Members of COOPAZA cooperative, Côte d'Ivoire

Adjusting Living Income Benchmarks for Household Size in the Cocoa Sector

Methodological Note from the Ben & Jerry's Tony's Open Chain MEL Working Group

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Acknowledgments

Introduction

This methodological note is an accompanying document to the case study 'Aligning Living Income Methodologies in the Cocoa Sector'. This outlines key findings and recommendations that emerged from a process of alignment among the Ben & Jerry's and Tony's Open Chain MEL Working Group from 2021-2023.

The full report examines how an inter-organizational Monitoring, Evaluation and Learning Working Group – comprised of partners including Ben & Jerry's, Fairtrade Foundation, Fairtrade International, Tony's Open Chain, Sustainable Food Lab, Barry Callebaut and IDH – worked to align on ways of measuring and reporting progress towards living income within two cocoa co-operatives in Côte d'Ivoire. In the case study, we outline overarching principles behind our data collection strategy, along with recommendations for data collection methodologies (with an emphasis on farmer record books) and alignment on key living income variables.

This methodological note highlights and elaborates upon two recommendations from the larger case study. These have broad relevance for organizations working to measure progress towards living incomes in the cocoa sector, including those who may not have the means to utilize the methodological tools recommended in the full case study. Here, we emphasize and elaborate on our recommendations around adjusting living income benchmarks to account for household size, including average household size adjustments, individual household size adjustments, and linear and OECD equivalence scale methodologies for individual household benchmarks.

We aim that users of this methodological note will:

- Understand the justifications for the Working Group's recommendations for adjusting living income benchmarks to account for household size in sample data.

- Understand the methods required to adjust living incomes according to Working Group recommendations.

- Be aware of the areas in which the Working Group is not fully aligned, along with our approaches to mitigate the impacts of our ongoing discussions around adjustment methodologies.

Adjusting living income benchmarks for household size

Case study recommendation: When reporting the percentage of households at or above a living income, the Working Group recommends that the living income benchmark is adjusted to individual household sizes.

Typically, studies that measure farmer incomes are interested in measuring the gap between current incomes and living income benchmarks produced by the Living Income Community of Practice, which are determined using the Anker methodology. [1] One of the key metrics when reporting living income gaps is the proportion of households in a co-operative or study sample who have achieved or surpass the living income benchmark.

To compare income data to living income benchmarks, researchers must adjust the benchmark – which is calculated for a 'typical family' of between four to six people – to a relevant level to account for larger household sizes. While the proportion of farmers at or above a living income is a simple headline figure, there are several methodological assumptions and decisions that underlie this metric. Currently, within and beyond

the Working Group to the wider cocoa sector, there has not been much alignment on how best to navigate these decisions, leading to difficulties in comparing findings between contexts or over time.

From our review, there are three common approaches for adjusting the living income benchmark to account for household size (Figure 1). First, the benchmark can be adjusted once for all households in the sample based on the average household size of the study. This is the simplest but least accurate approach as small and large households' incomes will be compared with a benchmark that is not relevant to their household composition. The second approach means researchers can determine tailored living income benchmarks for the most common types of households found in the sample. [2] This provides greater insights than the first approach, but because the adjustments are based on the sample instead of universal adjustments, it can make comparability between studies difficult. Finally, researchers can choose to adjust the living income benchmark for each household in the sample individually. This is the most labor-intensive approach but is the most accurate as each household will have an individualized living income benchmark that is appropriate for their household composition.

Figure 1: Decision tree outlining approaches to adjusting living income benchmarks to accommodate household size. Approaches currently adopted and recommended, or under consideration by the Working Group are highlighted in pale blue.

