



Living income benchmarking in nine *woredas* of Ethiopia

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SWRE-RAISE-FS-working paper # 023

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The study examines living income benchmarks across nine *woredas* in Ethiopia, uncovering notable regional disparities. In Babile and Enderta *woredas*, food expenses constitute the largest share of costs, whereas housing expenses are highest in Hawassa Zuria. These differences arise from variations in food types, pricing, market accessibility, and housing conditions. The benchmarks provide crucial insights into the gaps between actual incomes and living incomes, offering valuable information for regional economic evaluations.

Key words: living income, benchmarking, gap, Ethiopia

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Preface

Resilient Agriculture for Inclusive and Sustainable Ethiopian Food Systems (RAISE-FS) is a four-year program funded by the Dutch Embassy in Addis Ababa and hosted by Stichting Wageningen Research Ethiopia based in Addis Ababa, to bring about transformation in the Ethiopian food system. RAISE-FS has developed and implemented a demand-driven and interdisciplinary approach to Research for Food System Transformation (R4FST), contributing to the Government of Ethiopia's transformational agenda.

RAISE-FS adopts the food system approach as a Theory of Change (ToC), which helps in analysing the drivers and food system activities that contribute to the transformation of the food system by addressing leverage points, resulting in increased productivity, enhanced value chain performance, and improved human nutrition for food security while minimizing environmental impact and ensuring social inclusion.

The project aims to leverage transformation in Ethiopian food systems, covering the spectrum from food-insecure households and regions to better-off households that are food-secure and can realize production surpluses, towards commodity commercialization efforts that contribute to rural and urban consumption demands and export.

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More information : www.raise-fs.org

List of abbreviations and acronyms

AME	Adult Male Equivalent
ETB	Ethiopian Birr
CSA	Central Statistical Agency
FAO	Food and Agriculture Organization of the United Nations
FGD	Focused Group Discussion
KII	Key Informant Interview
NGO	Non-Governmental Organization
PPP	Purchasing Power Parity
RAISE-FS	Resilient Agriculture for Inclusive and Sustainable Ethiopian Food Systems
RH	Representative Household
SPSS	Statistical Package for Social Sciences
SWRE	Stichting Wageningen Research Ethiopia
TLU	Topical Livestock Unit
WSER	Wageningen Social and Economic Research
WHO	World Health Organization
WUR	Wageningen University & Research

Summary

The extreme poverty line and the living wage methodology are frequently used as benchmarks for the poverty level and the salary that employees need earn to live decent lives, respectively. Living wage is applicable for employed workers while the poverty line is too broad to be applied at the local level. Living income benchmarking has lately come into prominence as a measure of the living standard for smallholder farmers who are self-employed.

In order to determine the living income for rural households, we evaluated the earlier published Living Income Methodology in nine *woredas* being Ada'a, Welmera and Babile of Oromia region, Raya Azebo, Tseada Emba and Enderta from Tigray region and Hawassa Zuria, Gumer and Boloso Bombe *woredas* from southern Ethiopia. Data collection methods included focus group discussions, key informant interviews, market surveys and secondary sources. The living income was expressed per adult equivalent per day (AE/day) and data collection is focused on rural households and their immediate surroundings.

The living income benchmark varied between 5.76 US\$ PPP/AME/day for Boloso Bombe *woreda* and 13.17 US\$ PPP/AME/day for Welmera *woreda*. The share of food cost, housing cost, and non-food non-housing costs varied greatly between the *woredas*. The variation in the cost required to buy food was also observed due to the differences in the type of commonly consumed food and their corresponding price. Furthermore, market access and life span of houses contributed for the variation in living income across *woredas*.

Therefore, a comparison of living income benchmark would be most appropriate for comparing various *woredas* and regions with diverse market access, as each food system affects the type of food produced while the cost of goods is affected by market access. Calculating living income benchmark for a particular area will pave the way to assess the living income gap as it allows household level comparison of real income with living income benchmark.

1 Introduction

Two of the seventeen Sustainable Development Goals (SDGs) that are intended to be accomplished by 2030 are eradicating poverty and ending hunger (UN, 2015). The agriculture sector is directly tied to the SDGs since it plays a critical role in enhancing food security while also generating employment opportunities (Otsuka, 2013). A potential strategy to end hunger is to better assure food supply by raising agricultural production and broadening the range of agricultural land use (Smyth et al., 2015). However, low-income nations will not be able to produce all the food needed due to the knowledge, technological, and resource endowment differences among smallholder farmers (Pawlak & Kołodziejczak, 2020).

Ethiopia and other emerging nations made significant efforts to reduce poverty, but the percentage of people living below the poverty line remained at 24% in Ethiopia (World Bank, 2023). Furthermore, the disparity and equality among the smallholder farmers in yield gap remain high. The Purchasing Power Parity (PPP) of 2.15 US dollars per capita per day was established as the international or extreme poverty limit for low-income countries in 2017 (World Bank, 2022). It was modified in 2017 to account for rising price levels based on the national poverty lines of the 15 poorest economies in the world as of 2017 (World Bank, 2022). The international poverty line has been used as an indicator to assess the progress of efforts to reduce poverty (Debebe & Zekarias, 2020). Although eradicating poverty and ending hunger was set to be achieved by 2030, there is no consensus on the local level indicators to measure the poverty line. Indicators for determining the minimum income for rural areas are also utilized to determine the minimum wage rate (Anker, 2008), which is applied in the context of hired workers. However, because the poverty line indicator is utilized at the regional or national level, the use of the international poverty line as an indicator is too broad to quantify the varied rural farm households. Additionally, as the living wage indicator is frequently applied to commercialized tea plantation areas, employing the minimum wage rate may not be appropriate for non-commercial agriculture. A debate over the appropriateness of using living wages as a measure of self-employed households' income led to the creation of living income benchmarking for East Africa.

A recent study developed the idea of living income to benchmark the living income of smallholder farmers in East Africa as there are few indicators that can be used to determine whether the income of farming households is enough to afford a decent living (van de Ven et al., 2021). A living income is defined as sufficient income to afford a decent standard of living for all household members and quantified by considering cost of nutritious diet, decent housing and other non-food costs for health care, education, transport and cloth. Contrary to the poverty line, a living income benchmark can be applied for a specific sample location, better reflecting a region's actual cost of living. It answers the question: 'how much does a typical household in a particular place need to earn from all income sources in order to achieve a decent standard of living? This creates an opportunity of comparing living income benchmarks to the total annual household incomes of agricultural households. The living income benchmark would help to calculate the living income gap, and understand how much more farming households need to receive to achieve a living income (IDH, 2023; Oxfam International, 2021).

