

A Guide to Young Lives Rounds 2 to 5 Consumption Aggregates

Pierre Marion



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1. Introduction

This technical note aims to facilitate the analysis of consumption patterns of Young Lives households over the past 12 years, since 2005 (Rounds 2 to 5). It describes how the consumption aggregate indicators for the Younger Cohort have been computed. As part of the household questionnaire, household heads were asked about their household's usual food and non-food consumption. Consumption data were collected in Rounds 2 to 5 for the Younger Cohort, and in Rounds 2 and 3 only for the Older Cohort.¹

Consumption aggregates combine a number of items which can be grouped into food items and non-food items. Most items are similar across the four Young Lives countries. Country-specific food and non-food items were incorporated into the design of the questionnaire and therefore into the consumption aggregates. After adjusting for local inflation and for household size across time, these consumption aggregate indicators included total per capita monthly expenditure, per capita monthly food consumption, and per capita monthly non-food expenditure, in both nominal and real terms, across the last four rounds of Young Lives data collection.

2. Food consumption

In the household questionnaire, food consumption questions related to household consumption in the last 15 days. If a festival, wedding, feasting, fasting period or unusual event took place within the last 15 days, the respondent provided information on household's consumption in the 15 days prior to the event. The respondent was first asked whether household members consumed a list of food items ('Household has consumed which of the following food items in the last 15 days?'). Data on the value (in the current local currency) of these consumed food items were then collected. These values were rounded to the closest integer and round up if equal to fifty cents. The respondent indicated the value of consumed food items from three different sources:

- (i) Food purchased (in the questionnaire: 'What is the total value of this item bought and consumed in the last 15 days?').
- (ii) Food home-produced (from own harvest) or from stock, which includes food from animal husbandry, food extracted from nature, and grown fruits and vegetables ('How much of this commodity did you and your household consume from your own harvest or own stock in the last 15 days?').
- (iii) Food items received as gifts or transfers ('How much of this commodity did you and your household consume from gifts, transfers or food aid received from relatives, friends, neighbours, government or other organisations in the last 15 days?').

For sources (ii) and (iii), the value of the consumed food items was estimated.

In the case of Peru, the questions were formulated in a slightly different way. First, for food purchased, the interviewer asked: 'How much did you spend buying each food item in the

¹ In Round 4, a smaller number of food and non-food consumption questions were asked to Older Cohort household heads as many Young Lives children were living outside of the family household, making household consumption in Round 4 no longer comparable with consumption levels of previous rounds.

last 15 days?'. Furthermore, there was an additional question related to all food that was left over ('If you didn't eat everything estimate the value of the food left over'). The estimated value of the leftover is subtracted from the final value of household food consumption. Also, unlike the other countries, in Peru, the consumption of food items received as gifts or transfers (source (iii)) distinguished between three different sources:

- Presents ('What is the value of this food item eaten received as a present in the last 15 days?').
- Food items from own business ('What is the value of this food item eaten from own business in the last 15 days?').
- Part of payment ('What is the value of this food item eaten received as part of payment in the last 15 days?').

Table 1 shows the food items included in the survey and therefore used for computing the consumption aggregates in each Young Lives country. To ensure consistency, food items are the same in each country across all four rounds of the data collection (Round 2 to Round 5).

Table 1. *Food items included in the consumption aggregates by country*

| Ethiopia | India | Peru | Vietnam |
|---|---|--|---|
| Oil seeds (rape seeds, linseeds, etc.) | Oil seeds | Rice (current, superior, bulk or bagged) | Pulses/lentils/beans |
| Pulses/lentils/beans | Pulses/lentils/beans | Wheat flour | Pasta/rice |
| Pasta/rice | Pasta/rice | Wheat grain, corn, starch, corn derivatives | Bread/wheat flour (processed) |
| Cereals (barley, wheat, teff, sorghum, maize, etc.) (unprocessed) | Cereals (barley, wheat, teff, sorghum, maize, etc.) (unprocessed) | Oats, barley, kiwicha, quinoa, quinoa flour, barley flour or other derivatives of quinoa | Cereals (barley, wheat, teff, sorghum, maize, etc.) (unprocessed) |
| Tubers/potatoes/root crops | Tubers/potatoes/root crops | Bread (white, whole, yolk, etc.) | Tubers/potatoes/root crops |
| Meat products | Meat products | Cookies, cakes, cake, biscuits, etc. | Meat products |
| Powdered/formula milk | Powdered/formula milk | Noodles of all types | Powdered/formula milk |
| Milk or milk products (milk, butter, cheese, yoghurt, etc.) | Milk or milk products (milk, butter, cheese, yoghurt, etc.) | Red meats (beef, pork, mutton, guinea pig, rabbit, and giblets etc.) | Milk or milk products (milk, butter, cheese, yoghurt, etc.) |
| Fresh fish | Fresh fish | Meat of birds (chicken, turkey, duck, and giblets etc.) | Fresh fish |
| Processed fish (tinned) | Processed fish (tinned) | Sub-meat products (bacon, ham, pâté, sausage, bones, etc.) | Processed fish (tinned) |
| Eggs | Eggs | Fish and seafood (fresh, frozen, smoked, canned, etc.) | Eggs |
| Vegetables | Vegetables | Milk | Vegetables |
| Fruit | Fruit | Yogurt, cheese | Fruit |
| Salt/spices | Salt/spices | Butter of milk, etc. | Salt/spices |
| Oil | Oil | Eggs | Oil |
| Sugar/honey | Sugar/honey | Oils, vegetable margarine, butter, etc. | Sugar/honey |
| Prepared food (restaurants, food stalls) | Prepared food (restaurants, food stalls) | Salt and seasoning spices (chili, cinnamon, sybarite, pepper, vinegar, etc.) | |

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| Ethiopia | India | Peru | Vietnam |
|-----------------------------------|-----------------------------------|---|---------|
| Packaged sweets (biscuits, cakes) | Packaged sweets (biscuits, cakes) | Sauces (tomato, mayonnaise, mustard, etc.) | |
| Coffee and tea | Coffee and tea | Tubers and roots (potatoes, sweet potatoes, cassava, etc.) | |
| Soft drinks | Soft drinks | Beans (peas, beans, chickpeas, lentils, beans, soybeans, etc.) | |
| Bread/wheat flour (processed) | Bread/wheat flour (processed) | Fresh, frozen, canned vegetables, and salads (includes onions, garlic) | |
| Alcohol | Alcohol | Fresh fruits (includes lemons) | |
| Enset/Kocho | Other | Banana, banana flour | |
| Cactus | | Dried fruits, preserves, marmalade, etc. | |
| | | White sugar or blonde | |
| | | Coffee, tea, cocoa, herbs, mate | |
| | | Instantaneous foods (gelatin, soda, flan, mazamorras, soups, etc.) | |
| | | Candies, chocolates, honey, etc | |
| | | Prepared food products purchased outside and consumed <i>in</i> the home | |
| | | Prepared and consumed prepared food products <i>outside</i> of the home (restaurant type, menu) | |
| | | Refreshments and other food received as part of your compensation that have not yet been considered | |
| | | Alcoholic beverages (wines, beer, liquors, etc.) | |
| | | Soft drinks (Inca Kola, Coca Cola, Cola Real, etc.) | |
| | | Other foods | |