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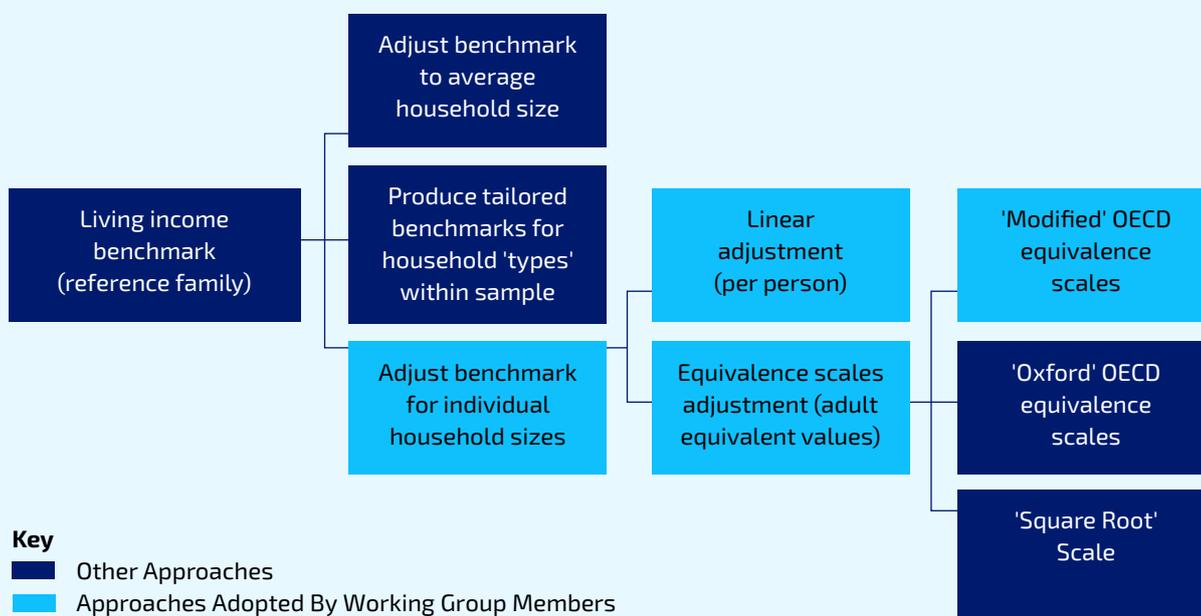
1 For the 2022 living income Benchmark for Cote d'Ivoire, please see pdf (living- income.com)
2 KIT-Royal Tropical Institute (2018). Demystifying the Cocoa Sector in Ghana and Côte d'Ivoire.

As part of the Working Group's progress towards alignment on reporting living incomes, Fairtrade International shifted from the average household size approach for a recent study to individual household benchmarking. This shift led to changes in the reported figure for the Ben & Jerry's co-operative included in the study, where the proportion of households at or exceeding a living income went from 21 percent with an average benchmark approach to 25 percent using the individual household benchmarking. Adjusting their mode of analysis led to a more granular understanding of the co-operative-level gap to living incomes as each household's income was compared to a benchmark that more accurately reflected their household composition. However, as outlined in Figure 1, when adopting an individual household benchmark approach, there are several methodologies that can be used to adjust the benchmark to accommodate household composition and size.

Approaches to benchmark adjustments for individual households

Case study recommendation: The Working Group has not aligned on whether linear (per person) or equivalence scale approaches to benchmark adjustment are more appropriate in the cocoa sector context. At this stage, the Working Group recommends, at a minimum, designing tools with various benchmarking methods in mind, for example, gathering information about the number of adults in the household and their available labor time, along with the number of children and other dependents.

Despite agreeing to align on individual household benchmarking when reporting on the proportion or number of farmers at or above a living income, the Working Group has not reached a consensus for the precise method used to account for household size at the point of writing. This lack of consensus, within the Working Group and among the broader sector, led the Working Group to produce a recommendation that encourages researchers to collect information that could later be used to adhere to as many adjustment methodologies as possible. We outline these methodologies below.

There are two overarching approaches to adjusting living income benchmarks for individual households: linear adjustments, where each household member counts as 'one', and equivalence scale adjustments,[3] which account for household economies of scale and varied resource use (**Table 1**).

Individual household benchmark adjustment			
Linear approach		**Equivalence scales approach**	
Benefits	**Challenges**	**Benefits**	**Challenges**
Simple calculation and easy to interpret. Aligns with poverty line reporting.	Does not account for household economies of scale; considered less nuanced.	Accounts for economies of scale and different household member needs.	More difficult to calculate and interpret (non-intuitive). Several methodologies within the approach – can be complicated to decide. Does not align with poverty line reporting. Makes technical assumptions not included in the original benchmark calculation.

Table 1: Review of the benefits and challenges associated with linear and equivalence scales approaches to individual household benchmarking.

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3 Adjusting household incomes: equivalence scales (oecd.org)

Linear approach

The linear approach to individual household benchmark adjustment assumes each person in the household counts as 'one' regardless of their age or household status. This is the simplest means of adjusting benchmarks, where the living income benchmark is divided by six (because the reference family used to determine the benchmark is a family consisting of two adults and four children in Côte d'Ivoire, but this differs in other countries). This is then multiplied by the total number of household members (**Equation 1**). To determine the gap to a living income for an individual household, the household net income is subtracted from the calculated individual household benchmark (**Equation 2**).

$$\textit{Individual Household Benchmark}_{(Lin)} = \frac{\textit{LI Benchmark} \times \textit{total household members}}{6}$$

Equation 1: Determining the living income benchmark for an individual household using the linear adjustment approach. The living income benchmark is divided by six (the total number of household members in the living income benchmark reference family in Côte d'Ivoire) and multiplied by the total household members.

$$\textit{Household gap to LI} = \textit{Individual HH Benchmark} - \textit{Net Household Income}_{(actual)}$$

Equation 2: Determining household gap to a living income. The net household income from the sample data is subtracted from the individual household benchmark.