In line with this a Dutch Government funded project called RAISE-FS is working on food system transformation in the continuum from food insecure to the better endowed households, assessed the living income benchmark of three food systems in Tigray, Oromia Sidama, Southern Ethiopia and Central Ethiopia¹. The first step was to benchmark the living income followed by assessing the living income gap in the three food systems of southern Ethiopia. The project also assessed to what extent small scale food producers in the intervention area are closing the gap between their real annual income and a living income benchmark. The specific objectives of the study were:

- To obtain insights about benchmark(s) for living income
- To obtain insights on how benchmarks might vary across *woredas* and how many different benchmarks are needed to meaningfully report on living income gaps

¹ Due to security the study could not be conducted in Amhara; the three study areas in Southern Ethiopia were selected before SNPPR was divided into multiple regions.

2 Methodology

2.1 Description of the study area

The geographic scope of this study was selected *woredas* in southern Ethiopia (South Ethiopia, Central Ethiopia and Sidama), Oromia and Tigray which represent commercial, high potential and food insecure food system typologies and were selected purposely (Table 1).

Table 1 *Woredas and food system typology and number of household surveyed in the study (n=1026)*

Region	Food insecure	# households surveyed	High potential	# households surveyed	Commercial	# households surveyed
South Ethiopia	Boloso Bombe	111				
Central Ethiopia			Gumer	108		
Sidama					Hawassa Zuria	109
Oromia	Babile	126	Welmera	121	Ada'a	116
Tigray	Enderta	127	Tseada Emba	122	Raya Azebo	122

2.2 Sampling design & data collection

To assess the living income benchmark, a mixture of methods, triangulating information from baseline and sampled innovation/pilot's participant household surveys, key informant interviews, Focus group discussions and secondary reports were collected. To assess the family size of reference households sample households who participated in the baseline survey and in innovation demonstration were selected. In total 1026 participated in the survey (Table1).

In addition to the household survey 18 FGD with 10-12 participants comprising of both young and elderly men and women were held, 27 number of key informants were interviewed. Focus group discussants and key informants were selected from respondents who had participated in the baseline survey. Furthermore, *Kebele* level health extension centres and schools were visited to collect data on annual average cost of an individual living in the area.

Food prices for the three *woredas* were collected in June 2023/24 at multiple vendor locations, covering central open-air markets and small shops in the capital city of each *woreda*.

2.3 Assessing the living income benchmark

The living income benchmark was calculated after the cost of basic decent housing, cost of nutritious low-cost diet, other non-food costs and miscellaneous costs which were collected through FGDs, KIIs and the market survey. The cost of a nutritious low-cost diet was derived from the diet tool, which selects the cheapest available foods from each food group. The living income benchmark covers five major expenditure groups: food, housing, non-food non-housing (NFNH), social duty and unforeseen costs (van de Ven et al., 2021) (Table 2). The food costs are the sum of costs for a low-cost nutritious diet plus miscellaneous food cost. Miscellaneous food costs equal 16% of the costs for a low-cost nutritious diet, including 10% for dietary variation, 2% for salt, spices and condiments, and 4% for food waste (van de Ven et al., 2021). The housing costs cover the value of an owner-occupied house plus expenses for utilities, maintenance and taxes. The NFNH costs cover basic health care and education, plus a margin for other NFNH goods and services, such as

clothing and footwear, household equipment, transportation and communication. Social duty costs are through social associations as well as contributions to festivals and funerals.

Table 2. Criteria and variables for living income benchmark

No.	Criteria	variables
1	Food cost	low nutritious diet cost and miscellaneous cost
2	Housing cost	value of owner occupied house, utilities, maintenances and tax cost
3	Non-food and non-housing cost	health care cost, education cost and other non-health and non-education cost
4	Social duty (edir)	<i>Edir</i> , festivals
5	Unforeseen cost	costs incurred unexpectedly

Miscellaneous costs (16% of Low-cost nutritious diet costs) = 1.16 × Low-cost nutritious diet costs

Unforeseen costs (10% of Living income) = (Food costs + Housing costs + NFNH costs).²

A short list of guiding questions was used to assess living income benchmark (Table 3). These questions link to the Living Income Survey, which includes data collection guidelines, and the Living Income Diet Tool. Both are tools to rapidly benchmark the living income in a rural area in a transparent and consistent way (van de Ven et al., 2021).

Table 3. Guiding questions to estimate the living income benchmark in a particular time and place

No.	Guiding questions
1	Reference household size and composition What is the average number of adult male, adult female and children (<18 years old) per household?
2	Food costs What are the cheapest and most consumed foods per food group, available at vendor locations where reference households commonly shop for cheap foods? For these foods: what is the current price (per kg or L)? For foods with strongly fluctuating prices within a year (>25%), what is the most common price throughout the year (per kg or L)?
3	Housing costs What are the local minimum standards for decent housing for a reference household, considering local standards in relation to the international housing standards? What are the annual housing costs for a house that complies with these local minimum standards for decent housing?
4	Health care costs What are the costs of basic health care insurance; which health care service types are (not) covered? What are the costs of health care services not covered by the basic insurance?
5	Education costs How many years of education are officially counted for completion of primary and lower secondary school? What are the household out-of-pocket expenses per child for one year of public education at each these education levels?

2.4 Reference household size and composition

The local average household size and composition of male and female adults, and children (<18 years old) is referred to as the *reference household*. Finally, to assess the role of agriculture in rural development and food security in less developed countries, the living income per adult male equivalent (AME) was calculated for rural families based on households' energy needs. In the unit AME, men, women and children are

² van de Ven, G. W. J., de Valença, A., Marinus, W., de Jager, I., Descheemaeker, K. K. E., Hekman, W., Mellisse, B. T., Baijukya, F., Omari, M., & Giller, K. E. (2021). Living income benchmarking of rural households in low-income countries. *Food Security*, 13(3), 729–749. <https://doi.org/10.1007/s12571-020-01099-8>

included, unlike assessing AME based on national statistics on labour participation (Anker & Anker, 2017). One AME requires 2500 kcal per person per day. Females are equivalent to 0.82 AME (2050 kcal/day) and children (0-18 years) to 0.75 AME (1875 kcal/day) (FAO/WHO/UNU, 2001b). This allows to easily calculate the living income related to food security for households of different size based on their composition, including extended families.

