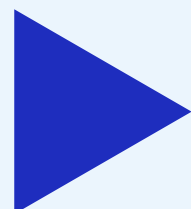




International
Labour
Organization



► **Estimating the needs
of workers and their families
in Ethiopia**



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This report is part of an ILO project on indicators and methodologies for wage-setting supported by the Ministry of Foreign Affairs of the Netherlands. The project seeks to develop indicators and methodologies that will strengthen the capacity of governments and social partners to negotiate and set adequate wage levels that take into account the needs of workers and their families along with economic factors.

The main authors of the report are Nicolas Maître and Erika Chaparro Perez, with contributions from Patrick Belser, Sevan Ananian and Khalid Maman Waziri. Michael Rose copy-edited the draft of the report. Special mention should also be made of Claire Piper for her excellent assistance in the publication process and the formatting of the document.

► Executive summary

Minimum wage-setting and adjustment is a task which seeks to protect workers and their families while ensuring compliance without adverse effects on employment levels. The ILO Minimum Wage Fixing Convention, 1970 (No. 131) calls for a balanced and evidence-based approach to setting minimum wage levels that consider both the needs of workers and their families and economic factors. While the needs of workers and their families and economic factors are equally important in wage setting, the present report focuses on a methodology for measuring the needs of workers and their families. As such, the report should be considered as complementary to the evaluation of economic factors for setting minimum wages in Ethiopia.

In order to estimate a wage sufficient to cover the needs of workers and their families, we should take into account various factors such as family size, the number of wage-earners per household and the cost of living. Using an evidence-based approach, we formulate a methodological framework to establish how to estimate the needs of the workers and their families using data from income and expenditure surveys. These needs are implicit in expenditures on food, housing, health and education, and other essential goods and services.

First, we divide expenditures into different categories. For the first expenditure category – *cost of food* – we use the World Bank methodology on poverty lines. We construct a reference basket and estimate its cost based on observed national consumption patterns. First, for each household, the equivalence scale of “adult equivalent energy intake” (AEEI), based on a caloric consumption of 2,950 kcal per day for 1 male adult aged 30–60, is used to convert the needs of the individuals in the household into those of male adults aged 30–60, following the Food and Agriculture Organization of the United Nations/ World Health Organization recommendations. Next, information collected on the caloric content of each food item consumed by a household is used to calculate the caloric consumption for that household. After this, the reference food basket is constructed so that it reflects the consumption patterns of the households whose calorie consumption is the closest to the 2,950 kcal benchmark. This corresponds to the households at quintile 2 of the distribution of monthly household expenditure per adult equivalent. However, because the reference quintile fails to satisfy nutrient requirements for protein and fat consumption, the next highest quintiles are considered until those nutrient requirements are met. Accordingly, quintile 4 has been selected to construct the food basket as it satisfies both calorie and nutrient requirements. This informs us of the quantities of each food item consumed and therefore the caloric consumption per adult equivalent in those reference households. Because that caloric consumption is greater than the required calorie intake of 2,950 kcal per day, an adjustment coefficient is applied to the item food quantities consumed so that they provide the required calorie intake. Next, the adjusted quantities and the information on prices obtained from the survey are used to estimate the monthly cost of the reference food basket for an adult equivalent. Finally, that cost is estimated for a reference family size of 5,¹ which translates to 3.86 adult equivalents based on the AEEI equivalence scale. Accordingly, the reference food basket costs 976 Ethiopian birr (Br) for 1 adult equivalent and Br3,770 for the reference family size of 5 at the national level in 2018.

For the second category – *cost of housing* – the cost of monthly rent is estimated using a set of indicators on the quality of the dwelling. Based on those indicators, a system of scoring is designed to measure housing quality based on four dimensions of decent housing : durability, living space, access to water and access to facilities (including toilet and kitchen). A score from 1 to 5 for each dimension is obtained, with 1 corresponding to the lowest and 5 to the highest levels of quality. Summing the scores of the four decent-housing dimensions

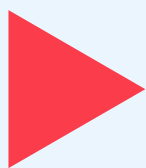
¹ The average household in Ethiopia consists of about 5 members (after rounding up).

provides a total housing quality score from 4 to 20. Next, we identify the total housing quality score that corresponds to a decent dwelling – a minimum score of 12 in the case of Ethiopia – with its associated rent and utilities levels per adult equivalent, which are estimated from a fitted regression. Finally, the monthly rent and utilities expenditures for a reference family size of 5 is calculated based on the adult equivalence scale definition of the Organisation for Economic Cooperation and Development. Accordingly, the total cost of decent housing including rent and utilities for a reference family of 5 in 2018 amounts to Br941 and Br285 per adult equivalent, respectively, at the national level.

For the two remaining categories – *cost of health and education* and *cost of other essential goods and services* – our methodological approach is to take the average monthly expenditures per adult equivalent (per capita for health and education) corresponding to the reference quintile and then estimate the monthly needs for a household with 5 members. Nevertheless, it should be noted that although quintile 4 has been used to estimate food needs, the reference quintile identified on the basis of the calorie consumption as a starting point remains quintile 2, which is also the reference to be considered for estimating the needs of workers in terms of expenditures on health and education and on other essential goods and services. Accordingly, for the reference family size of 5:

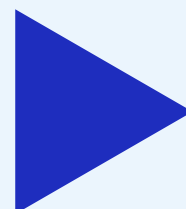
- (a) monthly expenditures on health and education is estimated at Br210 at the national level; and
- (b) monthly expenditures on other essential goods and services is estimated at Br357 at the national level.

Next, we proceed to estimate the total needs based on the outcomes calculated from the different expenditure categories. We estimate the total needs for a family of 5 to be Br5,278 at the national level in 2018. Having estimated the costs for the needs of a reference family, we are able to estimate the level of a wage that would cover these needs under three scenarios for the number of working adults in the household: (a) 1 full-time worker (Br5,278); (b) 1.5 full-time working adults (Br3,519); and (c) 2 full-time workers (Br2,639). Depending on the different scenarios considered, the monthly salary required to cover the needs of workers and their families varies significantly. This analysis highlights the importance of the underlying assumptions to be considered when defining the reference family size and the number of working adults expected to support the family.



1

Introduction



► 1. Introduction

Setting and adjusting the level is perhaps one of the most challenging parts of minimum wage fixing. If set too low, minimum wages will have little effect in protecting workers and their families against unduly low pay or poverty. If set too high, minimum wages will be poorly complied with and/or have adverse employment effects.

The ILO Minimum Wage Fixing Convention, 1970 (No.131) calls for a balanced and evidence-based approach for setting minimum wage which considers, on the one hand, the needs of workers and their families and, on the other, economic factors. An appropriate balance between these two sets of considerations is essential to ensure that minimum wages are adapted to the national context and that both the effective protection of workers and the development of sustainable enterprises are considered.

While needs of workers and their families and economic factors are equally important in wage setting, the present report focuses on a methodology for measuring the needs of workers and their families in line with Convention No.131. As such the present report should be taken as complementary to the evaluation of economic factors for adjusting minimum wages in Ethiopia. Together, these analyses provide a set of information aimed at increasing the capacity of the governments and the social partners to negotiate and set appropriate wage levels.