Benefits of the linear adjustment approach include its simplicity conceptually which allows for easy interpretation of results; its alignment with poverty line benchmarks that are reported in per person, per day terms; and the heavy weighting of children (relative to equivalence scales) ensures that the benchmark is accounting for sufficient resources for children in the household (**Table 1**).

Equivalence scale approaches

The second overarching approach to individual household benchmarking is the equivalence scale approach, where household composition in terms of overall size and the number of adults and children is considered. This approach applies different 'weights' to different members of the household, where generally the head of household has a heavier weight than additional adults, who are in turn weighed heavier than children. Unlike linear adjustments, the equivalence scale approach accommodates economies of scale within households, where pooled resources, for example in housing, reduce costs per person and thus the need for equal weighting, as well as that children in general consume fewer resources than adults (**Table 1**).

As illustrated above (**Figure 1**), within the equivalence scale approach there are three frequently cited methodologies available to adjust benchmarks: the 'old' or 'Oxford' OECD equivalence scale; the 'modified' OECD equivalence scale; and the 'square root' scale.[4] From our review and within our Working Group, we have examples only of the Oxford and modified OECD scales being applied in cocoa studies, which we elaborate on below.

It is important to note that not all Working Group members use equivalence scales. Of Working Group members who do use equivalence scales, they use the modified OECD equivalence scale and recommend that others adopting an equivalence scale approach use the same for consistency and comparability.

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4 Adjusting household incomes: equivalence scales (oecd.org)

Koffi Sylvain Kouame, Cocoa Farmer, COOBADI Cooperative, Côte d'Ivoire

Oxford OECD equivalence scale

The Oxford OECD equivalence scale applies the following weights to household members: the first adult receives a value of '1', additional adults a value of '0.7' and each child receives a value of '0.5'. This produces the number of 'adult equivalents' in the household. To calculate the individual living income benchmark using the Oxford OECD scale, the number of adult equivalents comprising a living income reference family of two adults and four children must be calculated first (**Equation 3**).

$$\textit{Reference Family AE}_{(Oxf)} = 1(1) + (0.7)(1) + (0.5)(4) = 3.7\,\textit{AE}$$

Equation 3: Determining the number of adult equivalents for the living income reference family (two adults, four children) using the Oxford OECD equivalence scale.

Then, the number of adult equivalents in the household must be calculated using the same method and the household information from the dataset (**Equation 4**):

$$\textit{Household AE}_{(Oxf)} = 1 + (0.7)(\text{\# adults} - 1) + (0.5)(\text{\# children})$$

Equation 4: Determining the number of adult equivalents for the household using the Oxford OECD equivalent scale and available household data.

The individual household benchmark can be calculated by dividing the living income benchmark by the reference family adult equivalents (3.7), then multiplying this by the number of household adult equivalents calculated using **Equation 4**.

$$\textit{Household Individual Benchmark}_{(Oxf)} = \frac{\textit{Living Income Benchmark} \times \textit{Household AE}_{(Oxf)}}{3.7}$$

Equation 5: Determining the individual household benchmark using the Oxford OECD equivalence scale. The living income benchmark is divided by the number of adult equivalents in the living income reference family (two adults, four children or 3.7 AE), then multiplied by the number of adult equivalents in the household.

Finally, the gap to a living income for the household can be calculated in the same method as the linear approach, using **Equation 2**.

Modified OECD equivalence scale

The modified OECD equivalence scale applies the following weights to household members: the first adult receives a value of '1', additional adults a value of '0.5' and each child receives a value of '0.3'. This produces the number of adult equivalents in the household. To calculate the individual living income benchmark using the modified OECD scale, the number of adult equivalents comprising living income reference family of two adults and four children must first be calculated (**Equation 6**).

$$\textit{Reference Family AE}_{(M)} = 1(1) + (0.5)(1) + (0.3)(4) = 2.7\ \textit{AE}$$

Equation 6: Determining the number of adult equivalents for the living income reference family in Côte d'Ivoire (two adults, four children) using the modified OECD equivalence scale.

