LIVING INCOME FOR GUJI ZONE (OROMIA REGION), ETHIOPIA 2021

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2021

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ABSTRACT

This report provides updated estimates of family living expenses for the coffee-producing rural Guji zone, a small administrative division in the south of Ethiopia in the Oromia Region. This report uses available Anker Living Wage and Living Income reports for Ethiopia, as well as a series of variables such as percentage of urban population, food prices, housing conditions, labor market conditions, fertility rates, mortality rates, average household size, and household expenditures and Gini coefficients to determine the extent to which rural Oromia is typical for rural Ethiopia. The numbers are presented alongside with additional socioeconomic data to contextualize the results.

KEYWORDS: Living costs, living wages, Anker Methodology, Ethiopia, Oromia region

JEL CLASSIFICATION: J30, J50, J80, I30, I32, R20, R23

ACKNOWLEDGEMENTS

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1. INTRODUCTION AND APPROACH

This report by the Anker Research Institute determines an Anker Living Income for rural Guji zone, a small administrative division in the south of Ethiopia in the Oromia Region where coffee production is important. It does this by starting with an Anker National Living Income Reference Value for rural Ethiopia, which provides an average living income for rural Ethiopia as a whole. Then, it investigates whether this value needs to be adjusted upward or downward, because socio-economic-demographic conditions in rural Guji zone are different compared to what is typical for rural Ethiopia as a whole. Since there is a paucity of relevant socio-economic-demographic data available for Ethiopia, especially at the zone level, it is not possible to directly estimate an

Anker Living Income for Guji zone based on secondary data using household expenditure. This report uses a series of variables such as percentage of urban population, food prices, housing conditions, labor market conditions, fertility rates, mortality rates, average household size, and household expenditures and Gini coefficients to help determine the extent to which rural Guji zone is typical or not for rural Oromia region in which it is located as well as the extent to which rural Oromia is typical or not for rural Ethiopia. In this way, this report is able to determine if rural Guji zone is typical for rural Ethiopia and so the extent to which the Anker National Reference Value for rural Ethiopia applies to rural Guji zone.

2. ANKER NATIONAL LIVING INCOME REFERENCE VALUE FOR RURAL ETHIOPIA IN 2021

The Anker National Living Income Reference Value for 2021 for rural Ethiopia is Birr 7,985 per month with a 95% confidence interval around it from Birr 7,120 to Birr 8,956. This is the income required by typical rural families to be able to afford a basic but decent living standard in a typical rural area of Ethiopia. Living income is defined as follows:

This report concludes that living income is Birr 8,544 for rural Guji zone, which is 7% higher than the average for rural Ethiopia as a whole, because family sizes are larger in rural Guji zone although living costs per person are similar.

" Living Income is the net annual income required for a household in a particular place to afford a decent standard of living for all members of that household. "

(Living Income Community of Practice)

3. ANKER REFERENCE VALUE METHODOLOGY

Anker National Living Income Reference Values are based on a new methodology developed by Richard Anker, Martha Anker and Ian Prates. This methodology is based on a rigorous statistical analysis of 40 internationally comparable and quality-assured Anker methodology Benchmark studies spread across low-income and middle-income countries carried out primarily under the auspices of the Global Living Wage Coalition. Anker National Reference Values are internationally comparable, consistent with results from existing Anker living wage and living income Benchmark studies and easy to update regularly, and so are especially valuable for countries where it has not yet been possible to organize and fund a full quality-assured Anker methodology Benchmark living wage or living income study. Anker National Living Income Reference Values represent living income for typical families in rural (or urban) areas of low-income and middle-income countries.[1]

4. WHETHER ANKER NATIONAL REFERENCE VALUE FOR RURAL ETHIOPIA NEEDS TO BE ADJUSTED TO BE RELEVANT FOR RURAL GUJI ZONE

METHODS FOR COMPARISON

As noted above, Anker Living Income National Reference Values represent the average living income for rural or urban areas of a country. But since there can be large differences in living incomes between locations within the same country, especially in a large country such as Ethiopia, it is therefore important to determine whether rural Guji zone is different from the rest of rural Ethiopia in terms of factors that would be expected to affect living income.