The present report falls within the scope of a technical cooperation project that seeks to develop indicators and methodologies on the needs of workers and their families, which – along with the consideration of economic factors – will strengthen the capacity of governments and social partners to negotiate and set adequate wage levels. The methodologies and tools developed at the global level in this project are currently being tested in five pilot countries (Costa Rica, Ethiopia, India, Indonesia and Viet Nam) and will be integrated in an ILO global toolkit for future technical assistance on minimum wage policies.

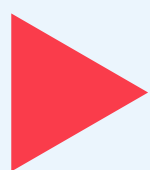
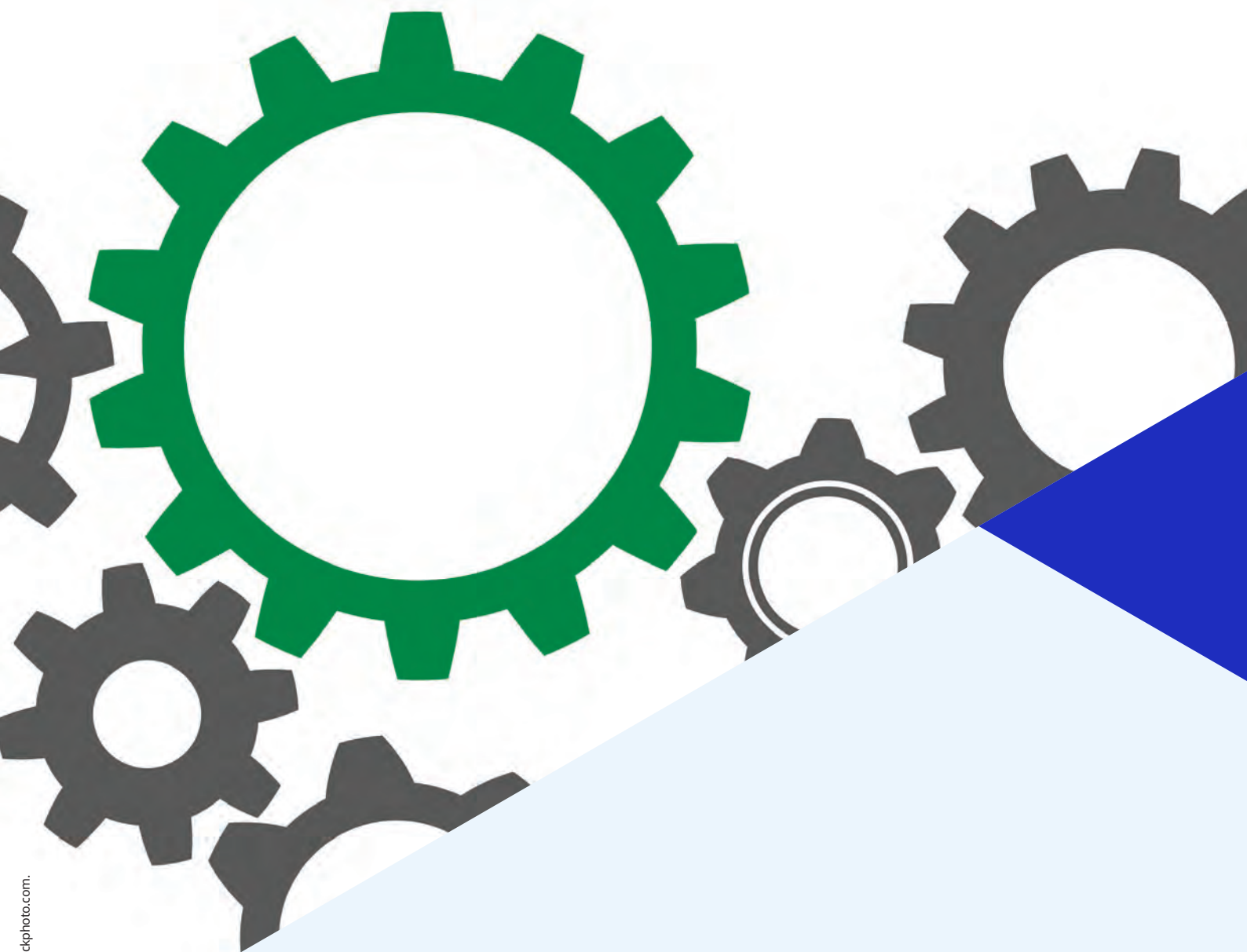
Assessing whether existing rates are enough to meet the needs of workers and their families can be challenging. First, the definition of needs is a relative concept. There can be basic needs, higher needs, and so on. The definition of these different types of need can also vary across and within countries. The difficulty of pinning down what constitutes each type of needs explains why there is no universal definition that is widely accepted. Secondly, whether a minimum wage is enough to cover the needs of a family depends on the size of one's family, which varies among workers. It also depends on how many family members are minimum wage-earners as well as on the local cost of living. Some averaging is therefore unavoidable.

In this paper, we apply a methodological framework to estimate the cost of basic needs for workers and their families in Ethiopia at the national level. To do so, we use the *Ethiopian Socioeconomic Survey, 2018–2019* (ESS4),² implemented between September 2018 and August 2019 by the World Bank and the Central Statistics Agency of Ethiopia. The ESS4 is a nationally representative survey that collected data on 6,770 households and 19,090 individuals living in rural and urban areas. It also provides information on different dimensions at the domestic and individual levels, such as demographic characteristics, health and education, housing, work and consumption, among others.

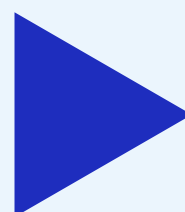
The paper is divided into six sections. While the first section summarizes the conceptual framework of the methodology and its underlying assumptions, the following three sections provide detailed analyses and estimate the cost of basic needs at the national level for each expenditure category – food; housing; health and education; and other essential goods and

² Ethiopia, CSSA, [Ethiopian Socioeconomic Survey 2018–2019](#).

services – to enable a basic but adequate living standard. By aggregating outcomes from the previous three sections, the fifth section reveals the estimated needs-based wage at the national level, using different assumptions for the number of working adults. Finally, the sixth section compares the level and evolution of existing minimum wage levels in Ethiopia with the estimated needs-based wage levels.



2 Brief overview of the methodology



► 2. Brief overview of the methodology

The “baseline” methodology – which is open to country-specific adaptation – sets out a general framework for assessing the needs of workers and their families through a multidimensional approach that separately estimates the cost of living for the following four dimensions.

- (a) *Cost of food* – A low-cost diet that provide sufficient amount of calorie, protein and fat and that is suitable for the target population in terms of composition. This is measured normatively based on the calorie and nutrient standards defined by the World Health Organization (WHO) and the Food and Agriculture Organization of the United Nations (FAO).
- (b) *Cost of housing* – Cost of housing – A basic but decent dwelling with an acceptable standard. Following United Nations for Human Settlements Programme (UN-Habitat) recommendations, this is measured normatively based on national and international standards on adequate housing characteristics, such as living space, durability, facilities and access to water.
- (c) *Cost of health and education* – A basic level of health and education expenditure is considered as a separate group. Unlike food and housing needs, the cost of health and education needs are estimated using a relative approach that draws on the national distribution of expenditure for health and education.
- (d) *Cost of other essential goods and services* – We aggregate all other expenditure components (such as clothing and transportation) into one group. As for health and education estimates, the cost of other essential goods and services is estimated using a relative approach that draws on the national distribution of such expenditure.