2.5 Methods for living income benchmark calculation

2.5.1 Food costs

The household energy needs was calculated based on age, sex, body size and physical activity and a low cost diet from current to low cost, covering 20 foods and 11 food groups (Anker & Anker, 2017). For the food cost calculation the lowest cost nutritious diet was considered based on the Woman Dietary Diversity Score (FAO, 2010), which ensures sufficient food options for a nutritious and micronutrient-sensitive diet. The nine food groups which were considered are: starchy staples, vegetables, fruits, meat, fish and seafood, eggs, milk and milk products, legumes, nuts and seeds, and fats and oils.

First, a selection of cheap and commonly-consumed foods were identified within each food group from the available foods at multiple local vendors, such as open-air markets and small village shops. To ensure sufficient options for a low-cost nutritious diet, prices were collected for at least three foods of acceptable quality per food group. Two of them are the cheapest (per kg or L) and one is the most commonly consumed food. For all selected foods, current prices (at time of collection) were collected from 5-10 different vendor locations, depending on the price variability. In case of strong fluctuations throughout the year (>25%) the most common prices (throughout the year) was also collected from the same vendor locations and used in the calculations. Cost adjustment was done for starchy staples, vegetables and fruits, due to their seasonal availability. For both the current and the most common price, the median price was used.

The Living Income Diet Tool was used to calculate the lowest-cost diet per AME meeting all dietary requirements for energy, carbohydrate, protein, fat, and a selection of micronutrients, based on the most common deficiencies in lower income countries (Beal et al., 2017) (Table 4). Dietary requirements are such that both females and males cover their minimum requirements, e.g. the threshold for iron is adequate for women and consequently slightly higher than strictly needed for males and the assumptions is that foods are distributed among household members according to their needs. Finally, the food cost was calculated based on the nutrient contents of each food and its price. Nutrient contents of foods was considered based on the nutrient composition of the raw purchased product, the average waste factor of its food group (<https://ndb.nal.usda.gov>; <http://www.fao.org/infoods/infoods/tables-and-databases/en/>), and the average retention factor per nutrient after preparation (e.g. boiling, frying) specified for the food group based on (USDA, 2007).

Table 4. *Nutritive requirements in the Living Income Diet Tool*

Dietary components	Required intake per AME	Unit	Source
Energy	2,500 (2,400 – 2,600)	kcal/day	FAO/WHO/UNU, 2001a
Carbohydrate	≥ 344	g/day	WHO/FAO, 2003
Protein	≥ 63	g/day	WHO/FAO, 2003
Total lipid (fat)	≥ 42	g/day	WHO/FAO, 2003
Calcium	≥ 833	mg/day	WHO/FAO, 2004
Iron	≥ 36	mg/day	IOM 2001
Zinc	≥ 15	mg/day	IZiNCG, 2004
Vitamin A	≥ 99	IU/day	WHO/FAO, 2004
Vitamin C, total ascorbic acid	≥ 43	mg/day	WHO/FAO, 2004
Folate, DFE	≥ 320	µg/day	WHO/FAO, 2004
Thiamine	≥ 1.0	mg/day	WHO/FAO, 2004
Riboflavin	≥ 1.1	mg/day	WHO/FAO, 2004
Vitamin B	≥ 2.0	µg/day	WHO/FAO, 2004

In addition to the calculated cost, 4% was added to cover food waste, an average for low income countries (FAO, 2010) and 2% to account for additions like salt, spices and condiments. Another 10% was added to the food costs to allow some variation in the diet.

2.5.2 Housing costs

The local minimum standard for basic decent housing is based on international standards for decent housing adjusted to conditions in the respective regions, such as material availability, climate, and the reference household size and composition. The housing construction should be able to sustain about 50 years without major repairs – also called the ‘expected service life’ of the house (van de Ven et al., 2021). Estimation of housing costs were done by 1) defining a local standard for basic decent housing for a reference household, and 2) estimating the annual costs of a house that meets these standards. To assess the housing conditions a combination of secondary reports, local observations, KIIs/or FGDs was used. The expected service life of a house was checked, and the lifetime of houses were reported by focus group discussants of each study area.

To estimate the cost of a standard house, one focus group with mix of all age categories and gender group in one *kebele* and two FGDs with one group of female youth and adult and other group of male youth and adult in the second *Kebele*, totally 3 FGDs were conducted per district. FGD participants were asked about the criteria to be used for characterizing the best house based on the type of wall, roof and floor. Finally, FGD participants were asked to estimate: 1) total costs of constructing the house including all materials and labour and the expected service life, 2) annual utility costs, including water, electricity, cooking fuel, heat, and lighting, 3) annual costs for routine maintenance and repairs, and 4) annual costs for taxes, levies, fees and house insurance. Finally, construction costs were divided over the expected service life.

2.5.3 Non-food non-housing costs

NFNH cover costs for education, health and other basic needs, such as clothing and footwear, transport, communication. The NFNH costs were collected during focus group discussions.

2.5.4 Health care costs

Costs of health care include all annual household out-of-pocket expenses to cover basic health care based on the locally available services. Health care costs were collected from a combination of secondary reports (local health care facility patient records, etc.), KIIs (e.g. staff in local clinics, health care extension officers) and FGDs as source of information. During FGDs, the most common diseases in the area were identified followed by estimating the average number of health care visit for identified disease and incurred costs per visit. Finally, health care extension officers of each *kebele* were asked about the validity of information collected during FGDs and average visit of one household per year were obtained from records.

2.5.5 Education costs

Education costs include all annual household expenses to cover decent public primary and lower secondary education for all children in the reference household. In most countries education is compulsory starting at the age of 5 to 7 until the age of 11 to 18 years, roughly covering primary and lower secondary school (UNESCO, 2000). The recent Ethiopia education system includes eight years of primary education (ages 7-14) and 4 years of secondary education (ages 14-18). For this study only public schools were considered with the assumption that the majority of rural households send their children to public school which is expected to provide education of sufficient quality. Information was generated through key informant interviews and focus group discussions with e.g. local education experts and parents/caretakers of school children. Household expenses cover only parental responsibilities for essential needs for a child to go to school (school fees, clothing/uniform, and materials such as books). The total education costs per child were assessed and divided over 18 years, giving the average annual education costs per child.