3. Non-food consumption

The second component in the consumption survey module was about non-food consumption. The respondent was first asked to indicate the household's expenditure (in nominal terms) on a list of non-food items. In this case, the reference period was the last 30 days, rather than 15 days as for the food items. They included personal care items, tobacco, fuel items, internet, security, housemaid and transportation costs. As for the food items, the list of non-food items was not identical across the four countries. Also, questions on less frequent household purchases, such as on clothes, education fees, medical fees and family events, were included. For these, the reference period was the last 12 months.

Unlike the food consumption where the questions focused only on the expenditure on goods consumed, here, data were on the expenditure on all non-food goods purchased, even if not used. All these payments excluded costs related to the family's business. For example, payments on fertilisers and pesticides were not included here. In cases where it was not possible to separate the household expenditure and business-related expenditure for non-food items, the payments were reported here, as part of the household non-food consumption. These payments were expressed in current local currency according to the prices at the time of purchase.

The non-food items can be grouped in four categories: (i) expenditure on education; (ii) expenditure on health; (iii) expenditure on clothing and footwear; and (iv) expenditure on other non-food items. The selection of items used for the computation of the consumption aggregate depends on the availability of data across rounds and only includes the purchases of items consistently collected in the last four rounds of data.²

- (i) **Expenditure on education.** All money spent on school uniforms for boys and girls, payments for tuition, fees or donations to school, books and stationery, and transport to school. School fees for adults in India were excluded from the non-food items as data were not available across all rounds.
- (ii) **Expenditure on health.** All money spent on medical consultations and treatment and other medical expenses. Medicine payments in Ethiopia and India were excluded from the non-food items as data were not available across all rounds.
- (iii) **Expenditure on clothing and footwear.** All money spent on clothing and footwear for adults and children.
- (iv) **Expenditure on other non-food items.** All money spent on other non-food items such as rents, dwelling and vehicle maintenance, water supply, electricity rates, telephone and mobile phone rates, fees and paperwork, legal advice, bribes, one-off family events, festivals and celebrations, personal care items, entertainment, presents for children, and jewellery. We excluded expenditure on jewellery from the non-food items in Peru and Vietnam because it caused too much distortion.

The full lists of non-food items with a 30 days and 12 month reference period across countries are available in the household questionnaire in the section 'Non-food expenditure' (Young Lives 2018).

² Non-food expenditure data were collected and computed at the household level.

4. Computing the consumption aggregate indicators

Three household consumption aggregate indicators are derived in the four rounds (Round 2 to Round 5):

- **Food consumption indicator.** This is the monthly value of all food items consumed by the household from all food sources in current local currency. As these food values were over a reference period of 15 days, these are converted into monthly terms. We then aggregate the total values from these food sources.
- **Non-food consumption indicator.** Non-food consumption is measured by summing the monthly value of the household's expenditure on education, health, clothing, footwear and other items. These values are all in current local currency. Since expenditure on non-food items were collected for different reference periods, they are all converted to monthly values.³
- **Total consumption indicator.** Total consumption measure is simply the sum of the food and non-food consumption indicators. It is expressed in current local currency.

It is important to note that if the respondent answered that they cannot remember the value of specific food or non-food items, if they refuse to answer, or similarly if the value is missing, then the observation for this item is given the value 0, before computing the consumption indicators.

5. Adjustments for inflation

Once food and non-food consumption aggregates are computed, they are adjusted for inflation in order to have these indicators in real terms. With these additional indicators, we can identify the variations in food, non-food and total household consumption taking into account the change in inflation in the four countries.

Data for estimating inflation (Consumer Price Index, CPI) originate from external sources for all countries as specified below, except for India where the information comes from the Young Lives community questionnaire. The CPI data used are archived together with the consumption aggregates data. These CPI measures are then used as deflators to adjust current consumption indicators for inflation. Consumption indicators defined in Section 4 are divided by the estimated CPI rates.

5.1. Ethiopia

In each round, we estimate the CPI rates for food and non-food products in order to adjust the consumption aggregates (food, non-food and total) for local inflation. We use information provided by the Ethiopian Central Statistical Agency (CSA). The agency publishes CPI data on a monthly basis at both the national and regional levels for the overall economy and for

³ As specified in Section 3, the reference period was the last 30 days for frequent household expenditures such as care items, tobacco, fuel items, internet, security, housemaid and transportation costs. For less frequent expenditures (clothing, education, medical fees, family events and others such as gifts and jewellery), the reference period was the last 12 months.

food and various non-food items. We therefore have three measures of CPI. We divided the CSA CPI rates by 100 (the base CSA CPI was equal to 100).

We first extract from the CSA CPI database the monthly regional CPI for the overall economy, the monthly regional CPI for food products, and the monthly regional CPI for non-food products for every month of the Young Lives data collection in Rounds 2 to 5. The base month of the CPI rates, provided by the CSA, changes with time. In Round 2 (November 2006 to May 2007), the base month of CSA CPI is December 2000. In Round 3 (October 2009 to March 2010), it is December 2006 and in Round 4 (October 2013 to March 2014) and Round 5 (October 2016 to February 2017), December 2011 is the base month.

We need to express the relevant CPI rates across rounds in a common base month. In this way, we can adjust the estimated consumption aggregates for inflation and examine the evolution of household consumption over time in real terms. We choose price levels in December 2006 as a base month as it corresponds to the beginning of the data collection in Round 2.

For CPI rates for Round 2, the re-basing is straightforward. Each CPI with base December 2000 between November 2006 to May 2007 is divided by the CPI with base December 2006, as shown in equation 1.

$$cpi_{Base\ Dec\ 2006}^m = \left(\frac{cpi_{Base\ Dec\ 2000}^m}{cpi_{Base\ Dec\ 2006}^{Dec\ 2000}} \right) \quad (1)$$

Where:

$cpi_{Base\ Dec\ 2006}^m$: CPI of a given month m within Round 2 with December 2006 prices as the base.