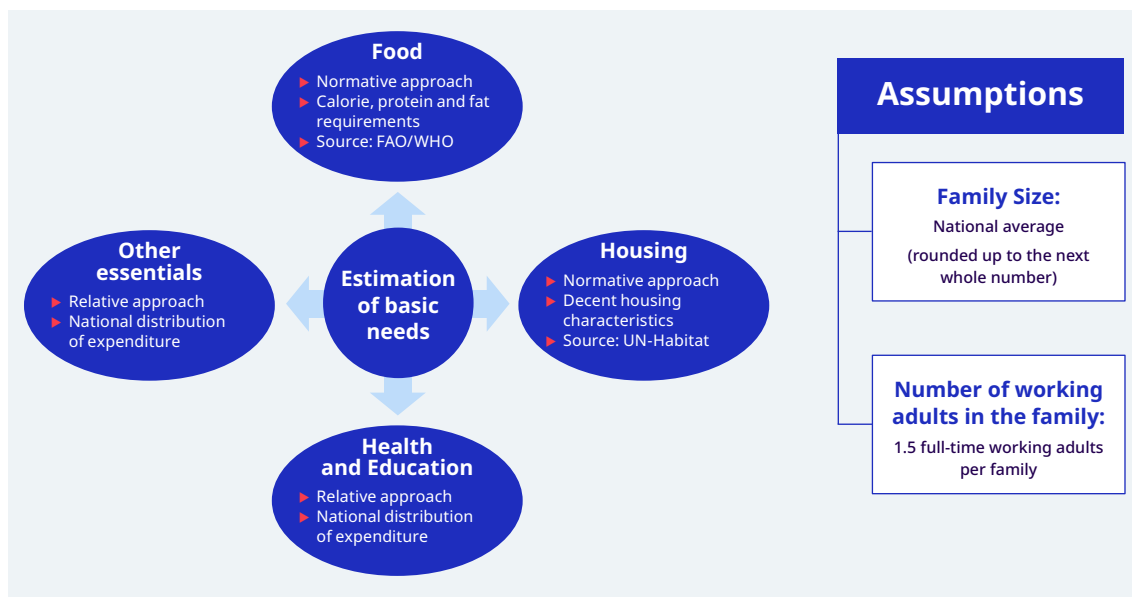
This methodology combines absolute measures for food and housing, with relative measures for the cost of health and education and other essential goods and services – a combination that is well in line with the philosophy of Convention No.131. By combining relative and normative approaches, the method has the advantage of taking into consideration both the socio-economic realities of the country and the living standards of other social groups.

Figures 1a and 1b illustrate the conceptual framework of the methodology. Figure 1a shows that the methodology is built around the four above-mentioned dimensions of the needs of workers and their families. The first step consists of estimating separately the costs of adequate food, decent housing, health and education, and other essential goods and services for 1 person (or 1 adult equivalent). Next, these separate estimated costs are summed up in order to estimate the total needs of 1 person (or 1 adult equivalent). In order to convert these individual needs into the needs of a worker and his family, an assumption with respect to the choice of a reference family size (and its corresponding number of adult equivalent) is needed. In this baseline methodology we propose to use the rounded average family size in the country or region considered. However, as discussed in the following section, the decision on what family size to adopt may ultimately be left to the discretion of the entity interested in applying a needs-based wage in their particular setting. Accordingly, estimates based on multiple family size scenarios may also be presented and the assumption with respect to family size may constitute one of the adaptable elements of the methodology.

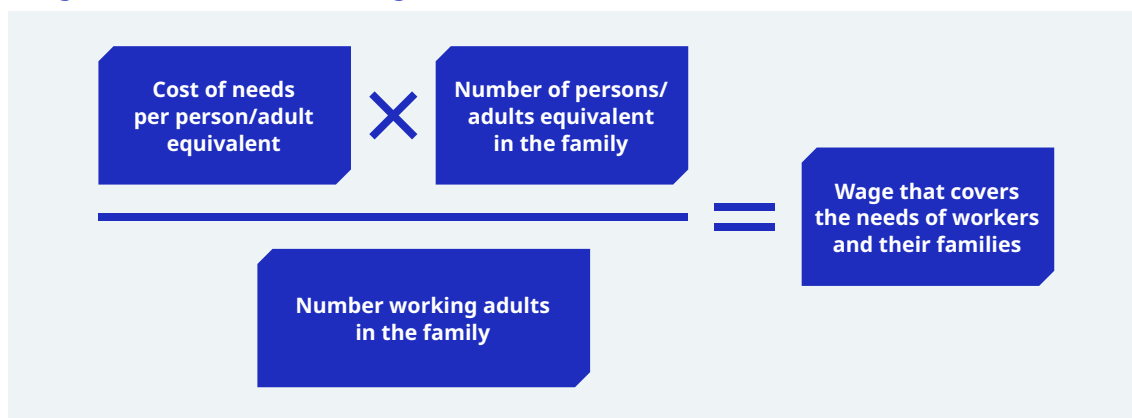
When estimating the needs of workers and their families in order to strengthen the capacity of governments and social partners to negotiate and set adequate wage levels, it is essential to convert the total needs of a family into a wage level that is sufficient to cover them – the so-called needs-based wage. However, this step requires making another assumption, with respect to the number of full-time working adult in the family. If two wages should be sufficient to cover the total needs of a family, these wages should be half the amount of the total needs. However, if one wage should be sufficient to cover the total needs of a family, this wage should be equal to the total needs. Therefore, as figure 1b shows, in order to convert the

total needs of workers and their families into a needs-based wage, it is essential to divide the needs by the number of working adult considered in the family. In this baseline methodology, we propose to use a number of full-time working adults that is set normatively at 1.5 full time working adults for any family of more than 1 person. This assumption is discussed further in the third section of the present Chapter.

► Figure 1a: Conceptual framework of the methodology



► Figure 1b: Estimation of the wage sufficient to cover the needs of workers and their families



Reference family size and adult equivalence:

As figure 1b shows, the estimated cost of living for 1 member of the family is multiplied by a reference family size. Family size and composition is a crucial consideration when estimating a needs-based wage. Should we use average household size according to national statistics? Or should we use the size of households that are in lower tiers of the labour market? Or is there another referential household? This is obviously very important since a wage set to support a family of 5 is evidently going to be higher than a wage set to support a family of 3.

In the present baseline methodology, we use the national average family size rounded up to the next whole number, which is equal to 5 in the case of Ethiopia. However, it is worthwhile to note that poorer households tend to have larger families, which may translate into greater needs. Ultimately, while it is essential to provide a reference family size in estimating the needs of workers and their families, the decision on what family size to adopt should be left to the discretion of the entity interested in applying a needs-based wage in its particular setting. This is why we have provided a range of estimates based on multiple family-size scenarios for this study, in addition to the selected reference family size based on the national average. Using a range of household sizes provides useful information for minimum wage fixing and there may be a need for debate on the most appropriate reference family size in a particular setting. It is also worth noting that in more traditional societies, in which the bulk of production is for self-consumption, the prevailing structures are those of extended households, rather than the nuclear households which tend to be the standard in urban economies.