2.6 Social duty costs

Social duty costs include costs for *edir*, *mahiber*³ and other costs which would be incurred for social cohesion was assed using focus group discussion.

2.7 Total budget for living income benchmark

The total living income benchmark includes the sum of estimated costs for food, housing, NFNH and social duty per reference household, plus a margin for unforeseen costs (10% is added to the calculated living income budget).

2.8 Data analysis

The data were analysed using the Statistical Package for Social Sciences (SPSS version 20) software and Microsoft-excel 2013. The living income benchmark was calculated at *woreda* level. Furthermore, the variation in living income benchmark was calculated between the nine *woredas* and food systems. Finally, the result was summarized and presented using means, percentages, tables and graphs.

³ *Edir* and *mahiber* are both community-based organization for mutual aid and support

3 Results

3.1 Reference household size and composition

Reference household (RH) size and composition in the five study Regional State of Ethiopia is shown in Table 5. The smallest household size was recorded in Welmera at 4.0 AME while the larger family size was recorded in Babile at 5.1 AME.

Table 5. Reference household composition for the nine *woredas* of the study area; AME: Adult male equivalent.

Variables	Regions and <i>woredas</i>								
	Sidama	Central Ethiopia	Southern Ethiopia	Oromia			Tigray		
	H. zuria	Gumer	B. Bombe	Ada'a	Welmera	Babile	Enderta	Raya	Tseada
Adult Male	1.8	1.3	1.5	1.6	1.3	1.0	1.2	1.3	1.4
Adult Female	1.4	1.2	1.1	1.2	1.2	0.9	1.1	1.1	1.2
Children	1.6	1.7	2.2	1.4	1.5	3.2	2.3	2.1	2.3
Total (AME)	4.8	4.1	4.9	4.2	4.0	5.1	4.6	4.5	4.9

3.2 Costs per item of the living income benchmark

3.2.1 Food costs

In the nine *woredas*, maize, wheat, barley, sorghum, *kocho*⁴, *taro* and potatoes were the main starchy foods, and chickpeas, faba beans, and haricot beans were the most popular legumes (

Figure 1). Nutrient content of *kocho*, which is not included in the USDA Food Composition database, were taken from other sources (Tsegaye & Struik, 2001; Tuffa, 2019). The most common prices (mode) throughout the year were used for *kocho*, *taro*, faba beans, kale, tomato, onion, cabbage, banana chicken eggs and cow milk because their current price differed >25% (ranging from -83% to +68%) from the most common price throughout the year.

Results of the Living Income Diet Tool show that the minimum costs for a nutritious diet varied between 2.92 US\$ PPP/AME/day for Hawassa zuria *woreda* w 6.49 US\$ PPP/AME/day for Enderta *woreda* Figure 1).

⁴ *Kocho* is product made from *Enset* or false banana

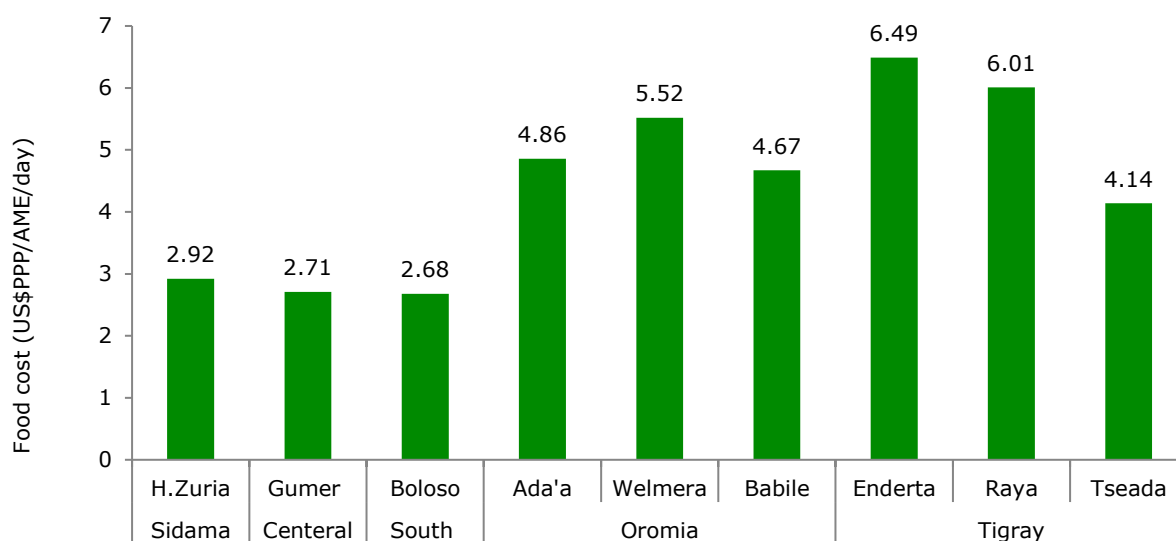


Figure 1. Composition and costs for a low-cost nutritious diet calculated with the Living Income Diet Tool for the nine woredas on local market prices in AME

US\$ 1 PPP = 22.17 birr in 2024 (Databank World Bank, 2023) <https://data.worldbank.org/indicator/PA.NUS.PPP/>

3.2.2 Housing costs

The minimum requirement for a reference family, according to focus group participants, is a living space of at least 42 m², rather than 30 m², with a living room and two bedrooms. It was observed that at times, the kitchen and restroom are outside the living areas. Estimated annual housing costs for a reference family in Hawassa Zuria was 1,25 US\$ PPP/AME/day, including construction costs over 28 years instead of 50), plus routine maintenance and repairs costs and utility costs (

Figure 2). The presence of termites and silt soil texture were mentioned as reasons for lower expected service lifetime of houses in Hawassa Zuria *woreda*. For Gumer *woreda*, the estimated annual housing costs for a reference household was 1.02 US\$ PPP/AME/day including construction over 58 years plus routine maintenance and repairs costs and utility costs. Longer predicted service lives of homes in Gumer were attributed to the superior soil features and comparatively moderately cold temperatures. In Boloso Bombe, the estimated annual housing costs for a reference household was found to be 0.76 US\$ PPP/AME/day including construction costs over 48 years) plus routine maintenance and repairs costs and utility costs (Figure 2).