$cpi_{Base\ Dec\ 2000}^m$: CPI of a given month m within Round 2 with December 2000 prices as the base.

$cpi_{Base\ Dec\ 2006}^{Dec\ 2006}$: CPI of December 2006 with December 2000 prices as the base.

No changes are necessary for the relevant CSA CPI rates in Round 3 as the base month was already December 2006.

For CPI rates collected for Rounds 4 and 5, the CSA changed the CPI base to December 2011. The change in base took place in March 2013. Therefore, by using the CPI report of January 2013, where prices still had the 2006 base, and the CPI report of March 2014 (which also provides information for January 2013 but with a base of 2011), we are able to reconstruct the CPI for December 2011 at 2006 prices (see equation 2).

$$cpi_{Base\ Dec\ 2006}^{Dec\ 2011} = \left(\frac{cpi_{Base\ Dec\ 2006}^{Jan\ 2013}}{cpi_{Base\ Dec\ 2011}^{Jan\ 2013}} \right) \quad (2)$$

Where:

$cpi_{Base\ Dec\ 2006}^{Dec\ 2011}$: CPI of December 2011 with December 2006 prices as the base.

$cpi_{Base\ Dec\ 2006}^{Jan\ 2013}$: CPI of January 2013 with December 2006 prices as the base.

$cpi_{Base\ Dec\ 2011}^{Jan\ 2013}$: CPI of January 2013 with December 2011 prices as the base.

We can then express CSA CPI rates in Round 4 and Round 5 (with December 2011 as the base) with a December 2006 base (equation 3):

$$cpi_{Base\ Dec\ 2006}^m = (cpi_{Base\ Dec\ 2011}^m \times cpi_{Base\ Dec\ 2006}^{Dec\ 2011}) \quad (3)$$

Where:

$cpi_{Base\ Dec\ 2011}^m$: CPI of a given month m within Rounds 4 and 5 with December 2011 prices as the base.

Equations 1, 2 and 3 are relevant to estimate the overall CPI (all products), food CPI, and non-food CPI rates.

CSA provides a specific CPI rate for several non-food items, unlike food items for which there is only one CPI per month and region. In addition, the CSA's non-food items are not identical to those of Young Lives mentioned above. Table 2 contains the non-food items used in the CSA and those included in Young Lives. We link several Young Lives non-food items to each CSA non-food item. We determine the weights associated to these non-food items based on their share in the households' basket in Round 2 in order to obtain one CPI rate for non-food items. Table 2 has the estimated weights for the non-food items in Young Lives Round 2 (as 2006 is the base year). These non-food items weights are used to estimate the non-food CPI in each round. Equation 4 shows how the CPI for non-food items is calculated.

$$NFcpi_{Base Dec 2006}^m = \sum_{i=1}^8 w_i * nfcpi_{Base Dec 2006}^m \quad (4)$$

Where:

$NFcpim_{Base Dec 2006}^m$: non-food CPI of a given month m in each round with December 2006 prices as the base.

w_i : weight associated with each CSA non-food item.

$nfcpi_{Base Dec 2006}^m i$: CPI of a given month m in each round for a CSA non-food item i with December 2006 prices as the base.

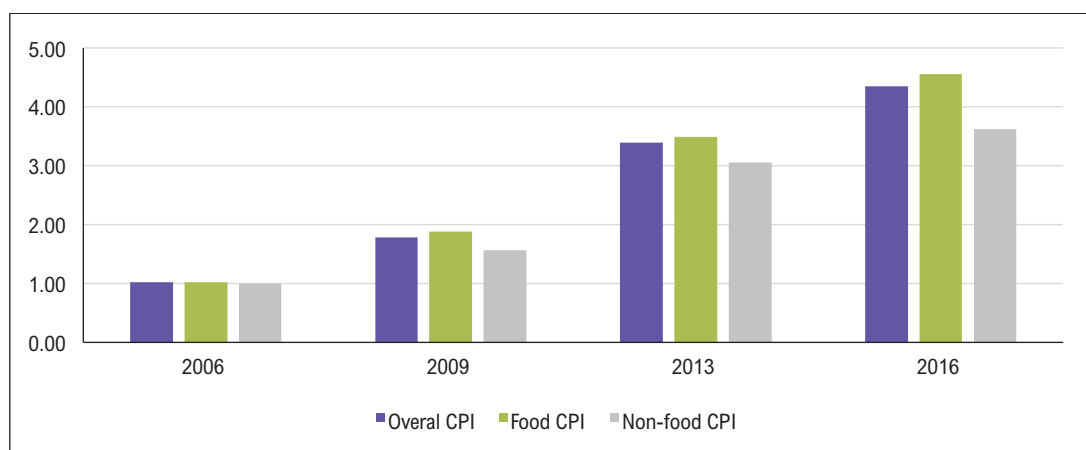
Table 2. *Non-food items and their associated weights from Young Lives Round 2 data*

| CSA non-food items | Estimated weight in Round 2 | Young Lives non-food items included |
|---|-----------------------------|--|
| Beverages | - | Not included |
| 1) Cigarettes and tobacco | 0.0006 | Tobacco, cigarettes, etc. |
| 2) Clothing and footwear | 0.2722 | 1. Clothing for adult men |
| Clothing (1-4) | 0.1948 | 2. Clothing for adult women |
| Footwear (5-8) | 0.0774 | 3. Clothing for girls |
| | | 4. Clothing for boys |
| | | 5. Footwear, adult men |
| | | 6. Footwear, adult women |
| | | 7. Footwear, girls |
| | | 8. Footwear, boys |
| 3) House rent, construction materials, water, fuel and power | 0.2712 | 1. Rent (house, residence) |
| | | 2. Dwelling maintenance |
| | | 3. Cleaning materials |
| | | 4. Rent (business, stall) |
| | | 5. Business, licence/tax |
| | | 6. Water rates |
| | | 7. Electricity rates |
| | | 8. Firewood, kerosene, gas, batteries, candles |
| Furniture, furnishing, household equipment and operation | - | Not included |

| CSA non-food items | Estimated weight in Round 2 | Young Lives non-food items included |
|---|-----------------------------|---|
| 4) Medical care and health | 0.0579 | 1. Payments for medical consultation and treatments 2. Any other medical expenditure |
| 5) Transport and communication | 0.0925 | 1. Telephone rates |
| Transport (2+3+4) | 0.0564 | 2. Vehicle maintenance |
| Communications (1+5) | 0.0361 | 3. Other transport 4. Public transport 5. Internet use |
| 6) Recreation, entertainment and education | 0.2524 | 1. School uniform, boys |
| Recreation and entertainment (11-13) | 0.1474 | 2. School uniform, girls |
| Education (1-10) | 0.1049 | 3. School fees/donation to school, boys 4. School fees/donation to school, girls 5. School fees/donation to school, adult men 6. School fees/donation to school, adult women 7. Payment tuition, boys 8. Payment tuition, girls 9. School books and stationary 10. Transport to school 11. Cinema/entertainment, video 12. Festivals and celebrations 13. One-off family events |
| 7) Personal care and effects | 0.0078 | 1. Personal care items |
| 8) Miscellaneous goods | 0.0455 | 1. Presents or treats for children 2. Jewellery 3. Security guards/maids 4. Other expenditure 5. Fees and paperwork 6. Legal advice – support aid 7. Bribes |

The estimated average CPI rates over the four rounds in Ethiopia are shown in Figure 1.