Another question concerns the use of adult-equivalence scales. Such scales are used to take into account the economies of scale that arise from people living together (for example one fridge is sufficient even for a family of 4), as well as the fact that children may have lower needs than adults. Two types of equivalence scales are used here.

- **Equivalence scales for food and calorie needs.** As discussed in more detail in the section on estimating food costs, FAO /WHO calorie recommendations are used here to convert all household calories needs into those of 1 male “adult equivalent energy intake” (AEEI). For example, if 1 male adult aged 30–60 requires 2,950 kcal per day, while 1 woman aged 30–60 requires 2,400 kcal per day, the woman’s calorie requirement corresponds to 0.81 AEEI ($2,400/2,950$) and the total calorie requirements for such a family is 5,350 kcal per day or 1.81 AEEI ($5,350/2,950$).
- **Equivalence scales for total household consumption.**³ We use such scales for example when we partition and rank a country’s households into quintiles based on their total monthly expenditure per adult equivalent, which is calculated for each household in the survey. In this case, we can either use an adult equivalence scale at the country level formulated by national statistical offices (if available) or the Organisation for Economic Cooperation and Development (OECD) adult equivalence scale (also known as the “Oxford scale”),⁴ which typically assigns the value of 1 to the household head, 0.7 to each additional adult member and 0.5 to each child.

The use of equivalence scales for household consumption remains somewhat controversial. The main issue here is whether such large economies of scale in household consumption really exist. And there is significant evidence in both directions. According to a number of recent studies, although children consume less food they consume more of other goods, such as education, health or clothing. Estimates of the needs of workers and their families are of course sensitive to the use of equivalence scales.⁵ Therefore, the use of different adult equivalences is not a panacea but rather a methodological decision.

Given the implications of using equivalence scales, in particular how they may affect the levels of estimated needs of workers and their families, our methodology uses different approaches to convert the needs of a single family member to those of the entire family. As shown in chart 1, adult equivalent estimates use the above-mentioned OECD and AEEI equivalence scales to estimate the needs of workers and their families for the dimensions of food, housing and other essential goods and services, for which the existence of economies of scale are assumed and commonly accepted.⁶ In contrast, per capita estimates are used

3 It is important to differentiate such scales from the “adult equivalent energy intake” (AEEI) mentioned earlier. While the AEEI scale is used strictly for calorie analyses, the OECD “adult equivalence” scale is used for adjusting all expenditure values.

4 OECD, “What are Equivalence Scales?”.

5 Martin Ravallion, “On Testing the Scale Sensitivity of Poverty Measures”, *Economic Letters* 137 (2015): 88–90.

6 OECD, “What are Equivalence Scales?”

when there is no evidence of economies of scale for a dimension of needs, which is the case for health and education needs since access to them or their consumption cannot be shared among different family members. Therefore, for such needs, each member of the family should individually be entitled to decent access.

The OECD equivalence scale is particularly important for our methodology, as it is used to classify households into quintiles based on their total monthly expenditure per adult equivalent. Such a classification allows the identification of the reference quintile that is used to determine the basic but decent consumption basket for food needs. It is also used for the relative approaches to estimate needs for health and education and for other essential goods and services.

► **Chart 1: Coefficients used to account for family size**

Type of expenditure	Coefficient used to account for family size	Comments
Total expenditure	Adult equivalent scale (OECD)	Used to create quintiles
Food expenditure	AEEI scale (FAO/WHO)	Economies of scale are assumed based on calorie needs
Housing expenditure	Adult equivalent scale (OECD)	Economies of scale are assumed
Health and education expenditure	Per capita measurement	No economies of scale are assumed
Other essential goods and services expenditures	Adult equivalent scale (OECD)	Economies of scale are assumed

Number of full-time working adults

To estimate the wage that meets the basic needs of workers and their families, it is essential to define how many wage and/or income recipients are assumed to live in the family considered. In contrast to family size, the assumption of the number of full-time workers has a reducing effect on the needs-based wage level. In order to obtain the so-called needs-based wage, the total cost of the needs of workers and their families is divided by the number of full-time working adults assumed to be employed in the family. As for family size, however, the number of full-time working adults assumed in the family of reference is subject to a methodological choice. Broadly, this choice concerns what constitutes the most suitable measure of the number of full-time working adults to use as the denominator in the calculation. Should we assume that there is only 1 full-time working adult in the family? Or perhaps 2 full-time working adults? Should we use the observed number of full-time working adults in the household? Or instead a fixed number of full-time working adults set normatively between 1 and 2? For the present baseline methodology, we select the last option and propose to use a fixed number of full-time working adults set normatively at 1.5 full time working adults for any family of more than 1 person. There are three reasons for this decision.

First, following Anker and Anker (2017), we believe that using either 1 or 2 workers per family as is done for most living-wage methodologies is not realistic and that therefore the number of full-time working adults should always be set between 1 and 2. As Anker and Anker (2017) note:

► Many women are in the labor force all over the world, so the assumption of one (usually male) breadwinner per family is not realistic. Second, not all adult family members work full-time – some are unable to find work, some need or want to stay home for various reasons, and some work part-time. This means that an assumption of two full-time workers per family is not realistic. Therefore, the number of workers per family in our methodology is always between one and two.

Secondly, from a normative point of view it seems reasonable to assume that 1.5 full time working adults should be sufficient to cover the needs of workers and their families. Assuming a family with children, this approach allows one of the parents (father or mother) to allocate a certain amount of working hours to essential unpaid family work. It also avoids shifting the full burden of low job opportunities and high unemployment rates to employers by requiring them to pay higher wages to compensate for these labour market failures. In such a situation, it would probably be necessary to implement additional policies such as a comprehensive social security system and other employment policies to protect workers and their families.

Thirdly, an empirical analysis based on the pilot countries in this project reveals that it appears reasonable to use 1.5 full-time working adults per family. In order to assess the validity of using 1.5 working adults per family the average number of full-time working adults in the reference family sizes were computed in each of the pilot countries. In order to reflect the reality of families that may be potentially affected by wage policies, we decided to limit our analysis to those households comprising at least 1 wage-earner. As shown in chart 2, the number of full-time working adults varies significantly by country, from 1.34 in Ethiopia to 1.95 in Viet Nam. However, the average number of full-time working adults in Costa Rica, Ethiopia, Indonesia and Viet Nam is 1.57, a number relatively close to our assumption of 1.5 full time working adults per family.

In some cases these estimates reflect differences in the composition of households. For instance, in Viet Nam the relatively high number of working adults reflects the fact that in numerous households composed of 4 members we observed more than two adults working. However, in Viet Nam, estimating the same number with only those households composed of 2 adults and 2 children the average number of full time working adult is equal to 1.69, while still higher this number appear to be closer to our assumption of 1.5 full time working adults.