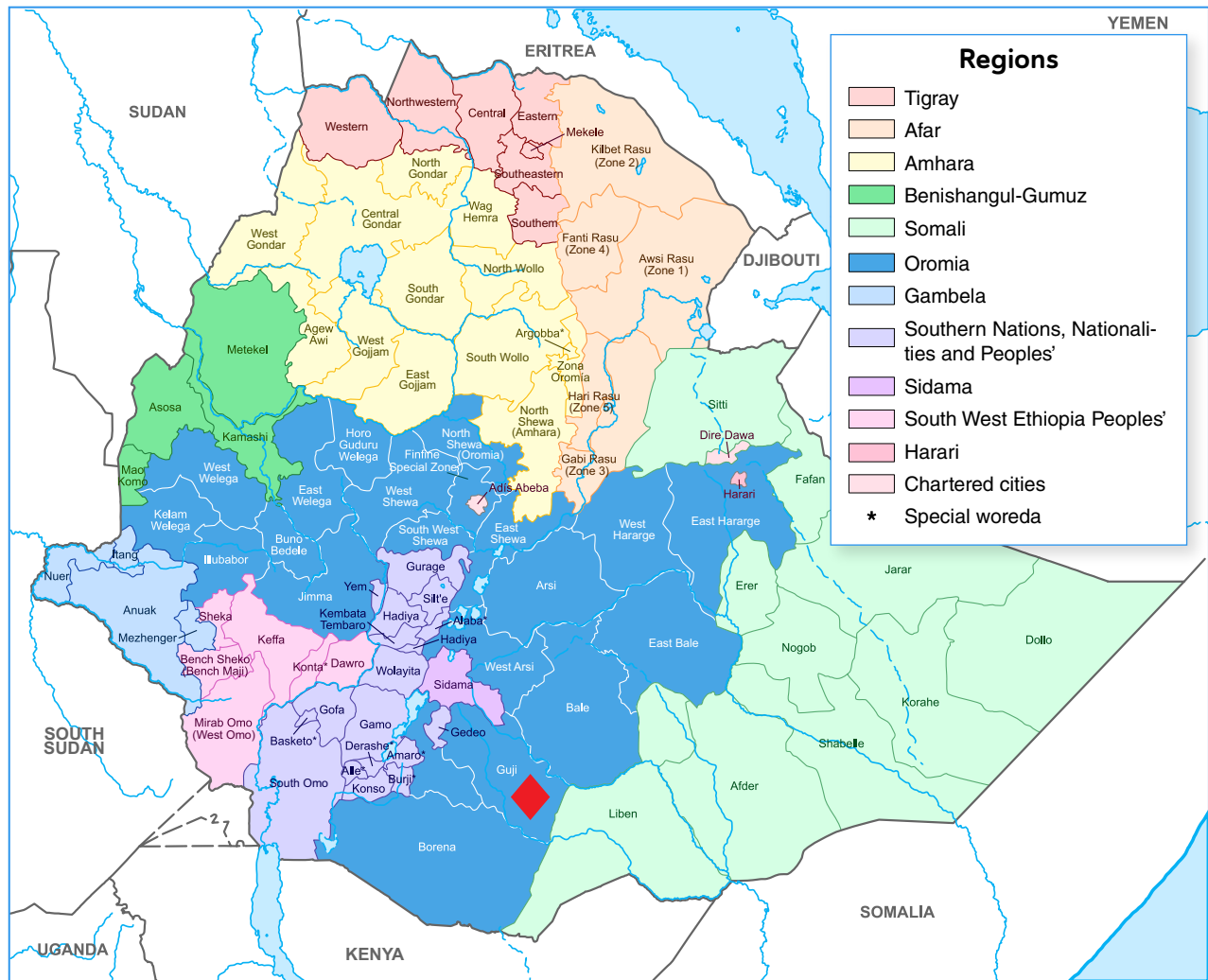The way in which we investigated this issue was to compare whatever relevant socio-economic-demographic data which we could find for rural Guji zone, rural Oromia region (which Guji zone is part of), and rural all-Ethiopia. Thus, we compared: (i) rural Guji zone to rural Oromia to see if rural Guji zone is typical or not for rural Oromia, and (ii) rural Oromia to rural Ethiopia as a whole to see if rural Oromia is typical or not for rural Ethiopia.

LOCATION OF GUJI ZONE

Guji zone is located in Oromia region. It had a population of 1,389,800 in 2007 and was 91% rural. It is located in the south of Ethiopia as indicated by a red triangle in the following map. Coffee production is a particularly important product in Guji zone.

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[1] Since Anker National Reference Values are based on a statistical analysis, they have a margin of error for typical rural (or urban) areas of a country, which is generally around +/- 10% using a 95% confidence interval. Since Reference Values are not location-specific within countries and represent the situation in typical rural (or urban) locations, the margin of error can be larger for unusual locations with atypical living costs within a country such as large cities with relatively high living costs for urban areas, or poorer (richer) rural areas with relatively low (high) living costs and norms for rural areas.

Figure 1. Ethiopia administrative divisions, level 1 (regions) and level 2 (zones) with Guji zone indicated by red diamond in south of Ethiopia

DATA AVAILABILITY

Comparing rural Oromia to rural Ethiopia

The main data sources for estimating living incomes and living wages using secondary data are usually socio-economic sample surveys – such as Household Expenditure Surveys, Labor Force Surveys, Agricultural Production Surveys, and relevant administrative data such as price index reports. In Ethiopia, all of these types of surveys are carried out by the Central Statistical Agency.[2] Since they use a sampling design that allows for statistical inferences only at the first official administrative division (region, see above map), this means that these data only allow us to examine differences between regions, and do not allow us to examine differences between zones.