Figure 1. Average estimated CPI in Ethiopia over time



5.2. India

The information used to derive the CPI in each round comes from the Young Lives community data as no national database on local inflation rates is available.

For each round (Round 2 to Round 5), a CPI rate for India is estimated at the cluster level (20 clusters in total, as defined in Young Lives). We take prices collected in the community survey in Round 2 (2006) of 12 key items in a chosen cluster (cluster number 20) as the base prices. The 12 food and non-food items are: pulses, rice, milk, vegetables, salt, oil, sugar, coffee, cigarettes, kerosene, boy's clothing, and girl's clothing.

We derive the CPI rate in each round by calculating the weighted sum of the ratios of current prices in each cluster on the reference prices in Round 2 across these key items (equation 5). The estimated CPI rate therefore reflects the items' price changes for each of the four rounds in the clusters where the data collection took place relative to prices in the chosen cluster in Round 2.

In each round, the weight of each item is determined using cluster-level mean of household share of spending on each item in Round 2.

$$cpi_{Base\ 2006}^R = \sum_{i=1}^{12} (w_i^R * Price_i^R / Price_i^2) \quad (5)$$

Where:

$cpi_{Base\ 2006}^R$: CPI in round R (2, 3, 4 or 5) with 2006 prices as the base.

w_i^R : cluster-level weight associated with each item i in each round R (see Table 3).

$Price_i^R$: current cluster-level price of item i in round R .

$Price_i^2$: current price of item i during Round 2 of data collected in cluster number 20. These are the base prices as described above.

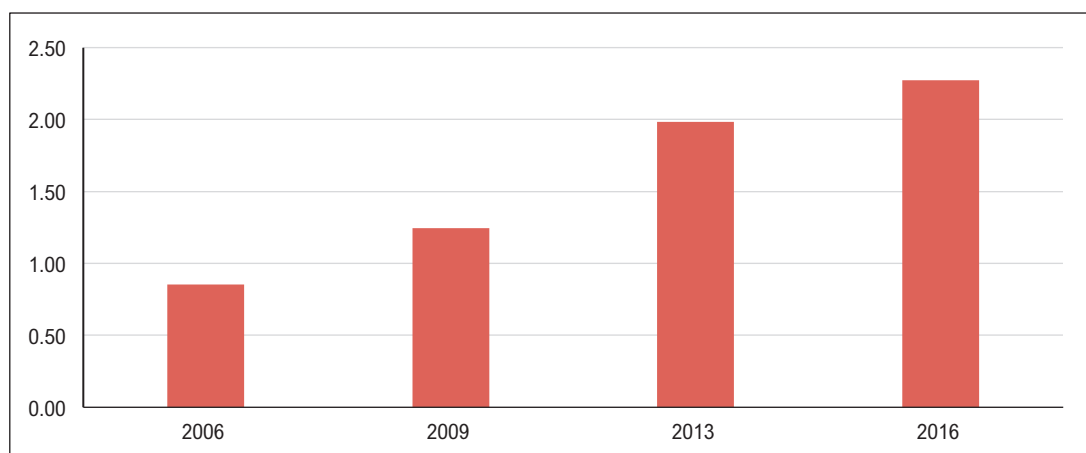
Table 3 shows the average weights across these 20 clusters for each of the 12 key items.

Table 3. *Average weights used in the CPI derivation*

| Items | Weights |
|---------------------|---------|
| 1) Pulses | 0.075 |
| 2) Rice | 0.341 |
| 3) Milk | 0.112 |
| 4) Vegetables | 0.124 |
| 5) Salt | 0.048 |
| 6) Oil | 0.101 |
| 7) Sugar | 0.033 |
| 8) Coffee | 0.034 |
| 9) Cigarettes | 0.040 |
| 10) Kerosene | 0.089 |
| 11) Boy's clothing | 0.027 |
| 12) Girl's clothing | 0.026 |

Figure 2 shows the estimated average CPI over the four rounds in India.

Figure 2. Average estimated CPI in India over time



5.3. Peru

For Peru, we use data from the Encuesta Nacional de Hogares (ENAH) produced by the Instituto Nacional de Estadística (INEI) to derive CPI for each round of Young Lives data.

The first step is to estimate the regional price difference relative to the capital, Lima, in each round of Young Lives data collection by using local poverty lines derived from ENAH data. These poverty lines represent the minimum cost of acquiring a basket of goods and services necessary to achieve adequate living conditions. This basket varies by ‘natural region’ as it changes by region but also by rural-urban and natural environment type (coast, mountain, jungle, and metropolitan Lima).

Equation 6 shows the ratio of the poverty line in each natural region i and the poverty line in Lima in any specific round R , both expressed in current Peruvian soles.

$$RPL_{Base\ LIMA\ i}^R = (PL_i^R / PL_{LIMA}^R) \quad (6)$$

Where:

$RPL_{Base\ LIMA\ i}^R$: ratio of the poverty line in natural regions i and the poverty line in Lima in each round R , expressed in current Peruvian soles.

PL_i^R : poverty line in a given round R in a specific natural region i in current Peruvian soles.

PL_{LIMA}^R : poverty line in a given round R in Lima in current Peruvian soles.

Then, in each round, we estimate the level of the CPI in Lima across time, with 2002 as the base year (equation 7). The CPI used to deflate the consumption aggregates in Peru is estimated in equation 8. The base for these estimated CPI rates is therefore prices in Lima in 2002.

$$cpi_{Base\ 2002}^R = (PL_{LIMA}^R / PL_{LIMA}^{2002}) \quad (7)$$

Where:

$cpi_{Base\ 2002}^R$: CPI of a given round of data collected R in Lima with 2002 as the base year.