► **Chart 2: Average number of full-time working adult in the reference family size that include at least 1 wage-earner**

	National average of number of full-time working adults per household of reference that includes at least 1 wage-earner (including OAW + wage-earners)	Family size of reference
Ethiopia 2018/2019	1.34	5
Viet Nam 2018	1.95	4
Indonesia 2018	1.62	4
Costa Rica 2018	1.36	3
Average	1.57	

To summarize, while the decision to use 1.5 full-time working adults per family may to some extent, appear subjective, it also carries out a number of advantages. First, it allows the use of a number that is always between 1 and 2 working adults, which is a desirable result. Secondly, it is an attractive assumption from a normative point of view as it allows for workers to carry out essential unpaid family work and avoids shifting all the burden of low employment opportunities to employers. Thirdly, it appears relatively coherent with the empirical realities of the family of references observed in the pilot countries. Finally, it simplifies the calculation and avoids dependence on estimating the number of full-time working adults which in some cases might be challenging to assess through income and expenditure surveys. Unlike labour force surveys that are designed to capture information about the labour market, household income and expenditure surveys are not designed solely for that purpose and as a result it can be challenging to identify labour market indicators with a strong degree of certainty. However,

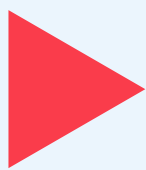
in the national studies, in addition to the results based on the hypothesis of 1.5 working adults per family we also include the extreme values – 1 working adult and 2 working adults – in order to provide the full range of needs-based wages relevant to minimum wage setting.

The sample

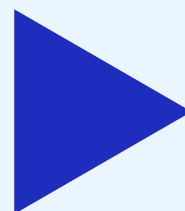
Another essential question to address in order to estimate the needs of workers and their families concerns the sample that should be used for the analysis. Should the analysis consider all households in a given country? Or should it instead consider a subsection of the labour force, such as households with at least 1 wage-earner? Or should it consider a regional subsample such as households in a given geographical area? These are important and relevant questions when considering a needs-based wage and the choices can considerably influence the resulting minimum wage level.

In the context of estimating the needs of workers and their families to inform minimum wage-setting mechanisms, it appears legitimate to consider whether the sample population should be limited to those households with at least 1 wage-earner given that they constitute the potential beneficiaries of minimum wage policy. However, in the present baseline methodology, we recommend using all households, irrespective of whether they include a wage-earner or not. This recommendation draws on a number of conceptual and practical considerations. First, we believe that the concept of the needs of workers and their families should not be dependent on the labour market status of the members composing the family and that, as mentioned in Convention No. 131, it should reflect the living standards of other social groups. Secondly, in some developing countries wage-earners represent a very low proportion of the employed population. Limiting the sample to the households with at least one wage-earner might therefore result in the exclusion of an overwhelmingly large share of the population and give rise to small-sample bias. For example, in the pilot country Ethiopia, according to the 2013 *National Labour Force Survey*, wage employees represent only 10 per cent of total employment and the remaining 90 per cent of the employed population are own-account workers, employers or unpaid family workers. In such a context, limiting the sample to only those households with at least 1 wage-earner would create bias and the results would not be representative of the needs of workers and their families for the large majority of the population. Thirdly, another practical consideration is that the methodology relies on the use of household income and expenditure surveys in which, as mentioned above, it may be challenging to identify wage-earners with a strong degree of certainty.

With respect to regional considerations, keeping in mind that the present methodology seeks to strengthen the capacity of governments and social partners to negotiate and set adequate minimum wage levels, if minimum wage rates are set by geographical region in a country, we recommend that the methodology be replicated separately for each relevant geographic division of the country. While some countries have only one minimum wage that applies to all employees in the country, other countries have different minimum wage rates based on sector of activity, occupation, age of employee or geographical region. In the case of Ethiopia, since there is no minimum wage the estimates were conducted at the national level.



3 Estimation of food needs



► 3. Estimation of food needs

Food is frequently a relatively large component of expenditure for households. In fact, the food category is typically the largest expense that households will face in the developing world. As such, it is crucial to ensure an appropriate model diet that provides sufficient calorie, protein and fat while taking into account the consumption patterns and food preferences of the target population. Building on the “cost of basic needs” methodology used by the World Bank to estimate national poverty lines, we estimate the cost of a food basket that fulfils calorie requirements and also takes into account national preferences and consumption patterns.

To do this, we go through the following steps.

1. We identify the calorie requirements to be fulfilled, based on the recommendations of FAO/WHO. These requirements vary by gender and age.
2. Since there is no information on the nutrient value of each food item in the household income and expenditure surveys, we retrieve data on the calories, protein and fat content of each food item externally and merge them into the household Income and Expenditure survey.
3. We construct a reference basket (quantity consumed of each food item) that provides sufficient calories based on the observed consumption patterns of households that are the closest to the required calorie consumption.
4. If necessary, we then adjust the reference food basket to ensure that it covers the requirements for other nutrients, including protein and fat.
5. We estimate the cost of the reference food basket by applying the implicit prices of each food item.

3.1 Setting the calorie requirement

What are the needs of workers and their families in terms of calories? A good starting point is the energetic and nutritional values recommended as a minimum by the health authorities of the country, which in general interact with the FAO/WHO recommendations for the definition of these values. This process takes into account a number of environmental and demographic factors such as the age groups of the population, structural factors such as weight and height, the climate, the prevailing types of activity and their intensity and so on, which defines the daily requirements for energy (kcal) and nutrition (mainly with respect to protein and fat) per person.

According to the FAO/WHO recommendations, assuming a moderate physical activity level (PAL), 1 male adult aged 30–60 requires 2,950 kcal per day, while women, the elderly or children require fewer calories.⁷ We therefore propose to create a scale of male AEEI that measures the calorie requirement of each individual against the male AEEI baseline. The idea is to convert the calorie requirement of every household member into that of 1 male adult equivalent (aged 30–60) that requires 2,950kcal per day, as shown in table 1.

This scale is constructed using the FAO/WHO calorie requirement recommendation for each age range shown in table 1.⁸ We can observe, for example, that 1 female adult aged 30–60 requires 2,400 kcal per day (0.81 of male AEEI) and that a female child aged 10–11 requires

⁷ FAO, *Human Energy Requirements: Report of a Joint FAO/WHO/UNU Expert Consultation, Rome, 17–24 October 2001*.

⁸ FAO, *Human Energy Requirements*.

2,000 kcal per day (0.68 of male AEEI). Hence, a family composed of these 3 individuals would require a male AEEI of 2.49 ($1 + 0.81 + 0.68$) or 7,345.5 kcal per day ($2,950 \times 2.49$).

As mentioned above, this AEEI scale is used only for assessing food and calorie needs. When adjusting expenditure values to the adult equivalent, we use the scale proposed by the OECD. This is why the adult equivalent conversion factor used in the section on the cost of food differs from that used in the sections on housing and other expenditures.