The 2018-2019 Ethiopia Socio-economic Survey, carried out by the Central Statistical Agency of Ethiopia, covers all regions as well as two large cities (Addis Ababa and Dire Dawa) that are at the same administrative level as states. It provides information for all 11 regions, including Oromia. The sample design allows for statistical representativeness at the regional level and for urban and rural areas at the national level – but not for rural and urban areas within states. This allows us to investigate differences in household expenditures such as for food, housing and non-food non-housing. Even with serious limitations (see Appendix A), then, it is possible to draw some conclusions on differences in living costs for Oromia compared to Ethiopia as a whole.

Comparing Guji zone with Oromia and the rest of Ethiopia

Population and Housing Census of Ethiopia (2007)

The 2007 Population and Housing Census of Ethiopia contains data at the zone level, and this allows us to compare conditions in Guji zone to conditions in Oromia as a whole. The 2007 Census collected data on the following topics:(i) Population Size and Characteristics; (ii) Educational Characteristics; (iii) Economic Activity Status; and (iv) Population Dynamics (Migration, Fertility, and Mortality).

Two main limitations of the Census data are evident: first, there is no income or household consumption-related information and second, these data are 15 years old. Nonetheless, it is possible to draw conclusions on the extent to which Guji zone is typical or unusual for Oromia region regarding some very basic indicators that usually are correlated with living costs.

Integrated Food Security Phase Classification (IPC)

An additional data source with Guji zone-specific data is the Integrated Food Security Phase Classification (IPC).[3] This dataset contains food prices collected in local markets in Ethiopia. We selected the food items with representative data for Guji zone and Oromia over 2021 to evaluate whether food prices in Guji zone differ from the average for Oromia region.

RESULTS

Comparing Guji zone to Oromia and Ethiopia on socio-economic-demographic conditions from 2007 Population and Housing Census of Ethiopia

Urbanization rate

According to the 2007 Census, the population of the Guji zone was 1,389,800 with 1,259,948 in rural areas and 129,852 in urban areas. This represents an urbanization rate of 9.3%, slightly below the average for Oromia region (12.3%) and almost 7 percentage points lower than the national average (16.1%). It is important to note, however, that the national average is influenced by Addis Ababa – such that Ethiopia's percentage urban drops to 12.8% when Addis Ababa is excluded which is very close to Oromia (12.3%) and much closer to Guji zone (9.3%). The conclusion, then, regarding urbanization rate is that Guji zone is rather typical for Oromia, and Oromia is typical for Ethiopia.

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[3] https://data.humdata.org/

Table 1. Urban and rural population by area, 2007

Area	Urban	Rural	Total	% Urban
Ethiopia	11,862,821	61,888,111	73,750,932	16.1%
Ethiopia (w/o Addis Ababa)	9,123,270	61,888,111	71,011,381	12.8%
Oromia	3,317,460	23,676,473	26,993,933	12.3%
Guji zone	129,852	1,259,948	1,389,800	9.3%

Source: 2007 Population and Housing Census of Ethiopia Report.

Family size

Tables 2 and 3 below provide an approximation for family size, which is a core indicator of living costs. Two pieces of information are used to determine a typical reference family size in the Anker methodology: (i) average household size after single person households (that definitely do not include children) and especially large households (that are likely to include more than two potential adult workers) are excluded, and (ii) child mortality-adjusted total fertility rate.

Guji zone has an average household size of 5.1, consisting of 3.9 in urban areas and 5.3 in rural areas. These are 4.8, 3.8 and 4.9 for Oromia region, and 4.8, 3.8 and 4.9 for Ethiopia. This means that rural average household size is higher in rural Guji zone than in rural Oromia and rural Ethiopia by around 0.4 persons.

Rural total fertility rate (TFR) is much higher in rural Guji zone (6.23) than in rural Oromia (5.24) and rural Ethiopia (4.65).[4]

Table 2. Average household size, total fertility rate, and under-5 mortality rate in urban and rural areas, by region

	Region	Total	Urban	Rural
Average household size	**Ethiopia**	4.76	3.80	4.90
	Oromia	4.76	3.78	4.88
	Guji Zone	5.10	3.87	5.27

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[4] Data on child mortality rates are from the Demographic and Health Survey, 2016. Values are available only for rural and urban areas at the national level. Data are not available at the zone level. To estimate rural and urban values for Oromia, we used the rural/urban ratio for Ethiopia, then we used these values for the Guji zone.

	Region	Total	Urban	Rural
Total fertility rate	**Ethiopia**	4.16	2.22	5.11
	Oromia	4.85	2.64	5.24
	Guji Zone	5.85	2.77	6.23
Under-5 mortality rate*	**Ethiopia**	67	66	83
	Oromia	79	NA	NA
	Guji Zone	NA	NA	NA

Notes: NA indicates that data are not available.
Source: Population and total fertility rate from 2007 Population and Housing Census of Ethiopia Report.
*Under-5 mortality rates from the Demographic and Health Survewy, 2016.