For a reference family in Ada'a, the estimated yearly housing expenditures were US\$ PPP/AME/day 0.88. which included construction costs over 45 years instead of 50), as well as cost for utilities and regular maintenance and repairs. A reference household in Welmera *woreda* was estimated to have yearly housing costs of US\$ PPP/AME/day was 1.03, which included building costs over 50 years, as well as regular maintenance and repair expenses and utilities bills. Welmera's good soil characteristics and relatively mild temperatures were credited with extending the anticipated service lives of homes there.

In Babile, the estimated daily housing costs for a reference household was found to be US\$ PPP/AME/day 0.63, including construction costs over 48 years) plus routine maintenance and repairs costs and utility costs.

Local minimum standards for decent housing in Enderta, Raya Azebo and Tseada Emba *woredas* of Tigray region, were compiled based on focus group discussion and key informant interview of experts and observations of the researcher. All focus group talks across all locations indicated that the minimal criterion for a reference family is a living area of at least 42 m² as opposed to 30 m², with one living room and at

least two bedrooms. The toilet/bathroom and kitchen may be outside the housing unit. Estimated daily housing costs for a reference household in Enderta was 1.34 US \$ PPP/AME/day, including construction over 65 years instead of 50), plus routine maintenance and repairs costs and utility costs (Figure 2).

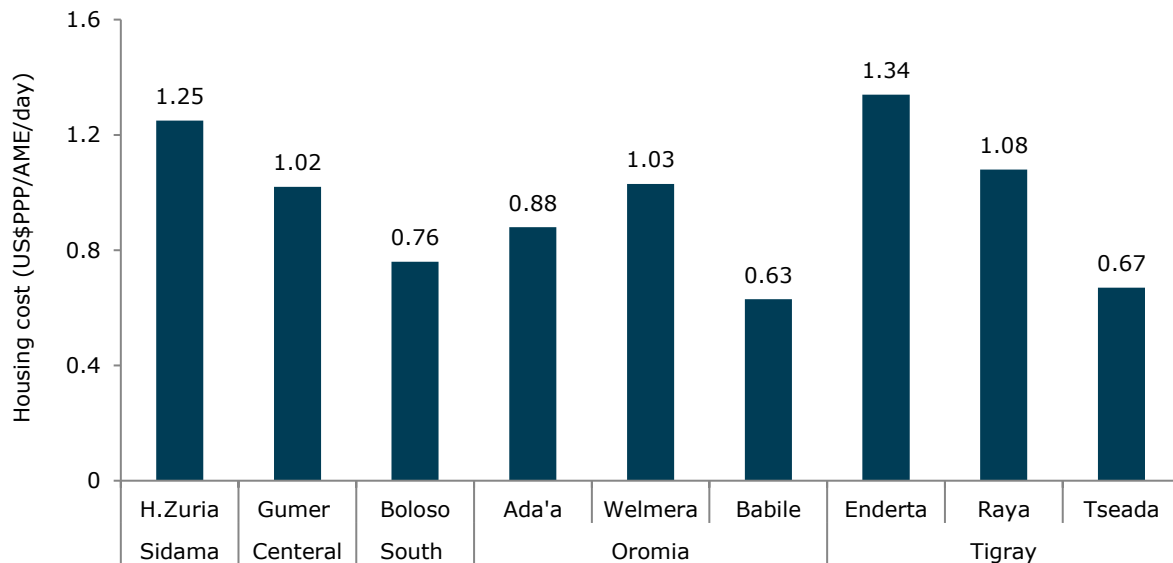


Figure 2. Overview of estimated housing costs for a house complying with local minimum standards for decent housing for a reference household in rural areas of nine *woredas* of Ethiopia for 2024

For Raya Azebo *woreda* the estimated daily housing costs for a reference household was 1.08 US \$ PPP/AME/day, including construction costs over 100 years plus routine maintenance and repairs costs and utility costs. Longer predicted service lives of homes in Raya Azebo were attributed to the superior soil features and comparatively moderately cold temperatures. Furthermore, the house is constructed with very durable wood called *Olea africana*, which is not susceptible to termites while in other *woredas* bricks made from sand and cement are used.

In Tseada Amba the estimated annual housing costs for a reference household was 0.67 US \$ PPP/AME/day, including construction costs over 65 years plus routine maintenance and repairs costs and utility costs. Taxes, levies and house insurance costs were not common in all the three study sites.

3.3 Non-food non-housing costs

3.3.1 Health care

The health care system in all the nine *woredas* of the study area includes public facilities (dispensaries) in all villages. Key informant interviews were held with health care workers from dispensaries of each *Kebele* to cross check and validate information from FGDs. Basic health care insurance is available for all villagers through the government except in Tigray, which was discontinued due to the effect of civil war aftermath. The membership covers all public health care costs for all household members, including doctor consultation and complete treatment with medicine and laboratory tests for all common diseases.

The interviewees reported that this does not cover all household expenses on health care, as regularly medicines are out of stock and have to be purchased privately. Welmera *woreda* had the highest medical costs (1.37 US\$ PPP/AME/day) while the lowest annual total health cost was recorded for Babile *woreda* (0.09 US\$ PPP/AME/day) (Figure 3). The Welmera *woreda*'s greater medical costs were attributed to the high presence of diabetes, blood pressure and typhoid diseases and community's dependency on private pharmacy to buy medicine as these medicines are commonly out of the stock in government pharmacies in the area. In comparison to the other two *woredas*, the *woreda* is situated close to the town, which is relevant for market accessibility and self-purchase.