► **Table 1: Daily energy requirement by age and AEEI coefficient**

Age Years	kcal/day required		Coefficient	
	Female	Male	Female	Male
1–2	850	950	0.29	0.32
2–3	1,050	1,125	0.36	0.38
3–4	1,150	1,250	0.39	0.42
4–5	1,250	1,350	0.42	0.46
5–6	1,325	1,475	0.45	0.50
6–7	1,425	1,575	0.48	0.53
7–8	1,550	1,700	0.53	0.58
8–9	1,700	1,825	0.58	0.62
9–10	1,850	1,975	0.63	0.67
10–11	2,000	2,150	0.68	0.73
11–12	2,150	2,350	0.73	0.80
12–13	2,275	2,550	0.77	0.86
13–14	2,375	2,775	0.81	0.94
14–15	2,450	3,000	0.83	1.02
15–16	2,500	3,175	0.85	1.08
16–17	2,500	3,325	0.85	1.13
17–18	2,500	3,400	0.85	1.15
19–30 ^a	2,550	3,050	0.86	1.03
30–60^a	2,400	2,950	0.81	1.00
>60 ^a	2,200	2,450	0.75	0.83

Source: FAO, *Human Energy Requirements, Report of a Joint FAO/WHO/UNU Expert Consultation, Rome, 17–24 October 2001*.

^a For these age ranges, we used the median weight (65kg for female and 70kg for male) and the basal metabolic rate of 1.75 for a moderate PAL implied by a normal lifestyle.

3.2 Retrieving information on calorie consumption

How many calories does the household consume? This information is usually not included in household income and expenditure surveys. Therefore, to calculate the calorie intake of each household, we must retrieve information on the caloric value of each food items

present in the database using secondary data. The FAO provides food composition tables and databases for various countries and region. In the case of Ethiopia, we used the FAO Food Composition Table for Use in Africa.⁹ Appendix I shows the calories of each food item included in the *Ethiopian Socioeconomic Survey, 2015–2016*. We included this information in the database, so we could calculate the calorie intake for each household.

3.3 Constructing and adjusting the reference food basket

Next, we have to construct a reference food basket that satisfies the calorie requirement defined in section 3.1, while simultaneously reflecting national tastes and preferences. That is, the basket should be pertinent and reflect the consumption habits of households in the country. Food constitutes one of the oldest cultural practices of the human being. Conditioned by many environmental, seasonal and cultural factors, the way in which the food basket is composed can be arranged in a broad variety of different ways. Large countries – such as Ethiopia, with an estimated population of 117.9 million¹⁰ – have great diversity in the composition of food baskets in the country. This imposes another limitation to the normative approach based on a predetermined diet.

Thus, when we simulate a reference food basket that satisfies the calorie requirements at minimised cost, we use the procedure described below.

First, we partition households into quintiles based on their total monthly expenditure per adult equivalent,¹¹ which is calculated for each household in the survey. For each quintile, the average calorie intake per male adult equivalent (using AEEI) per day is also calculated. Having converted all household members into male adults (aged 30–60 years), those households with a daily calorie intake per adult equivalent lower than 2,950 kcal do not fulfil the FAO/WHO requirement, as defined in section 3.1.

The methodology is based on the quintile distribution constructed using the monthly household's expenditures per adult equivalent. Although this methodology could also have been applied using income distribution, we used expenditure distribution because: (a) most countries prefer to use data on expenditures to measure poverty (according to a survey by the United Nations Statistics Division of 84 countries, almost half base their poverty calculations on expenditure data, while about 30 per cent base the calculations on income data only and 12 per cent use both; and (b) statistical issues reinforce the advantages of using expenditure rather than income data due to the ease and reliability of data collection¹² since incomes are often underestimated when compared to expenditures. For example, in some of the surveys (mostly in African countries) the income section is not available or is difficult to aggregate.

As table 1 shows, even though on average households in quintile 1 do not satisfy the calorie requirement, quintile 2 average calorie intake is the closest to the 2,950 kcal benchmark in 2018. As a result, we use these households to construct a reference food basket that yields 2,950 kcal per adult equivalent per day. This is presumably an inexpensive way of attaining 2,950 kcal since this basket reflects the consumption behaviour of relatively poor households in quintile 2 of Ethiopia's household expenditure distribution (per adult equivalent). In other words, it is likely that richer households will have more expensive ways of consuming 2,950 kcal (with more meat, higher quality or greater variety of food items, for example).

Since the calorie consumption of quintile 2 averaged 2,642.3 kcal rather than the targeted 2,950 kcal, an adjustment is required. The quantities consumed were “artificially” increased by a small amount to provide exactly 2,950 kcal. This is done by multiplying the average quantities

⁹ FAO, “[Food Composition Table for Use in Africa](#)”, 1968.

¹⁰ UNFPA, “[World Population Dashboard: Ethiopia](#)”.

¹¹ In this case, the adult equivalence scale provided by the OECD is used to adjust all expenditure values.

¹² United Nations Statistics Division, [Handbook on Poverty Statistics: Concepts, Methods and Policy Use](#), 2005.

► **Table 2: Average monthly household expenditure per adult equivalent by category and quintiles (in Ethiopian birr), 2018–2019**

Quintile ^a	Total expenses ^b	Food expenses ^b	% food of total expenditure	Household size	Calories per adult equivalent (kcal)
1	1,729.96 (954)	1,370.66	79%	5.80	1,808
2	2,733.56 (1,053)	2,144.28	78%	5.02	2,642
3	3,828.52 (1,177)	3000.48	78%	4.82	3,467
4	5,180.06 (1,449)	3899.58	75%	4.42	3,967
5	8,494.97 (2,135)	5935.71	70%	3.35	4,796
Total	4,391.47 (6,768)	3268.82	74%	4.68	3,335

Source: ILO estimates based on *Ethiopian Socioeconomic Survey, 2018–2019*.

Note: the number of observations is indicated in parentheses. ^a Quintiles are constructed using monthly household's expenditures per adult equivalent. ^b Nominal values.

► **Table 3: Adjustment of consumed quantities for the food basket based on households in quintile 2, 2018**

Quintile 2	Quantity consumed per day (unadjusted) (Kg)	Calories consumed per day (unadjusted) (kcal)	Quantity consumed per day (adjusted) (Kg)	Calories consumed per day (adjusted) (kcal)	Protein consumed per day (adjusted) (kcal)	Fat consumed per day (adjusted) (kcal)	Daily prices (Br) ^a
Cereals and grain products	0.52	1,826.66	0.58	2,039.41	59.08	20.02	10.32
Pulses and nuts	0.07	211.21	0.08	235.80	16.19	2.91	2.46
Seeds	0.00	9.81	0.00	10.95	0.41	0.81	0.13
Vegetables	0.30	140.69	0.34	157.08	7.80	2.25	3.57
Fruits	0.02	19.16	0.02	21.39	0.25	1.11	0.51
Tubers and stems	0.15	185.34	0.16	206.93	2.46	0.26	2.09
Meat, poultry and fish	0.04	180.58	0.05	201.61	0.35	16.45	1.96
Milk and milk products	0.03	26.84	0.03	29.96	1.75	1.91	1.12
Other	0.03	4.41	0.04	4.92	0.04	0.00	3.44
Beverages and stimulants	0.01	37.57	0.01	41.95	1.55	0.68	0.40
Total	1.18	2,642.26	1.32	2,950.00	89.87	46.41	26.02

Source: ILO estimates based on *Ethiopian Socioeconomic Survey, 2018–2019*.