Below, we calculate child mortality-adjusted total fertility rates and number of surviving children (and its implied family size).[5] The mortality-adjusted total fertility rate is 4.28 for rural Ethiopia, 4.89 for rural Oromia and 5.81 for rural Guji. This implies a family size around 7.0 for rural Ethiopia and rural Oromia, and close to 8.0 for rural Guji. Below, we also calculate average rural household size after excluding households with 1 person (that definitely do not include children) and especially large households with 9+ persons (that probably include more than 2 adult workers). This is 5.2 for rural Guji zone, 5.0 for rural Oromia, and 5.0 for rural Ethiopia.

Table 3. Mortality-adjusted total fertility rate

Region	Total	Urban	Rural
Ethiopia	3.83	2.05	4.28
Oromia	4.45	2.47	4.89
Guji	5.36	2.59	5.81

Note: Child mortality rate of 83 for rural Ethiopia was used for rural Oromia and rural Guji zone because of lack of such data for rural Oromia and rural Guji zone.
Source: 2007 Population and Housing Census of Ethiopia Report and DHS Ethiopia 2016. Elaborated by the authors

[5] Richard Anker and Martha Anker, "Family size for a living wage", in *Living Wages Around the World*, edited by Richard Anker and Martha Anker, 2017.

Table 4. Average rural household size, and average rural household size excluding single person households and households with 9+ persons

Region	Average HH size	Average HH size for HHs with 2-9 persons
Ethiopia	4.9	5.0
Oromia	5.0	5.0
Guji	5.3	5.2

Notes: HH indicates household.
Source: 2007 Population and Housing Census of Ethiopia Report and DHS Ethiopia 2016.
Elaborated by the authors**.**

In conclusion, while family size is very similar in rural Oromia and rural Ethiopia (based on both average household size and mortality-adjusted fertility rate), family size is higher in rural Guji zone. Rural average household size is almost one-half person higher, and even after excluding households with 9+ members, it remains around one-quarter person higher. In addition, the mortality-adjusted total fertility rate is almost one child higher in Guji zone compared to rural Oromia and rural Ethiopia. Given this situation, the living income and living wage for Guji zone should be higher than the Anker National Rural Living Income Reference Value. If we use the OECD adult equivalence scale (formerly known as the Oxford scale) where the first person is 1.0 unit, second adult is 0.7 unit, and children as well as all other adults are 0.5 unit, this implies a higher living cost of around 7% in rural Guji zone.[6]

Number of workers per family

The number of workers in a reference family in the Anker methodology is determined by labor force participation rates, unemployment rates, and part-time employment rates for prime working-age men and women. Census provides data on labor force participation rates and unemployment rates (age band 25-59). Using these values and data on part-time employment rate from ILOSTAT[7] for age 25+, we are able to calculate the number of full-time equivalent workers per family according to the Anker Methodology.[8] Labor force participation rates for rural Guji zone (98.3% male, 82.3% females) are similar although slightly higher than for rural Oromia (96.5% and 78.0%) and rural Ethiopia's national average (94.2% and 74.1%). Rural unemployment rates by area are even more similar, with national averages (1.1% males and 0.9% females) slightly above

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[6] Assuming a reference family size of 5.5 for rural Oromia and rural Ethiopia and 6.0 for rural Guji zone, this implies 3.70 consumption units for rural Guji zone and 3.45 consumption units for rural Oromia and rural Ethiopia. This implies around a 7% higher living cost for rural Guji zone.
[7] Data on part-time employment rate is from ILOSTAT, which is based on data from the Ethiopia Labor Force Survey. Data were not reported at the region or rural and urban levels.
[8] Richard Anker and Martha Anker, "Number of workers per family", in *Living Wages Around the World*, edited by Richard Anker and Martha Anker, 2017.

Assuming the same part-time employment rate for Oromia and Guji zone as for Ethiopia due to data availability, we get a number of full-time workers per family of 1.74 for rural Ethiopia, 1.77 for rural Oromia and 1.79 for rural Guji zone. These values are similar.

Table 5. Number of full-time equivalent workers per couple, rural areas of Guji zone, rural Oromia and rural Ethiopia

Variable	Ethiopia		Oromia		Guji zone	
	Males	Females	Males	Females	Males	Females
Labor force participation rate (ages 25-59)	94.2	74.1	96.5	78.0	98.3	82.3
Unemployment rate (ages 25-59)	1.1	0.9	0.6	0.5	0.9	0.7
Part-time employment rate (ages 25+)	25.6	19.7	25.6	19.7	25.6	19.7
Percentage of full-time work of spouse	81.2	66.2	83.6	70.0	84.9	73.7
# Full-time equivalent workers per couple	**1.74**		**1.77**		**1.79**	

Sources: 2007 Population and Housing Census of Ethiopia Report and ILOSTAT.
Elaborated by the authors.

FOOD PRICES IN GUJI ZONE AND OROMIA AS A WHOLE

In this section we investigate whether food prices are similar or different in Guji zone compared to Oromia as a whole. The table below presents the ratios between food prices of selected food items in Guji zone compared to the average prices for Oromia. If the value is higher than 1, it means that the item is more expensive in Guji zone than in Oromia as a whole, and if it is lower the opposite. We included in table 6 all food items with sufficient observations in order to compute averages for Oromia and Guji zone for the same reference period to make the comparisons possible.