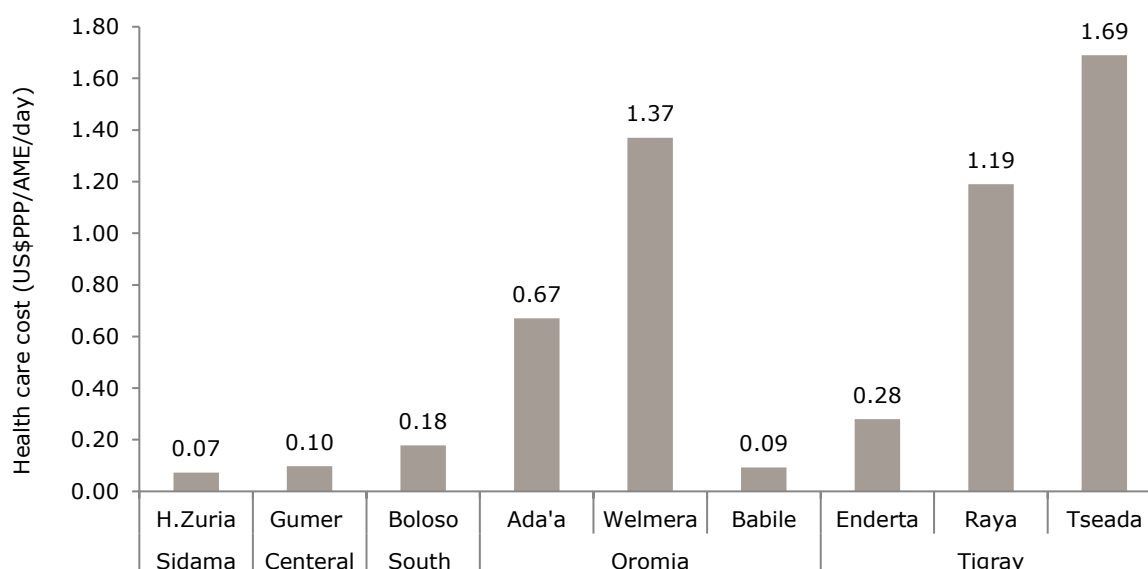


Figure 3. Estimated health care costs per person (US\$ PPP) and per reference household (RH) per day for rural areas of nine woredas for 2024.

3.3.2 Education

The total education costs were highest in Ada'a woreda (1.05 US\$ PPP/AME/day) and lowest while in Raya Azebo (0.17 US\$ PPP/AME/) (Figure 4). Education costs were lower in Tigray, especially in Raya, because most students had not yet re-enrolled following the disruption caused by the war. In contrast, the higher education costs in Ada'a and Welmera were driven by the elevated prices of clothing and school supplies, such as exercise books, resulting from their proximity to larger towns like Bishoftu and Holeta.

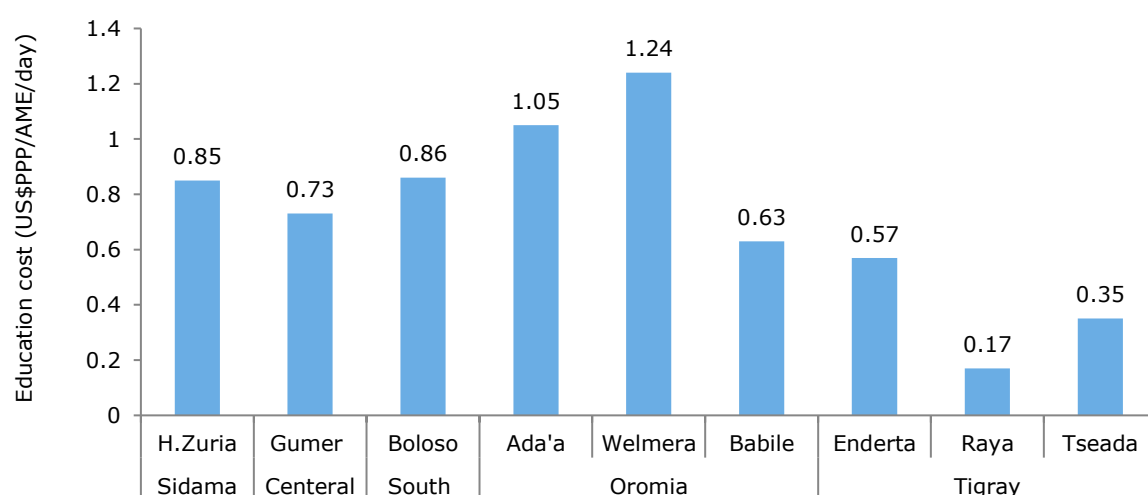


Figure 4 The estimated education costs (US\$ PPP) for a reference household (RH) per year, in rural areas of nine woredas of Ethiopia for 2024.

3.4 Other non-food non-housing (other NFNH)

A total of NFNH expenses for Hawassa Zuria, Gumer and Boloso Bombe were 0.61, 1.02, and 0.70 US\$ PPP/AME/day, respectively (Figure 5). In Hawassa Zuria, the community had the opportunity to select the least expensive mode of transportation because of the availability of variety of modes of transportation including motorbikes, *Bajajs*, cars, and carts. The communities living in more remote *woredas* like Gumer and Boloso Bombe, on the other hand, have fewer transportation options because of little competition among

transport companies there. As a result, they are forced to incur more transport costs. Similarly, communities in Gumer and Boloso bombe *woredas* pay more for clothing.

Ada'a was 2.36 US\$ PPP/AME/day while 2.71 and 1.07 US\$ PPP/AME/day for Welmera and Babile, respectively. The variation in transport cost among *woredas* were related to frequency of traveling to *woreda* level towns. Farmers commonly travelled to towns to sell their harvest because of the comparatively favourable agricultural environment in the Ada'a and Welmera *woredas*, which favours increased agricultural productivity.