PL_{LIMA}^R : poverty line in a given round of collected data R in Lima.

PL_{LIMA}^{2002} : poverty line in 2002 in Lima.

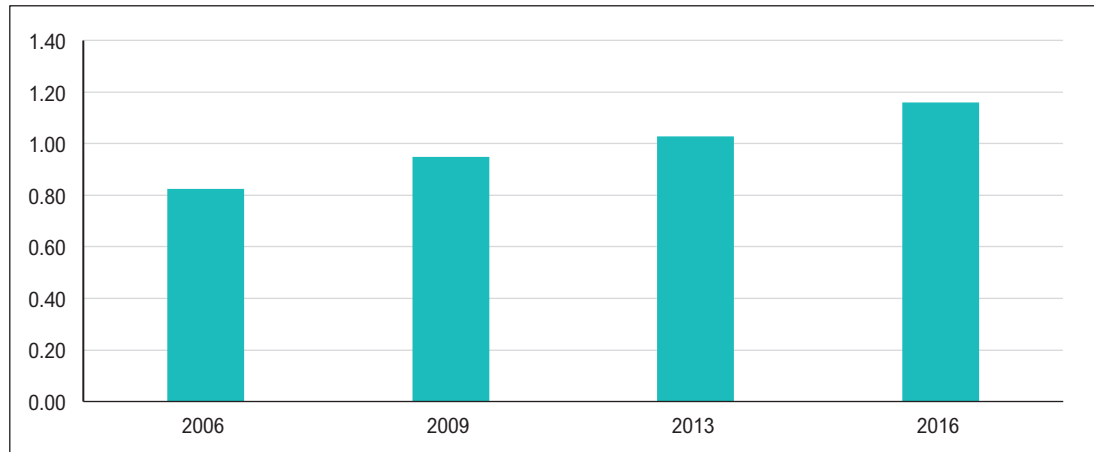
$$cpi_{Base\ LIMA\ 2002}^R = (cpi_{Base\ 2002}^R * RPL_{Base\ LIMA\ i}^R) \quad (8)$$

Where:

$cpi_{Base LIMA 2002}^R$: CPI of a given round of data collected R in a specific natural region with 2002 and Lima as the base.

Figure 3 shows the evolution of the estimated average CPI over the four rounds in Peru.

Figure 3. Average estimated CPI in Peru over time



5.4. Vietnam

In order to estimate the real expenditure, we use the CPI published by the General Statistics Office of Vietnam (GSO). These are available at monthly national, urban and rural levels. Regional CPI rates are not available.

As for Ethiopia, the base period changes across the collected CPI rates. We choose price levels in January 2006 as the base month. We divide the GSO CPI rates by 100 (the base GSO CPI is equal to 100).

For the first month of the data collection in Round 2 (December 2006), the base year is December 2005 in GSO data. Equation 9 indicates how to estimate the GSO CPI rate with a January 2006 base.

$$cpi_{Base Jan 2006}^{Dec 2006} = \left(\frac{cpi_{Base Dec 2005}^{Dec 2006}}{cpi_{Base Dec 2005}^{Jan 2006}} \right) \quad (9)$$

Where:

$cpi_{Base Jan 2006}^{Dec 2006}$: CPI of December 2006 in January 2006 prices.

$cpi_{Base Dec 2005}^{Dec 2006}$: CPI of December 2006 in December 2005 prices (prices taken from GSO website).

$cpi_{Base Dec 2005}^{Jan 2006}$: CPI of January 2006 in December 2005 prices (prices taken from GSO website).

For the remaining months of Round 2 (January 2007 to April 2007), the CPI rate is derived using the CPI rate of the previous month (equation 10).

$$cpi_{Base Jan 2006}^m = (cpi_{Base Jan 2006}^{m-1} \times cpi_{Base m-1}^m) \quad (10)$$

Where:

$cpi_{Base Jan 2006}^m$: CPI of a given month m with January 2006 prices as the base.

$cpi_{Base Jan 2006}^{m-1}$: CPI of a given month $m-1$ with January 2006 prices as the base. CPI of December 2006 in January 2006 prices was estimated in equation 9.

$cpi_{Base\ m-1}^m$: CPI of a given month m with the previous month ($m-1$) as the base (prices taken from GSO website).

For the first month of the Round 3 data collection (September 2009), equation 11 converts the CPI rate from GSO with December 2005 as the base, to CPI with a base of January 2006.

$$cpi_{Base\ Jan\ 2006}^{Sept\ 2009} = \left(\frac{cpi_{Base\ Dec\ 2005}^{Dec\ 2009}}{cpi_{Base\ Dec\ 2005}^{Jan\ 2006}} \right) \quad (11)$$

Where:

$cpi_{Base\ Jan\ 2006}^{Sept\ 2009}$: CPI of September 2009 with January 2006 prices as the base.

$cpi_{Base\ Dec\ 2005}^{Sept\ 2009}$: CPI of September 2009 with December 2005 prices as the base.

For the remaining months of Round 3 data collection (October 2009 to January 2010), CPI rates are calculated using equation 10.

For Round 4 (November 2013 to August 2014), the original indexes are expressed in 2009 prices, with November the month of reference. They are converted into January 2006 prices to keep comparability with previous round's aggregates. Equation 12 is applied to obtain the CPI:

$$cpi_{Base\ Jan\ 2006}^m = (cpi_{Base\ Nov\ 2009}^m \times cpi_{Base\ Jan\ 2006}^{Nov\ 2009}) \quad (12)$$

Where:

$cpi_{Base\ Nov\ 2009}^m$: CPI of a given month m with November 2009 prices as base prices (taken from GSO website).

$cpi_{Base\ Jan\ 2006}^{Nov\ 2009}$: CPI of November 2009 in January 2006 prices, estimated in equation 10.