Compared to the Oromia region, wheat is 1.0% more expensive in Guji zone; oil is 9.0% less expensive; maize is 10.0% more expensive; and there is no difference for teff. The average of the four ratios from the table below is 0.98, suggesting that prices for these four foods are very similar in Guji zone and Oromia as a whole.

If we take into account that there is measurement errors in food price data collection, prices for these four food items (which represent 43.6% of the total edible grams of the model diet used in the Anker living wage report for Ziway) indicate that there is not a meaningful difference in food prices between Guji zone and the rest of Oromia region.

Table 6. Food price ratios for Guji zone/Oromia, selected food items [a], 2021

Month [b]	Wheat	Oil	Maize	Teff
January	0.87	0.92	0.83	1.11
February	0.90	1.37	0.97	1.04
April	1.08	0.92	1.13	0.94
May	1.03	0.89	1.11	0.97
June	1.00	0.90	1.20	0.98
July	1.04	0.90	1.13	0.97
August	1.03	0.66	1.18	0.93
September	1.00	0.65	1.18	1.02
October	1.09	0.94	1.17	1.08
Average	**1.01**	**0.91**	**1.10**	**1.00**

Notes: [a] Prices for only these four food items were available for Oromia and Guji zone.
[b] Data were not available for March, November, and December.
Source: Integrated Food Security Phase Classification.

COMPARING OROMIA AND NATIONAL AVERAGE ON HOUSING CONDITIONS, HOUSEHOLD EXPENDITURES, AND INCOME INEQUALITY

In this section, we compare rural Oromia region to the national average for rural Ethiopia on the following topics. Note that it was not possible to extend this analysis to Guji zone due to a lack of data.

• Housing conditions

• Food, housing, non-food non-housing, and total household expenditures

• Inequality on household expenditures (Gini coefficient)

Housing Conditions

The 2018-19 Ethiopia Socio-economic Survey has a thorough series of questions on housing conditions, allowing us to evaluate whether housing is decent or not. We used the following five components to identify decent housing conditions: access to water, toilet facilities, walls, roof, and floor. The table below shows the percentage of houses that have decent conditions in the components listed above[9] for each household expenditure quintile[10] for Oromia and the whole of Ethiopia.

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[9] See Appendix B for our definitions of what is considered decent for each housing component.
[10] We divided Oromia and Ethiopian households into five groups of equal size based on total spending. Q1 represents the quintile of households in Oromia that spent the least. Alternatively, Q1 in Ethiopia's columns indicates the same group, but considering every Ethiopian household in the survey. Q5 is the richest group of households. The last rows of the table indicate the average difference.

As in the table below, the percent of houses with decent conditions is similar for Oromia and Ethiopia as a whole, and this is generally across the income distributions. At the median of the income distribution, differences are quite small with Oromia being worse by only 1% for flooring, 2% for toilets, 3% for walls, and 8% for water, while being 4% better for roofing.

Table 7. Comparisons of Decent Housing Characteristics for Oromia and Ethiopia by Household Expenditure Quintile

Quintile	% HHs with Access to Decent Water		% HHs with Decent Toilet Facility		% HHs with Decent Walls		% HHs with Decent Floor		% HHs with Decent Roof	
	Oromia	Ethiopia	Oromia	Ethiopia	Oromia	Ethiopia	Oromia	Ethiopia	Oromia	Ethiopia
Q1	62.47	59.64	17.55	15.61	2.87	4.02	0.00	0.42	44.52	47.29
Q2	65.62	65.54	16.98	20.52	1.09	3.91	0.00	1.41	63.60	57.21
Q3	62.35	68.05	18.51	20.31	1.57	4.61	4.82	5.84	69.82	65.97
Q4	76.78	78.94	27.12	33.90	3.43	8.38	22.67	24.83	83.31	80.09
Q5	93.06	94.50	53.87	60.18	9.77	24.70	46.88	54.08	93.52	93.16
Difference at median	-7.70		-1.90		-3.04		-1.04		+3.85	
Average Difference	-1.27		-3.29		-5.37		-2.43		+2.21	

Notes: To understand what constitutes decent access to water, toilet facilities, walls, floor, and roof, see Appendix B. Quintiles for Oromia refer only to Oromia's income distribution, whereas quintiles for Ethiopia refer to the whole country. HHs stands for households. **Source:** ESS, elaborated by the authors.

Food, housing, non-food non-housing, and total expenditures

This section looks at household expenditures for food, housing, NFNH and total spending and how they differ for rural Oromia compared to rural Ethiopia.[11] Guji zone is not included in this analysis, because these data are not available at the zone level.