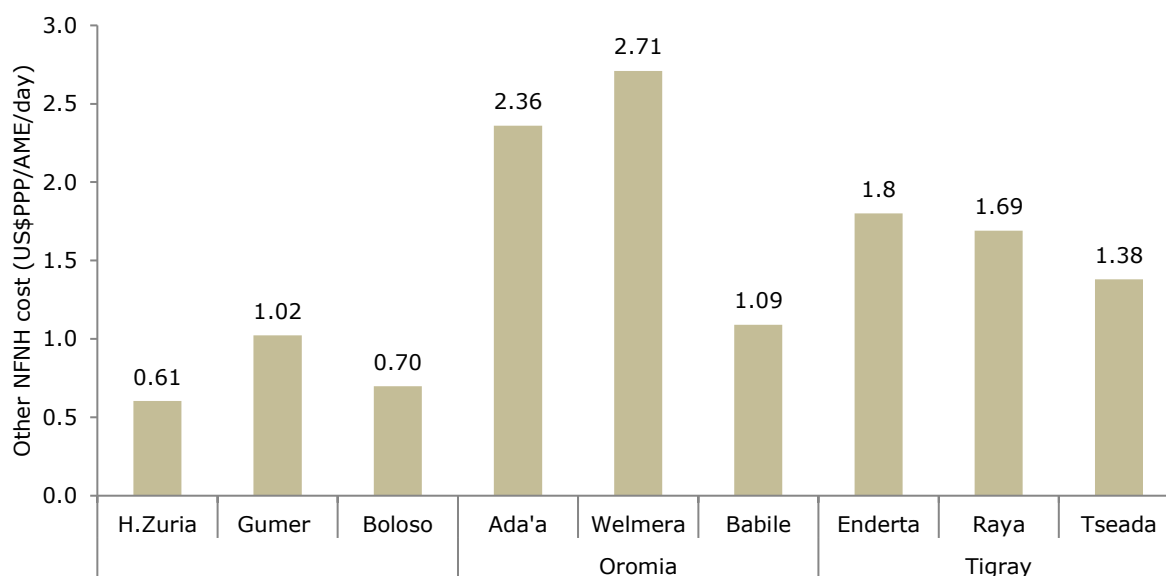


Figure 5. Overview of the estimated NFNH costs for a reference household (RH) per day per AME, in rural areas of nine *woredas* of Ethiopia for 2024

The total other NFNH costs was Birr 1.8 US\$ PPP/AME/day for Enderta while 1.69 and 1.38 US\$ PPP/AME/day for Raya Azebo and Tseada Emba respectively. In Tigray, Raya Azebo had the highest transportation costs, followed by Enderta while Tseada emba had the lowest. Similarly, the communities in Raya Azebo expend higher cost for communication, water than other two *woredas* while communities in Ederta expend higher cost for energy and family cloths.

3.5 Living income benchmark and income gap

Based on data presented previously, the living income benchmark expressed in US\$ PPP per adult male equivalent per day for the Southern regions is estimated at 6.34 in rural Hawassa Zuria; 6.2 at Gumer; and 5.76 at Boloso bombe *woredas* (Figure 6). In Oromia, the daily living income benchmark for Ada'a was 10.90 US\$ PPP per adult male equivalent per day while 13.17 for Welmera; and 7.89 for Babile *woredas*. In Tigray, the daily living income benchmark for Enderta was 11.63 US\$ PPP per adult male equivalent per day while 11.25 at Welmera; and 9.14 at Babile *woredas*.

The average daily living income benchmark across all nine *woredas*, was 9.14 US\$ PPP per adult male equivalent per day, which is higher than all poverty line thresholds. The total living income benchmarks recorded in Hawassa Zuria, Gumer, Boloso Bombe were lower than the upper middle income poverty line while the remaining six *woredas* were above the upper middle income poverty line.

The food cost accounted for 56% in Babile and Enderta of the total living income while the food cost accounted for the lowest in Welmera (44%) and Gumer (45%). The larger share of housing cost was recorded in Hawassa zuria (20%) *woreda* followed by Gumer (16%) while the lower in Tseada Emba (7%). The share of NFNH cost was larger in Welmera (39%) followed by Ada'a (38%) while lower share was recorded in Enderta (23%) followed by Hawassa zuria (24%) (Figure 7). The housing cost accounted almost equally for the three *woredas* of Ada'a, Welmera and Babile.

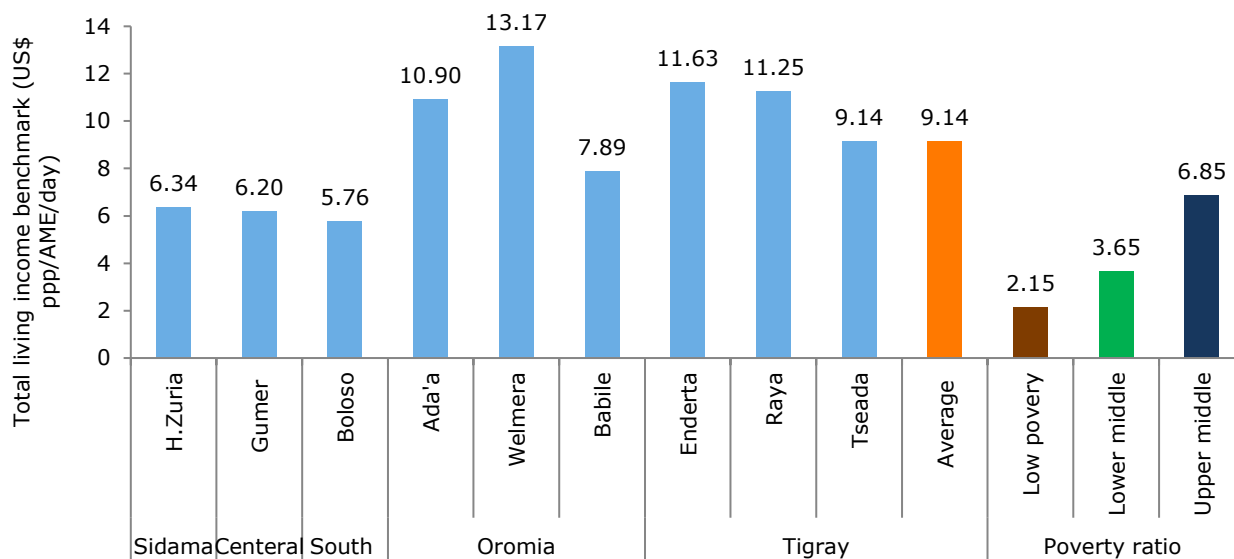


Figure 6 Share of food, housing NFNH and unforeseen costs to the total living income