Similarly, for Round 5 (November 2016 to March 2017), the base month for CPI is August 2014. Equation 13 shows the estimation.

$$cpi_{Base\ Jan\ 2006}^m = (cpi_{Base\ Aug\ 2014}^m \times cpi_{Base\ Jan\ 2006}^{Aug\ 2014}) \quad (13)$$

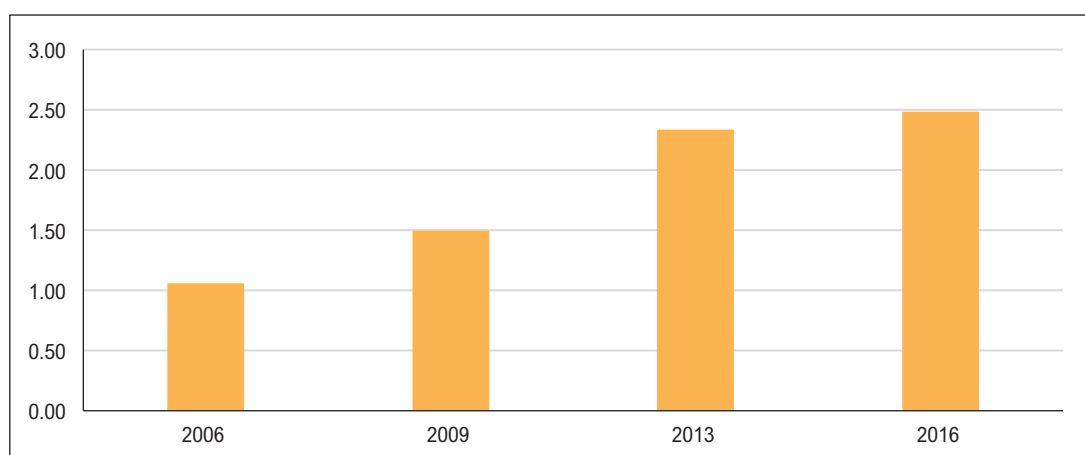
Where:

$cpi_{Base\ Aug\ 2014}^m$: CPI of a given month m with August 2014 prices as the base (taken from GSO website).

$cpi_{Base\ Jan\ 2006}^{Aug\ 2014}$: CPI of August 2014 in January 2006 prices, taken from CPI estimated in Round 4.

As GSO provides CPI rates at the rural and urban level, this process is first conducted at the rural level and then repeated at the urban level.

Figure 4 shows the evolution of estimated average CPI over the four rounds.

Figure 4. Average estimated CPI in Vietnam over time

6. Adjustments for household size

In all countries and in each round, the results are adjusted by the current household size (i.e. all members that live in the household as reported in the household roster, including the children), and therefore are expressed in per capita terms. The only exception is Ethiopia, for which the results are reported in 'per adult' terms. In this case, we divide real expenditure by the current household size in each round adjusted for adult equivalence. Dercon and Krishnan (1998) proposed the following equivalences based on nutritional (caloric) requirements of different ages and men and women (Table 4).

Table 4. Nutritional caloric equivalence factor at different ages (base: man between 30 and 60 years old)

| Age (years) | Men | Women |
|-------------|------|-------|
| 0-1 | 0.33 | 0.33 |
| 1-2 | 0.46 | 0.46 |
| 2-3 | 0.54 | 0.54 |
| 3-5 | 0.62 | 0.62 |
| 5-7 | 0.74 | 0.70 |
| 7-10 | 0.84 | 0.72 |
| 10-12 | 0.88 | 0.78 |
| 12-14 | 0.96 | 0.84 |
| 14-16 | 1.06 | 0.86 |
| 16-18 | 1.14 | 0.86 |
| 18-30 | 1.04 | 0.80 |
| 30-60 | 1.00 | 0.82 |
| 60 plus | 0.84 | 0.74 |

Source: Dercon and Krishnan (1998).

7. Indicators

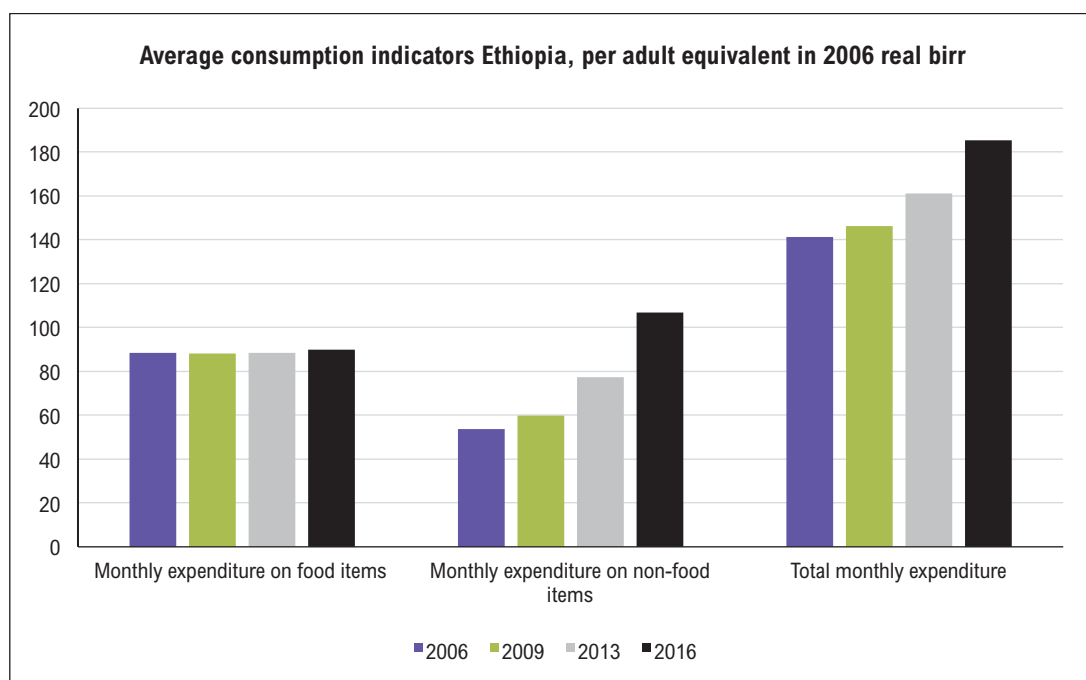
This section provides the full list of consumption indicators computed and archived in the data for the Younger Cohort in Rounds 2 to 5 and some basic descriptive statistics. The indicators computed are:

- *foodexp_pc*: monthly expenditure on food items per capita, in current local currency.⁴
- *nfoodexp_pc*: monthly expenditure on non-food items per capita, in current local currency.
- *totalexpc*: total monthly expenditure per capita, in current local currency.
- *foodexp_rpc*: monthly expenditure on food items per capita, in real local currency.
- *nfoodexp_rpc*: monthly expenditure on non-food items per capita, in real local currency.
- *totalexrpc*: total monthly expenditure per capita, in real local currency.

Figure 5 shows the evolution of these indicators over time in the four Young Lives countries.

Figure 5. *Consumption aggregates over time*

Figure 5a. *Ethiopia consumption aggregate indicators*



⁴ For Ethiopia, these indicators are reported in 'per adult' terms, and not per capita.