Then, the number of adult equivalents in the household must be calculated using the same method and the household information from the dataset (**Equation 7**):

$$\textit{Household AE}_{(M)} = 1 + (0.5)(\textit{\# adults} - 1) + (0.3)(\textit{\#children})$$

Equation 7: Determining the number of adult equivalents for the household using the modified OECD equivalent scale and available household data.

The individual household benchmark can be calculated by dividing the living income benchmark by the reference family adult equivalents (2.7), then multiplying this by the number of household adult equivalents calculated using **Equation 7**.

$$\textit{Household Individual Benchmark}_{(M)} = \frac{\textit{Living Income Benchmark} \times \textit{Household AE}_{(M)}}{2.7}$$

Equation 8: Determining the individual household benchmark using the modified OECD equivalence scale. The living income benchmark is divided by the number of adult equivalents in the living income reference family (two adults, four children or 2.7 AE), then multiplied by the number of adult equivalents in the household.

Finally, the gap to a living income for the household can be calculated in the same method as the linear approach, using **Equation 2**.

Selecting and applying individual household benchmarking approaches

As explained in greater detail by the OECD Project on Income Distribution and Poverty,[5] there are underlying technical and value judgements involved in selecting an equivalence scale methodology. For example, researchers must judge the extent to which household economies of scale are relevant in the cocoa household context and consider any implications of lower living income benchmarks for households with greater proportions of children.

Within the Working Group, while there is consensus on applying individual household benchmarks, we have not reached an agreement on the specific methodology in which to calculate the household-level benchmarks. Without aligning on the method for adjusting household size, our results for the proportion of households at or above a living income cannot yet be directly compared.

			OECD Oxford scale		OECD modified scale		Linear (per person) adjustment		
Household size	# Adults	# Children	Adult equiva-lents	Living income Bench-mark (USD)	Adult equiva-lents	Living income Bench-mark (USD)	Adult equiva-lents	Living income Bench-mark (USD)	Range (USD)
6	4	2	4.1	6,488	3.1	6,722	n/a	5,855	867
6	2	4	3.7	5,855	2.7	5,855	n/a	5,855	-
8	4	4	4.2	8,070	3.7	8,023	n/a	7,806	264
8	2	6	3.8	7,437	3.3	7,156	n/a	7,806	651

Table 2: Illustrative figures to demonstrate how household composition and adjustment methodology affects individual household living income benchmarks. Working Group members currently do not adopt the OECD Oxford scale.
1 USD = 612.79 XOF.

Table 2 uses four illustrative household sizes and compositions to demonstrate how, depending on the method for adjustment used and household composition, the individual household living income benchmark can vary. While the range from the highest to the lowest benchmark may at first appear to be relatively small, when considering cocoa incomes in Côte d'Ivoire, this range can account for up to 20 percent or more of

the average net household income. These differences in individual household benchmarks can then have significant knock-on effects for reporting the proportion of households at or above a living income. These magnifying effects of methodological selection are one of the key reasons the Working Group continues to work towards alignment to enhance comparability between income studies and over time.

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5 Ibid.

Bengaly Bourama, General Secretary of COOBADI Cooperative, Côte d'Ivoire

Conclusion

The Ben & Jerry's and Tony's Open Chain MEL Working Group has made significant progress in aligning on key variables to measure living incomes. This methodology note highlights and elaborates upon two recommendations within the larger case study:

- **When reporting the percentage of households at or above a living income, the Working Group recommends that the living income benchmark is adjusted to individual household sizes.**

- **At this stage, the Working Group recommends, at minimum, designing tools with various benchmarking methods in mind, for example, gathering information about the number of adults in the household and their available labor time, along with the number of children and other dependents.**

The Working Group has reached a consensus to adjust living income benchmarks to individual sizes, instead of through an average household size or tailored 'type' approach. We have outlined our justifications for this approach, as well as highlighted how one study within our case study shifted from the average household size approach to an individual adjustment approach for more granular information about the proportion of households at or above a living income.

However, while the Living Income Community of Practice recommends adopting OECD equivalence scales, [6] members of the group who adjust household

sizes linearly expressed concerns around the ease of analysis, common practice in the rest of the industry, and the reporting of poverty lines in 'per person, per day' terms when explaining their reasoning for this approach. The Working Group will continue to discuss these approaches, particularly as we develop new tools and aim to collectively report on learnings from our recent studies. This methodological note aims to support researchers within the cocoa sector in understanding the methods and principles behind the methodologies we are contemplating adopting as a group, as well as the implications for their application in reporting on living incomes.

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6 LICOP FAQs (living-income.com)