustard green	kg	260	0.14	1.43
1055	Dark mustard green	kg	260	0.08	0.82
1056	String bean	kg	276	0.01	0.09
1057	Tomato	kg	671	0.01	0.15
1058	Carrot	kg	430	0.00	0.03
1059	Cucumber	kg	125	0.00	0.00
1061	Cassava leaves	kg	635	0.25	2.50
1062	Eggplant	kg	260	0.01	0.10
1063	Squash	kg	285	0.03	0.31
1064	Papaya, young	kg	345	0.17	1.66
1065	Papaya flowers	kg	345	0.18	1.78
1066	Lettuce	kg	130	0.01	0.06
1067	Pumpkin	kg	260	0.02	0.21
1068	Pumpkin leaves	kg	190	0.02	0.20
1069	Kabura	kg	n.a.	0.02	0.17
1071	A Timor veg	kg	635	0.05	0.51
1072	Tips of banana plants	kg	644	0.05	0.47
1073	Green bitter melon	kg	320	0.00	0.04
1074	Onion (big)	kg	1,236	0.17	1.66
1075	Garlic	kg	1,490	0.10	0.99
1076	Red pepper/chili	kg	659	0.00	0.04
1077	Sukun	kg	n.a.	0.02	0.16
1078	Other vegetables	kg		0.02	0.16
1080	Legumes/nuts			0.33	3.31
1081	Soya bean	kg	4,160	0.03	0.26
1082	Mung bean	kg	300	0.06	0.64
1083	Cashews	100 gms	587	0.00	0.01
1084	Peanuts	kg	5,670	0.04	0.42
1085	Kidney bean	kg	3,330	0.16	1.58
1086	Tofu & tempe	kg	1,350	0.00	0.00
1087	Other legumes/nuts	kg		0.04	0.40

Code	Item	Unit	Calories per unit	Per capita expenditure	
				US Dollars per month	%
1090	Fruit			0.42	4.23
1091	Orange/tangerines	kg	455	0.00	0.02
1092	Mango	kg	365	0.07	0.67
1093	Apples	kg	590		0.00
1094	Avocado	kg	1,610	0.02	0.17
1095	Pineapple	kg	490	0.01	0.14
1096	Banana	kg	920	0.17	1.74
1097	Papaya	kg	345	0.08	0.76
1098	Jambu air	kg	n.a.	0.00	0.02
1099	Goiabas	kg	n.a.	0.00	0.02
1101	Watermelon	kg	320	0.01	0.06
1102	Soursop	kg	660		0.00
1103	Jackfruit	kg	940	0.01	0.13
1104	Markisa	kg	n.a.	0.00	0.04
1105	Canned fruit	kg	n.a.	0.00	0.01
1106	Coconuts	kg	3,363	0.05	0.47
1107	Other fruit	kg			0.00
1110	Oil and fat			0.36	3.62
1111	Coconut oil	litre	6,960	0.08	0.80
1112	Pork oil	litre	6,960	0.01	0.07
1113	Other cooking oil	litre	6,960	0.27	2.70
1114	Dry coconut	kg	6,960	0.00	0.05
1115	Butter and margarine	100 gms	717		0.00
1116	Other oil and fat	litre		0.00	0.01
1120	Beverages/drinks			0.79	7.89
1121	Sugar	100 gms	375	0.34	3.37
1122	Palm sugar	100 gms	375	0.00	0.01
1123	Tea	100 gms	466	0.02	0.21
1124	Coffee	100 gms	1,243	0.43	4.27
1125	Cocoa/chocolate powder	100 gms	288	0.00	0.01
1126	Soda drinks (Sprite, Coke)	litre	403	0.00	0.03
1127	Other beverages	litre			0.00
1130	Ingredients			0.19	1.88
1131	Salt	100 gms	0	0.08	0.84
1132	Honey	kg	3,040	0.00	0.01
1133	Candle nut	100 gms	2,245	0.00	0.01
1134	Paprika	100 gms	289	0.04	0.35
1135	Soy sauce sweet/sour	140 ml	77	0.00	0.01
1136	MSG	gram	0	0.07	0.66
1137	Other ingredients/spices	kg		0.00	0.00

Code	Item	Unit	Calories per unit	Per capita expenditure	
				US Dollars per month	%
1140	Miscellaneous food			0.38	3.82
1141	Instant noodles	80 gms	356	0.26	2.57
1142	Macronie	100 gms	360	0.01	0.11
1143	White bread	small piece	53	0.01	0.14
1144	Sweet bread	each	162	0.05	0.53
1145	Biscuits	100 gms	325	0.01	0.14
1146	Sweets/cakes	each	37	0.03	0.33
1147	Snacks	portion	n.a.	0.00	0.00
1148	Other food				0.00
1149	Prepared food and drink			0.00	0.00
1150	Alcoholic drinks			0.27	2.65
1151	Beer	620 ml		0.00	0.02
1152	Wine	620 ml		0.00	0.02
1153	Tua mutin	litre		0.10	1.04
1154	Tua sabu	litre		0.16	1.55
1155	Other alcoholic beverages	litre		0.00	0.02
1160	Tobacco and betel			0.78	7.80
1161	Clove cigarette, filter	each	0	0.16	1.60
1162	Clove cigarette, non filter	each	0	0.01	0.08
1163	Tobacco cigarette, filter	each	0	0.00	0.02
1164	Tobacco cigarette, non filter	each	0	0.01	0.11
1165	Tobacco	100 gms		0.19	1.89
1166	Betel fruit	stick		0.03	0.29
1167	Betel nuts	100 gms		0.07	0.65
1168	Betel leaves	grams		0.14	1.36
1169	Areca nut	stick		0.18	1.79

Note: All Rupiah values from the survey were converted to US Dollars using an exchange rate of 10,000 Rupiah/US Dollar.

Source: 2001 TLSS.

Appendix E

Education System

Education Codes

TK = Kindergarten

SD = Primary School (grades 1-6)

SMP = Junior Secondary School (grades 7-9)

SMA = Senior Secondary School (grades 10-12)

Academia = Professional institution training people with a direct orientation towards the world of work in contrast to degree-granting institutions like universities

University = University*

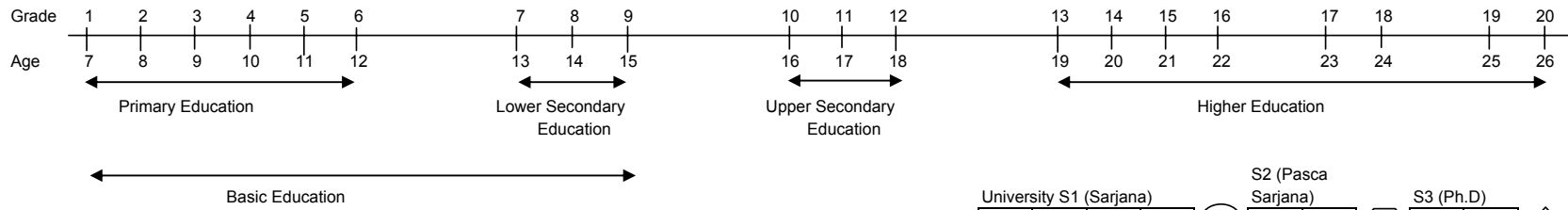
*Under the Indonesian system, university was divided into:

Sarjana (S1) 4 years

Pasca Sarjana (S2) 2 years

Ph. D. (S3) 2 years

EDUCATION STRUCTURE



Legend

- University/IKIP & Polytechnic Entrance Examinations
- School Leaving Examinations
- Master's Degree
- Sarjana Degree
- PH. D.
- Diploma