^a Br = Ethiopian birr.

of each food item consumed by the households in quintile 2 by the adjustment coefficient ($2,950/2,642.3$), which is approximately equal to 1.116. This adjustment is described in table 3. The cost of the food basket for quintile 2 is estimated at about 791.41 Ethiopian birr (Br).

However, as can be seen from table 3 and comparing estimates to the threshold values of nutritional requirements in term of calories, protein and fat provided in table 4, adjusting quantities consumed by households in quintile only allows caloric requirements to be met, while failing to fulfil nutritional requirements in terms of fat intake recommended by the WHO/FAO. Considering a total calorie consumption of 2,950 kcal per day, the nutritional values should be in the range of 49–115 g for fat and not less than 52.2 g for protein. While the quantity of proteins (89.87 g) provided by the adjusted food basket exceed the minimum requirements for proteins set by the WHO/FAO, that of fat (46.41 g) fails to fall within the recommended range. This means that the food basket based on the consumption of households located in quintile 2 of expenditures distribution fails to satisfy all nutritional requirements and thereby cannot be used as the reference food basket.

► **Table 4: Threshold value of nutritional requirements–2019**

	Calories (kcal)	Protein (g)	Fat (15-35%)	
			Minimum fat (g)	Maximum fat (g)
Threshold	2,950	52.2	49	115

Source: FAO/WHO.¹³

Note: Requirements for fat range between 15 and 35 per cent of the calorie consumption. Therefore, with a total calorie consumption of 2,950 per day, between 443 and 1,032 calories should come from fat. As there are 9 calories in 1 g of fat, we divide these numbers to convert these requirements into grams and end up with requirements of fat ranging from 49 g to 115 g per day.¹⁴ The protein threshold refers to the safe level of protein intake set by the FAO for an individual of 70 kg, which correspond to the weight selected for the male adult. See WHO, *Energy and Protein Requirements, Report of a Joint FAO/WHO/UNU Expert Consultation*, 1985, Ch. 8.

Consequently, the food basket of households in the next higher quintile (quintile 3) is selected as a potential candidate to be the reference food basket and tested to verify if it satisfies the nutritional requirements when the quantities consumed are adjusted to provide exactly 2,950 kcal per adult equivalent per day. Because the calorie consumption of quintile 3 averaged 3,466.6 kcal, which is greater than the requirements of 2,950 kcal, the quantities consumed for each item are adjusted to be reduced by an adjustment coefficient of ($2,950/3,466.6$) (see table 5). As was the case for quintile 2, the food basket using quintile 3 also fails to meet nutritional requirements.

Again, the next higher quintile is considered as the next potential candidate to be the reference food basket, namely quintile 4, which provides a calorie consumption of 3,967.4 kcal per adult equivalent per day on average. Its consumed quantities are then reduced by an adjustment coefficient of ($2,950/3,967.4$) to provide exactly 2,950 kcal. As table 6 shows, the adjusted quantities of that food basket satisfy both the caloric requirement of 2,950 kcal per day per adult equivalent and the nutritional requirements for fat (52.18 g) and protein (88.01 g). The food basket of quintile 4 is therefore selected as a reference for the construction of the food basket. The cost of the food basket for that reference quintile is estimated at around Br975,73 which is 23.3 per cent more expensive than the food basket for quintile 2, which remains the quintile in which the average calorie intake is the closest to the calorie requirements. This is important to keep in mind for the remainder of the methodology, in particular for the estimation of health, education and other essential goods and services, which uses the reference quintile identified on the basis of calorie consumption as a starting point.

¹³ FAO, *Fats and Fatty Acids in Human Nutrition: Report of an Expert Consultation, Geneva, 10–14 November 2008*, 2010.

¹⁴ WHO, *Energy and Protein Requirements: Report of a Joint FAO/WHO/UNU Expert Consultation*, 1985, Ch. 8

► **Table 5: Adjustment of consumed quantities for the food basket based on households in quintile 3, 2018–2019**

Quintile 3	Quantity consumed per day (unadjusted) (Kg)	Calories consumed per day (unadjusted) (kcal)	Quantity consumed per day (adjusted) (Kg)	Calories consumed per day (adjusted) (kcal)	Protein consumed per day (adjusted) (kcal)	Fat consumed per day (adjusted) (kcal)	Daily prices (Br) ^a
Cereals and grain products	0.67	2,326.95	0.57	1,980.19	57.15	19.56	10.11
Pulses and nuts	0.09	251.74	0.07	214.23	14.55	2.86	2.44
Seeds	0.00	9.09	0.00	7.74	0.30	0.57	0.10
Vegetables	0.36	165.15	0.31	140.54	6.79	1.94	3.39
Fruits	0.02	20.74	0.02	17.65	0.20	0.58	0.46
Tubers and stems	0.22	277.33	0.19	236.00	2.82	0.30	2.69
Meat, poultry and fish	0.06	276.10	0.05	234.96	0.57	18.00	2.39
Milk and milk products	0.04	42.53	0.04	36.19	1.83	2.47	1.36
Other	0.05	3.91	0.04	3.33	0.04	0.00	3.52
Beverages and stimulants	0.04	93.04	0.03	79.18	2.95	1.54	0.83
Total	1.55	3,466.59	1.32	2,950.00	87.20	47.83	27.28

Source: ILO estimates based on *Ethiopian Socioeconomic Survey 2018–2019*.

^a Br = Ethiopian birr.

► **Table 6: Adjustment of consumed quantities for the food basket based on households in quintile 4, 2018–2019**

Quintile 4	Quantity consumed per day (unadjusted) (Kg)	Calories consumed per day (unadjusted) (kcal)	Quantity consumed per day (adjusted) (Kg)	Calories consumed per day (adjusted) (kcal)	Protein consumed per day (adjusted) (kcal)	Fat consumed per day (adjusted) (kcal)	Daily prices (Br) ^a
Cereals and grain products	0.68	2,377.31	0.50	1,767.68	51.49	16.63	9.75
Pulses and nuts	0.11	318.39	0.08	236.74	15.92	3.46	2.85
Seeds	0.00	10.99	0.00	8.18	0.32	0.61	0.10
Vegetables	0.44	196.75	0.33	146.30	6.88	2.02	3.74
Fruits	0.04	32.59	0.03	24.24	0.28	0.65	0.72
Tubers and stems	0.30	374.99	0.22	278.83	3.30	0.33	3.47
Meat, poultry and fish	0.09	388.88	0.07	289.15	1.75	22.78	3.93
Milk and milk Products	0.06	64.15	0.05	47.70	2.66	3.17	1.78
Other	0.06	6.71	0.05	4.99	0.04	0.00	4.13
Beverage and stimulants	0.08	196.63	0.06	146.20	5.36	2.53	1.61
Total	1.86	3,967.39	1.39	2,950.00	88.01	52.18	32.08

Source: ILO estimates based on *Ethiopian Socioeconomic Survey, 2018–2019*.

^a Br = Ethiopian birr.

3.4 Estimating the cost of the reference food basket for a reference family size

Implicitly, our reference food basket is a slightly adjusted average basket for a household in quintile 4 of the monthly total expenditure per adult equivalent. In order to convert these quantities into monetary terms, we now need to calculate the price of each food item.