Figure 5b. *India consumption aggregate indicators*

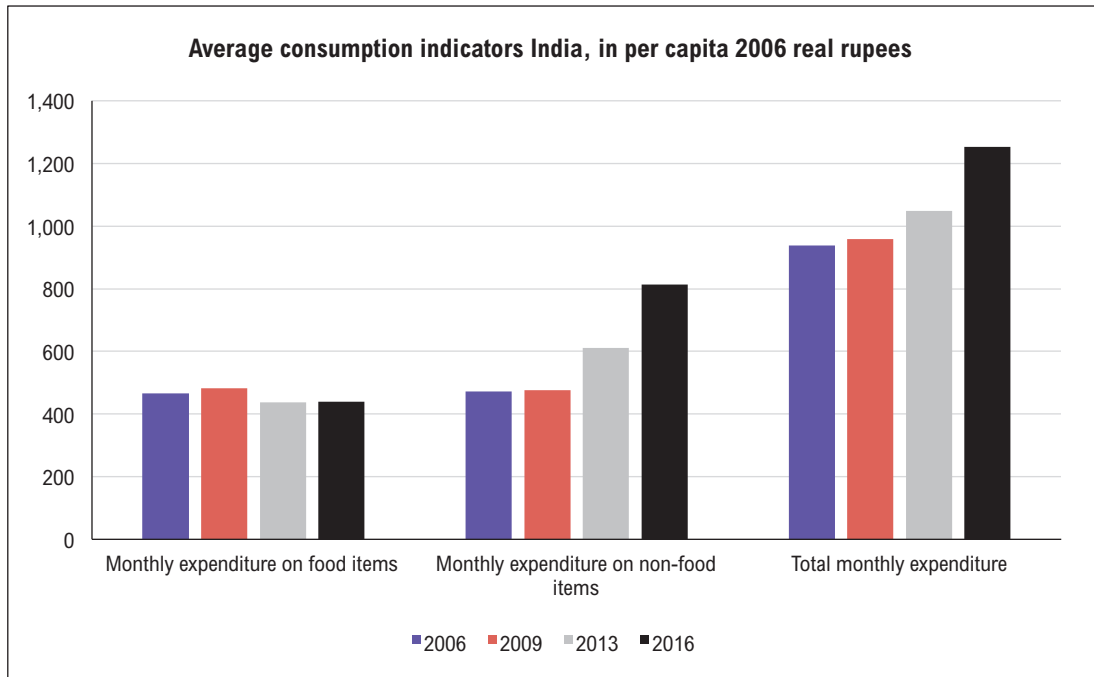


Figure 5c. *Peru consumption aggregate indicators*

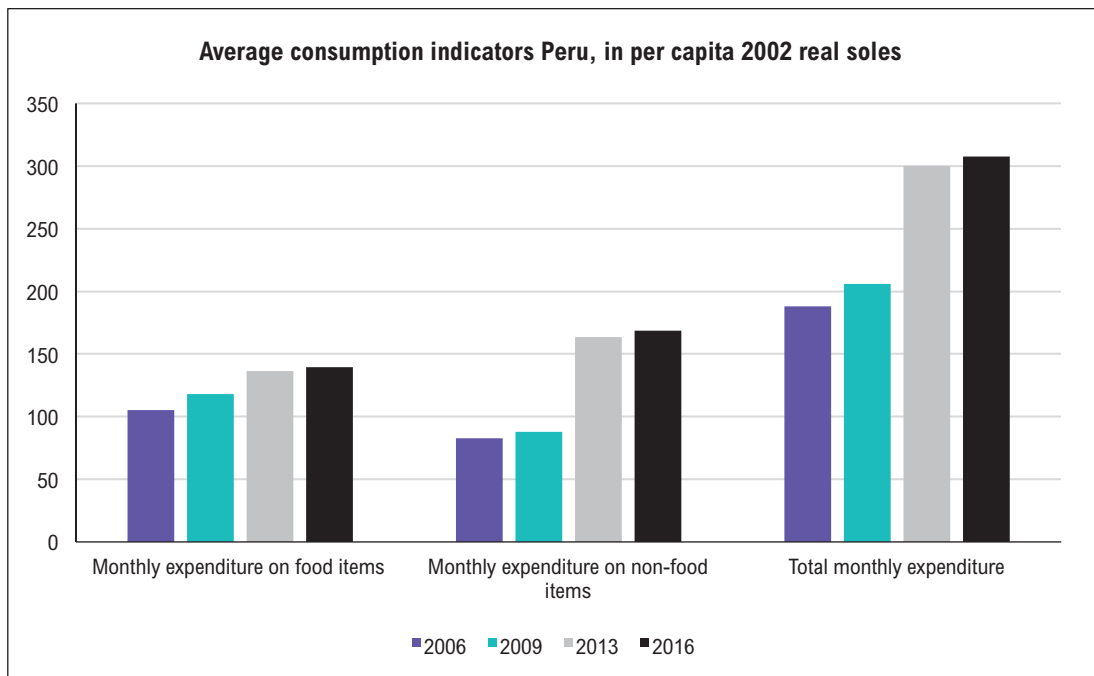
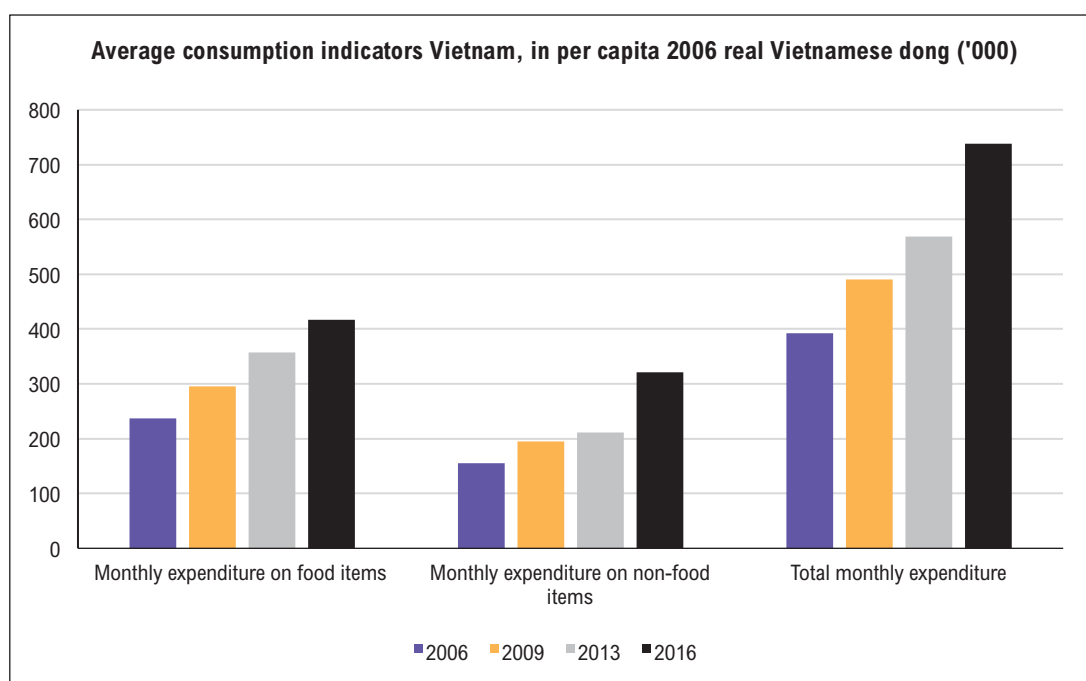