Table 8 shows food, NFNH, housing and total spending per capita per month by household expenditure quintile. It also shows the ratio of NFNH spending to food spending ratio which is an integral part of the Anker methodology. The differences between rural Oromia and rural Ethiopia are minimal for total spending and all three expenditure groups and for all household expenditure quintiles, except for households located at the top of the income distribution which is not relevant for living income and living wage. There is almost no difference in the middle of the income distribution which is relevant for living income and living wage.[12]

This similarity is corroborated by Table 9, which shows ratios between Oromia and Ethiopia for each expenditure item for each quintile, as well as for the 2nd to 4th quintiles in middle of the income distribution. Ratios for food expenditure are very close to one, indicating no meaningful difference between rural Oromia and rural Ethiopia. Ratios for housing and NFNH expenditures are slightly below one, being 0.86 for housing and 0.91 for NFNH. Total spending, however, is almost the same, in part because food expenditure is a major share of total expenditures. Total spending ratio for Oromia compared to national for the middle of the income distribution (average of 2nd to 4th quintiles) is 0.99, indicating once more no meaningful differences on household expenditures between Oromia and the country average.

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[11] Although these household expenditure data are clearly underreported in these expenditure data (e.g., median food, housing, NFNH, and total expenditure per capita per month are only $13, $1, $5, $19 respectively), we feel that they are still useful to investigate regional differences.

[12] The richest group of households in Ethiopia spends, in total, almost 2,922 Birrs monthly per capita, whereas the richest group in Oromia has average total spending equal to 2,379. However, that difference is largely due to Addis Ababa, which pressures Ethiopia's averages upwards.

Table 8. Household Expenditures by Expenditure Quintile for Oromia and Ethiopia, in Birr Per Capita Per Month

Quintile	Food Spending		NFNH Spending		Housing Spending		Total Spending		NFNH/ Food ratio	
	Oromia	Ethiopia	Oromia	Ethiopia	Oromia	Ethiopia	Oromia	Ethiopia	Oromia	Ethiopia
Q1	89	87	52	54	3	3	144	145	0.59	0.62
Q2	207	194	102	105	6	6	315	305	0.49	0.54
Q3	354	344	148	158	21	21	523	523	0.42	0.46
Q4	603	624	264	294	63	79	930	998	0.44	0.47
Q5	1386	1565	777	989	216	368	2379	2922	0.56	0.63
Average Difference	-35		-51		-34		120		-0.04	
Difference at median	+10		-10		0		0		-0.04	

Notes: Food, NFNH, housing, and total spending are in Birr per capita per month. NFNH to food ratio was estimated by dividing NFNH expenditure by Food expenditure.

Source: ESS, elaborated by the authors.

Table 9. Ratios between Oromia and Ethiopia on food, housing, NFNH and total expenditures by household expenditure quintile

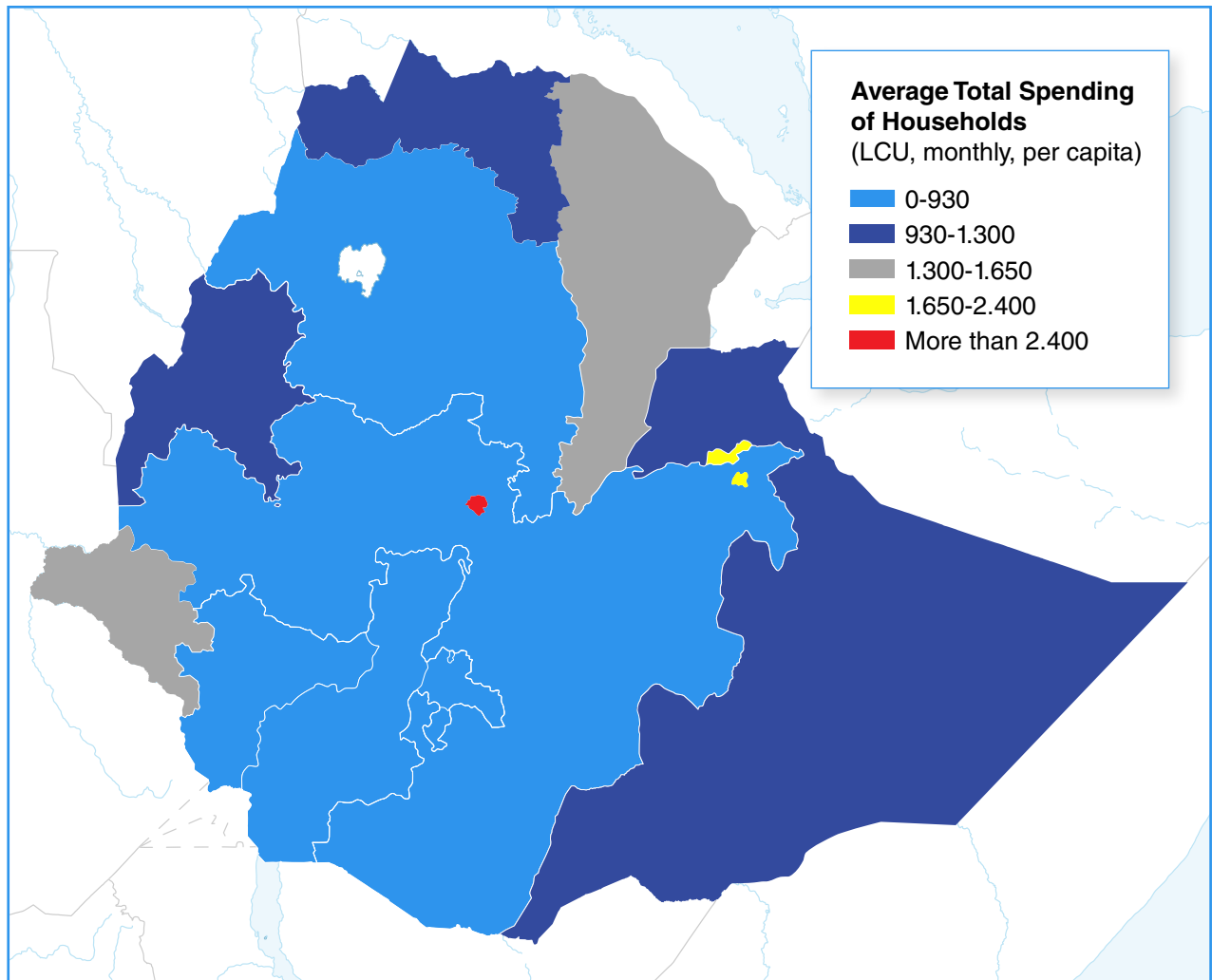| Quintile	Food spending	NFNH spending	Housing spending	Total spending
Q1	1.02	0.97	0.97	1.00
Q2	1.07	0.97	0.96	1.03
Q3	1.03	0.94	0.98	1.00
Q4	0.97	0.90	0.79	0.93
Q5	0.89	0.79	0.59	0.81
Average ratio (total)	**0.99**	**0.91**	**0.86**	**0.96**
Average ratio (Q2-Q4)	**1.02**	**0.93**	**0.91**	**0.99**