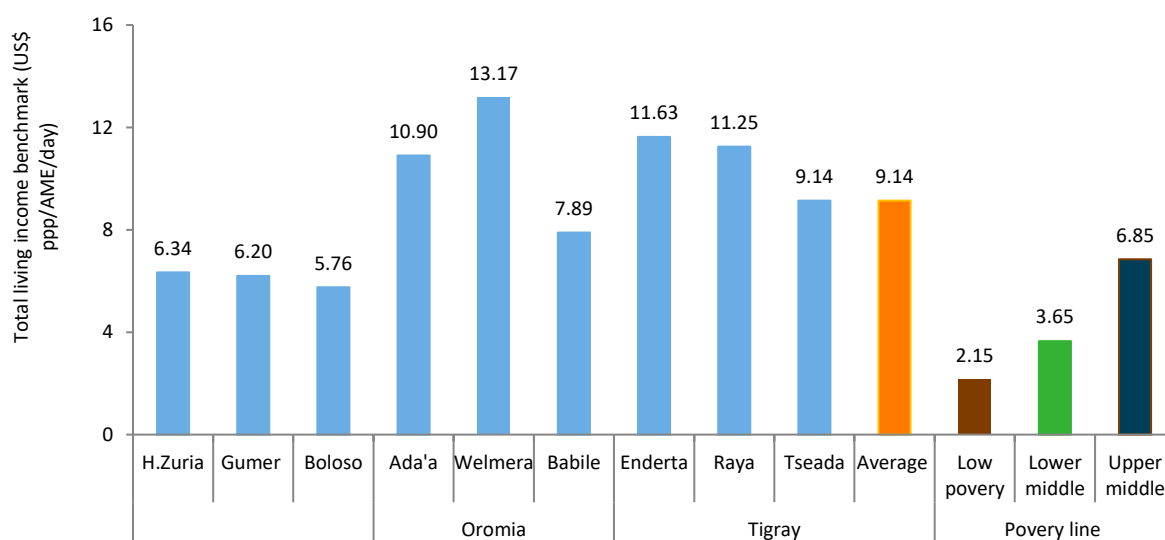


Figure 7 Total living income benchmark across woredas and its comparison with poverty line ratio

4 Discussion & conclusions

4.1 Discussion

The share of food cost ranged between 44% to 56% of the total living income in the nine *woredas* of the study (**Figure 7**). Similarly in the previous study of living income benchmarking, food cost accounted for 41% in Tanzania, 37% in Uganda and 44% in Ethiopia (van de Ven et al., 2021), which was within the range of food costs reported in this study. The difference in the proportion of food costs among the nine *woredas* can be attributed to differences in the types of food that are frequently consumed and the associated costs (Annex 1). Housing expenses ranged from 7% to 20%, showing variation among the nine *woredas*. Differences in housing costs can be explained by variations in building materials, soil conditions, and the expected durability of the house. Health care, education, transportation, communication, water, electricity, family clothing, and social responsibility costs are all included in the Non-food Non-Housing (NFNH) costs. In comparison to the Enderta (23%), the NFNH costs account for 39% and 38% of the benchmark for total living incomes in the Welmera and Ada'a *woredas*, respectively (**Figure 7**). Differences in NFNH costs among *woredas* stem from varying prices of education supplies (e.g., uniforms and exercise books), communication costs (such as mobile phone use), and medication expenses. Furthermore, the local climate plays a role: it can either promote or limit the occurrence of malaria, thereby impacting family healthcare costs.. The greater NFNH costs in the latter both *woredas* were attributable to higher costs for transportation of the family, communication (use of mobile phone) and family clothing. The difference in housing and NFNH expenses among the nine *woredas* was brought about by their differing degrees of market access.

4.2 Conclusions

The living income benchmarking approach, which is adapted from the living wage methodology and earlier studies of living income benchmarking for east Africa, was tested for nine rural *woredas* of Ethiopia. It is possible to contextualize the living income benchmarking to the level of agricultural households, which include all ages and gender of the household family members, by converting the reference households into adult male equivalents. The total living income benchmark across the nine *woredas* varied from 5.76 US\$ PPP/AME/day in Boloso Bombe to 13.17 US\$ PPP/AME/day in Welmera *woreda* while the remaining *woredas* were in between the two.

Food cost accounts for about more than half of the living income cost in Babile and Enderta *woredas* while, which calls for the need to design sustainable development options that could enhance food production and productivity. However, variation in the cost of constructing a house, family cloth, medicine, water and transportation were observed among the nine *woredas*. The two main factors causing variation in living income benchmarks among the nine *woredas* were disparities in access to markets and variations in the type of widely consumed food and their accompanying prices. Therefore, the level of granularity required for the living income benchmark needs to be determined by specific characteristics of the local farming and food systems, as well as the accessibility of markets.

4.3 Recommendations on the approaches of living income benchmarking

- Living income benchmarking for rural households is vital to calculate the living income gap. Thus, further study on the relation between living income gap, income, resource endowment, and demographic characteristics will be vital to identify tailored sustainable development options
- Given the availability of data for nine *woredas* of Ethiopia on living income benchmarking, developing policy briefs could serve as a policy input for national level rural development options.

- The living income benchmarking applicability for a particular area would be determined by the variation in type of commonly consumed foods and its prices, which vary in the type of crops grown and contrasting market places. Furthermore, access to market, which affect the price of foods, housing materials and other inputs determine living income benchmark.
- The implementation of living income benchmarking would be at household level, which take into account gender and age differences as the conversion of family size to adult male equivalent (AME) considered intra-household variation (age and gender).

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Annex

Annex 1. Prices of food items

Food	Market price, June '24 birr/kg								
	Ada'a	Welmera	Babile	Raya	Tseada E	Enderta	H.Zuria	Gumer	B.Bombe
Maize grain	45	65.0	45.0				30.3		
Barley		45.0		76		70			
Wheat	57.5				45	70			
Sorghum			60	67.5					
Potato								8	
Kocho							30.7		30
Taro									30
Chick beans	70.0			80	90	100	37.1		
Faba bean		60.0						65	
Haricot bean			79						
Kale	42.3	50	17.5				20.4	10	27
Swiss chard				50	37.5	35			
Tomato	32.5	35.0	40	15	47.5	17.5	35.2	30	22
Chilli paper							42		
Head cabbage									24.5
Onion	65.0	60	60	55	37.5				
Mango	60.0	75	70						
Avocado	50.0	60							
Banana			70				64.9		20
Papaya				47.5					
Water melon						25			
Cactus pear				5	4.5	5			
Guava					60				
Chicken meat	225.0	525	187.5		400	400	242.3		
Chicken egg			11.5	290				120	70
Cow milk	65.0	33.0	65	70		70	18.5	9	13
Palm oil	175	175	185	207.5	175	200			



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