Figure 5d. Vietnam consumption aggregate indicators



8. References

Dercon, S., and P. Krishnan (1998) *Changes in Poverty in Rural Ethiopia 1989-1995: Measurement, Robustness Tests and Decomposition*, CSAE Working Paper Series 1998-07, Oxford: Centre for the Study of African Economies.

Young Lives (2018) 'Household Questionnaire, Younger Cohort, Round 5, Peru', Oxford: Young Lives.

9. Appendix: How to access the Young Lives data

The datasets from the Young Lives household and child surveys in 2002 (Round 1), 2006 (Round 2), 2009 (Round 3), 2013 (Round 4), and 2016 (Round 5) are publicly archived and available to download from the UK Data Service (www.ukdataservice.ac.uk) along with the documentation and questionnaires for each survey round. For users in our study countries, they are also available on CD-ROM, on request from the Principal Investigator.

The data archive also includes community data from Rounds 2 to 5, school survey data from the four Young Lives countries, and a dataset with constructed variables from across the four rounds of the household and child survey to facilitate longitudinal analysis. Data from our qualitative sub-sample research are not archived in the same way as the survey data for confidentiality reasons.

The UK Data Service has developed a 'Study Guide for Young Lives' (<http://discover.ukdataservice.ac.uk/series/?sn=2000060>) which acts as an entry point for the data. The individual datasets are assigned the following study numbers:

- Young Lives Round 1 (2002): study number 5307
- Young Lives Round 2 (2006): study number 6852
- Young Lives Round 3 (2009): study number 6853
- Young Lives Round 4 (2013-14): study number 7931
- Young Lives Round 5 (2016): study number 8357
- Young Lives Rounds 1-5 Constructed Files: study number 7483
- Young Lives School Survey, Ethiopia (2012-13): study number 7823
- Young Lives School Survey, Ethiopia (2016-17): study number 8358
- Young Lives School Survey, India (2010-11): study number 7478
- Young Lives School Survey, India (2016-17): study number 8359
- Young Lives School Survey, Peru (2011): study number 7479
- Young Lives School Survey, Vietnam (2011-12): study number 7663
- Young Lives School Survey, Vietnam (2016-17): study number 8360

Documentation

The archive contains complete documentation relating to the survey, including:

- The household, child and community questionnaires for each survey round.
- Fieldworker manuals.
- Justification documents that describe what questions were asked and how they were arrived at.
- A data dictionary that describes each variable, the relevant question, and gives the code values where appropriate.
- For calculated variables, the description includes the method of calculation.

File format

The datasets are deposited as Stata and SPSS data files. For each survey round, there is one file containing all of the household and child data, plus other files containing sub-tables (e.g. the household roster, which is a list of all family members). The household-level file also contains the key composite variables that were used in the original tabulation plans, including the wealth index.

Using our data

Users are required to register and apply for a password with the UK Data Service and sign a confidentiality agreement before they can access the data. We also ask that users inform the archive and Young Lives of any analysis or publications resulting from their work with the dataset. This helps us maintain an overview of how the data are being used, and is also required in our reporting to funders.

If you use the Young Lives data in any publication, please include the following acknowledgement:

'The data used in this publication come from Young Lives, a 15-year study of the changing nature of childhood poverty in Ethiopia, India (Andhra Pradesh and Telangana), Peru and Vietnam (www.younglives.org.uk). Young Lives has been core-funded by UK aid from the Department for International Development (DFID). The views expressed here are those of the author(s). They are not necessarily those of, or endorsed by, Young Lives, the University of Oxford, DFID or other funders.'

A Guide to Young Lives Rounds 2 to 5 Consumption Aggregates

This technical note aims to facilitate the analysis of consumption patterns of Young Lives households over the past 12 years, since 2005 (Rounds 2 to 5). It describes how the consumption aggregate indicators for the Younger Cohort have been computed. As part of the household questionnaire, household heads were asked about their household's usual food and non-food consumption. Consumption data were collected in Rounds 2 to 5 for the Younger Cohort, and in Rounds 2 and 3 only for the Older Cohort.

Consumption aggregates combine a number of items which can be grouped into food items and non-food items. Most items are similar across the four Young Lives countries. Country-specific food and non-food items were incorporated into the design of the questionnaire and therefore into the consumption aggregates. After adjusting for local inflation and for household size across time, these consumption aggregates indicators included total per capita monthly expenditure, per capita monthly food consumption, and per capita monthly non-food expenditure, in both nominal and real terms, across the last four rounds of Young Lives data collection.



An International Study of Childhood Poverty

About Young Lives

Young Lives is an international study of childhood poverty, involving 12,000 children in four countries over 15 years. It is led by a team in the Department of International Development at the University of Oxford in association with research and policy partners in the four study countries: Ethiopia, India, Peru and Vietnam.

Through researching different aspects of children's lives, we seek to improve policies and programmes for children.

Young Lives Partners

Young Lives is coordinated by a small team based at the University of Oxford, led by Professor Jo Boyden.

- *Ethiopian Development Research Institute, Ethiopia*
- *Pankhurst Development Research and Consulting plc, Ethiopia*
- *Centre for Economic and Social Studies, Hyderabad, India*
- *Sri Padmavathi Mahila Visvavidyalayam (Women's University), Andhra Pradesh, India*
- *Grupo de Análisis para el Desarrollo (GRADE), Peru*
- *Instituto de Investigación Nutricional (IIN), Peru*
- *Centre for Analysis and Forecasting, Vietnamese Academy of Social Sciences, Vietnam*
- *General Statistics Office, Vietnam*
- *Oxford Department of International Development, University of Oxford, UK*

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