Note: Food, NFNH, housing, and total spending are in Birr per capita, and month.
Source: ESS, elaborated by the authors.

The map below (with Oromia borders highlighted) shows graphically differences in total spending of households per person per month using five equal bands. It shows how rural Oromia region is average for rural Ethiopia, but it also highlights how some regions are outliers in Ethiopia. Addis Ababa is the yellow dot, roughly in the middle of the map, being the only region to spend, on average, more than 2,400 Birrs monthly per capita. Harari and Dire Dawa are the only two regions in which households spend, on average, between 1,650 and 2,400 Birrs monthly per capita.

Figure 2. Regional Average Total Spending of Households Per Capita Per Month in Birr

Average Total Spending of Households
(LCU, monthly, per capita)

- 0-930
- 930-1.300
- 1.300-1.650
- 1.650-2.400
- More than 2.400

Source: ESS, elaborated by the authors.

Inequality on total household expenditures (Gini coefficient)

Finally, one last piece of evidence that confirms Oromia's similarity with the rest of the country, is the Gini coefficient, which measures how unequal a given area is in terms of the distribution of income. As the Gini coefficient gets closer to 1 in a territory, the more unequal that territory is. Oromia has a Gini coefficient equal to 0.512 (close to the median point of the inequality distribution). Ethiopia as a whole is similar but slightly higher at 0.556.

Table 10. Gini coefficient by region

Region	Gini
Southern Nations, Nationalities, and Peoples' Region	0.598
Tigray	0.583
Gambela	0.545
Amhara	0.526
Harari	0.515
Benishangul Gumuz	0.513
Oromia	**0.512**
Afar	0.489
Dire Dawa	0.441
Somali	0.438
Addis Ababa	0.412
Total	**0.556**

Source: ESS, elaborated by authors.

CONCLUSIONS AND LIVING INCOME FOR RURAL GUJI ZONE

This report has been concerned with estimating a living income for rural Guji zone which is a relatively small area in the south of Ethiopia in Oromia region. It had a population of around 1,400,000 in 2007 and is known for its coffee. Because of a paucity of socio-economic-demographic data for Ethiopia, especially at the zone level, it was not possible to directly estimate a living income for Guji zone using secondary data on household expenditures and living costs. For this reason, this report took a different approach to estimating a living income for rural Guji zone. We started by estimating an Anker National Reference Value for rural Ethiopia which represents an average living income for rural Ethiopia. We proceeded to determine if this Reference Value for rural Ethiopia needed to be adjusted upward or downward because the rural Guji zone is not typical for rural Ethiopia. This was done by analyzing whether rural Guji zone is similar to or different from Oromia region in which it is located as well as whether rural Oromia region is similar to or different from rural Ethiopia as a whole. We followed this two-step approach because there were considerably more relevant socio-economic-demographic

data are available for Oromia region than for Guji zone. It would be appropriate to use the Anker National Living Income Reference Value for rural Ethiopia if we could demonstrate that rural Guji zone is typical for rural Oromia and rural Oromia is typical for rural Ethiopia as a whole. We did this by analyzing the following variables: average household size, total fertility rate and child mortality rate, which help to determine typical family size; labor market conditions such as labor force participation rates, unemployment rates and part-time employment rates which help determine the number of full-time equivalent workers per family; food prices, which help determine food costs; housing conditions, which help determine living conditions, norms and housing costs; household expenditures, which help determine living costs and norms; income inequality, which helps determine living standards and norms; and urbanization rate, which affects living costs. We found that rural Guji zone is

typical for rural Oromia region and that rural Oromia is typical for rural Ethiopia on all of the variables analyzed - except for family size which is larger in the rural Guji zone. This result means that the Anker National Living Income Reference Value for rural Ethiopia (Birr 7,985) is applicable to rural Guji zone on a per capita basis. This result also means that the Anker National Reference Value for rural Ethiopia applies in general to the rural Oromia region. However, because typical family size is higher in rural Guji zone compared to rural Oromia region and rural Ethiopia as a whole (which are similar) by around 0.5 person (because of a higher fertility rate and a larger average household size), we consider that the living income for rural Guji zone needs to be around 7% higher than the Anker Reference Value for rural Ethiopia and so it is Birr 8,544 for 2021.

5. APPENDIX A. LIMITATIONS OF ETHIOPIA'S 2018-2019 SOCIO-ECONOMIC SURVEY (ESS)

Household expenditure consumption surveys are one of the most important sources for estimating living wages and living incomes. These surveys compile expenditures for a representative sample of households, and thus allow for inferences regarding how much households spend on food, housing, healthcare, and so forth.

The last wave conducted in Ethiopia was the 2018-2019 Ethiopia Socio-economic Survey (ESS). Although this survey generally follows international standards of consumption surveys, with separate and detailed information on household characteristics and household

expenditures, it has important problems that affected our analysis.

First, while household expenditure surveys generally register every single food item purchased, produced, or received as a gift by a given household, Ethiopia's survey registered expenditures for a limited basket of food items. It provided households with a list of 73 different food items and asked whether the household had consumed each of these items in the past seven days. This means that if a household had consumed a food item not listed in the questionnaire, such expenditure was not registered.

A second important limitation regarding ESS is the lack of imputed values for food items produced/consumed or received by the household. This is particularly troublesome for rural areas, since an important portion of households in Ethiopia produce food items that are consumed by the household itself. Despite asking whether a food item was produced or received, ESS did not clearly indicate the equivalent monetary value of the items being self-produced or received. This means that food expenditure is underreported for farm families.

Both limitations noted above reduced estimates of food expenditure, leading to considerably underestimated values when it comes to food expenditures, and this is especially a problem for smallholder families.

A third major problem with ESS concerns housing expenditures. One of the most important expenditures when it comes to housing is rent or rental equivalent value for owner occupied housing. Logically, if a household owns the house in which it lives, it does not pay rent. In this case, the bureau of statistics in most countries responsible for the survey imputes the value of rent that the household would pay if it did not own its house. Unfortunately, such imputation did not happen in Ethiopia, thereby considerably underestimating housing expenditures especially in rural areas, since only 2.64% of rural households in Ethiopia pay some form of rent (table A1).

Table A1. Home ownership in Rural, Urban, and Total Ethiopia (%)

Area	Own	Free of Rent	Rent	Other
Rural	93.37	3.85	2.64	0.15
Urban	41.60	8.00	50.27	0.14
Total	**76.56**	**5.19**	**18.10**	**0.15**

Source: ESS, elaborated by the authors.

Due to the above noted problems, estimates of food, housing, and total spending must be treated with extreme caution, although these data still give some notion on how expenditures are distributed across rural and urban Ethiopia.

It should be noted that non-food non-housing expenditures (NFNH) are not affected by measurement problems to the same extent as food and housing.

6. APPENDIX B. CRITERIA FOR DECENT HOUSING CHARACTERISTICS, USING ESS CLASSIFICATION OF HOUSING CHARACTERISTICS

Component	Decent	Indecent
Walls	Stone and Cement, Blocks Plastered with Cement, Bricks, Parquet or polished wood, stone only, wood only	Wood and mud, wood and thatch, stone and mud, blocks unplastered, mud bricks (traditional), cargo container, chip wood, asbestos, reed/bamboo, other, steel, corrugated iron sheet
Roof	Corrugated iron sheet, concrete/cement, bricks	Thatch, wood and mud, reed/bamboo, plastic canvas, asbestos, other
Floor	Wood planks, parquet of polished wood cement screed, cement tiles, brick tiles, ceramic/marble tiles	Mud/dung, reed/bamboo, plastic tiles, others
Toilet	Flush to piped sewer system, flush to septic tank, flush to pit latrine, pit latrine with slab	Flush to open drain, pit latrine without slab, twin pit without slab, other composting toilet, bucket, container-based sanitation, hanging toilet/latrine, no facility, other
Water	Piped water into dwelling, piped water into yard/plot, piped water to neighbor, piper water public tap/standpipe, tube well/borehole, protected spring, piped water kiosk/retailer, bottled water, cart with small tank/drum, sachet water, tanker-truck	Unprotected dug well, unprotected spring, rainwater collection, surface water