To do this, we divide the expenditures for each food item by the quantity consumed. Then, for each household, an implicit price is assigned to each food item so that we can estimate the monetary value of monthly food consumption. Once these food prices have been computed at the household level, the national median price of each food item is used to calculate the cost of the constructed reference food basket. Using the national median price allows us to take into account the fact that the poorest households likely buy their food items from the markets with the lowest prices.

The estimation results are shown in table 7, which shows that the monthly cost of a food basket that satisfies the calorie as well as the protein and fat requirements for 1 male adult aged 30–60 is approximately equal to Br976.

► **Table 7: Basket of food items that yields 2,950 calories per day, 2018–2019**

	Quantity per month (Kg)	Calories per month (kcal)	Monetary value per month (Br) ^a	% of total calorie	% of expenditure
Cereals and grain products	15	53,767	297	59.92%	30.39%
Pulses and nuts	2	7,201	87	8.03%	8.89%
Seeds	0	249	3	0.28%	0.31%
Vegetables	10	4,450	114	4.96%	11.67%
Fruits	1	737	22	0.82%	2.23%
Tubers and stems	7	8,481	105	9.45%	10.81%
Meat, poultry and fish	2	8,795	120	9.80%	12.25%
Milk and milk products	1	1,451	54	1.62%	5.56%
Other	1	152	126	0.17%	12.88%
Beverages and stimulants	2	4,447	49	4.96%	5.01%
Total	42	89,729	976	100%	100%

Source: ILO estimates based on *Ethiopian Socioeconomic Survey, 2018–2019*.

^a Br = Ethiopian birr.

At this stage, we have the cost of a basic but adequate food basket that is capable of covering the needs of 1 male aged 30–60. However, this does not provide any insight into the estimated food costs for households or family structures. Family size and composition are an important consideration in the calculation. Should we use average household size according to the censuses? Or what should be the typical household size? Or is there a referential household?

To estimate the total cost of food for a representative family size in our population of interest, we first calculate the average size of households in each quintile, as provided in section 3.3, as

well as the corresponding AEEI.¹⁵ As table 8 shows, the poorest families tend to be larger than richer families and therefore the basic needs of families in the lowest quintiles may be greater.

To remain pragmatic and ensure that needs-based wage levels sufficiently reflects the needs of workers and their families for a realistic household size, needs are estimated for the national average family size rounded up to the nearest whole number. In the case of Ethiopia, needs-based wage levels are assumed to cover the needs of a family of 5, which is the closest family size to the average in the country (4.68). Using the AEEI equivalence scale, the cost of food for a family of 5 corresponds to that of 3.86 adults equivalent in terms of calorie requirements in 2018 according to table 9, which also provides the adult equivalent scale based on the slightly lower OECD methodology that will be used in the following sections on housing expenditure and other expenditure groups.

► **Table 8: Average size of households and average male adult equivalent household size per quintile, 2018–2019**

Quintile	Average household size	Average adult equivalent household size (using AEEI)	Average no. of wage workers in the household ^a	Average no. of full-time working adults in the household ^b	Average no. of employed adults in the household
1	5.80	4.45	1.06	0.96	1.52
2	5.02	3.89	1.18	0.96	1.43
3	4.82	3.71	1.12	1.08	1.38
4	4.42	3.45	1.26	1.14	1.37
5	3.35	2.72	1.25	1.14	1.15
Total average	4.68	3.64	1.21	1.05	1.37

Source: ILO estimates based on *Ethiopian Socioeconomic Survey, 2018–2019*.

^a Quintile distribution for households with at least 1 wage worker. ^b Quintile distribution for households with working adults in the household.

► **Table 9: Adult equivalent figures for different household sizes**

Household size	1	2	3	4	5	6	7	8	9	10
Average adult equivalent (OECD)	1.00	1.64	2.20	2.76	3.30	3.83	4.38	4.90	5.44	6.07
(AEEI)	0.90	1.74	2.41	3.10	3.86	4.60	5.34	6.10	6.80	7.75

Source: ILO estimates based on *Ethiopian Socioeconomic Survey, 2018–2019*.

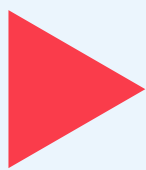
Finally, table 10 shows that the estimated monthly cost of a food basket that covers the calorie as well as the protein and fat requirements for a family of 5 in Ethiopia is Br3,770 in 2018.

¹⁵ For more information, see Appendix II, table 25, which shows the corresponding average male adult equivalent using the AEEI and the OECD equivalence scales for each whole family size.

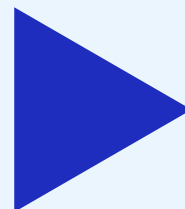
► **Table 10: Monthly cost of food needs for a family of 5 with their respective adult equivalents (in Ethiopian birr), national estimates, 2018–2019**

	Monthly cost of food basket that yield 2,950 kcal per day	Average no. of adult equivalents per household	Monetary value per month
For a family of 5 (equivalent on average to 3.86 adult equivalents)	976	3.86	3,770

Source: ILO estimates based on *Ethiopian Socioeconomic Survey, 2018–2019*.



4 Cost of housing



► 4. Cost of housing

After food, housing is the largest expenditure group for workers in developing countries (Anker and Anker 2017). And for good reason since the lifestyle and well-being of family members are significantly influenced by the quality of their dwelling. At the same time, housing has an environmental impact owing not only to the use of natural resources and land when constructing properties, but also to the associated energy requirements to enable the use of household utilities (water and electricity, for instance) (UN-Habitat 2018).

Adequate and decent housing is a universal human right, recognized at the international level and in more than 100 national constitutions throughout the world. A secure place to live is also intrinsic to human dignity, as well as physical and mental health. According to Habitat for Humanity (2019), decent housing has the capacity to remove barriers to opportunity, success and health and more generally to improve individuals' quality of life. As a result, access to adequate, safe and affordable housing that ensures the provision of basic housing services is a key priority of the 2030 Agenda for Sustainable Development. This objective is perhaps most explicitly reflected in Sustainable Development Goal 11, "Make cities and human settlements inclusive, safe, resilient and sustainable".

Yet globally, inadequate housing remains widespread. It is estimated, for instance, that 3 billion people (40 per cent of the world's population) are in need of access to decent housing. What is more, this figure continues to grow as an estimated 96,000 new dwellings are needed every day.¹⁶ Moreover, millions of people worldwide live in extremely poor living conditions, such as overcrowded and informal settlements. It is therefore necessary to ensure that workers earn a wage sufficient to cover the cost of decent housing.

In this section, we introduce our methodology for estimating the housing expenditure category of a minimum wage that adequately covers the needs of workers and their families. Using a scoring system based on international housing criteria, we calculate separately

- (a) *Monthly cost of a dwelling* – estimated using available information on rent. Actual rent paid was used for households that rent their dwelling and an imputed value of the rent was used for households that own their dwelling; and
- (b) *Monthly cost of household utilities* – including water, electricity, waste and phone utilization.

Once the two housing cost components have been computed, we sum up these elements and arrive at an estimated total cost for decent housing.

After estimating the cost of basic housing, we explore the distribution of rent paid across regions and sub-groups to have a better picture of the actual expenditure on housing and how these results compare to average and median housing expenditures.

4.1 Rent

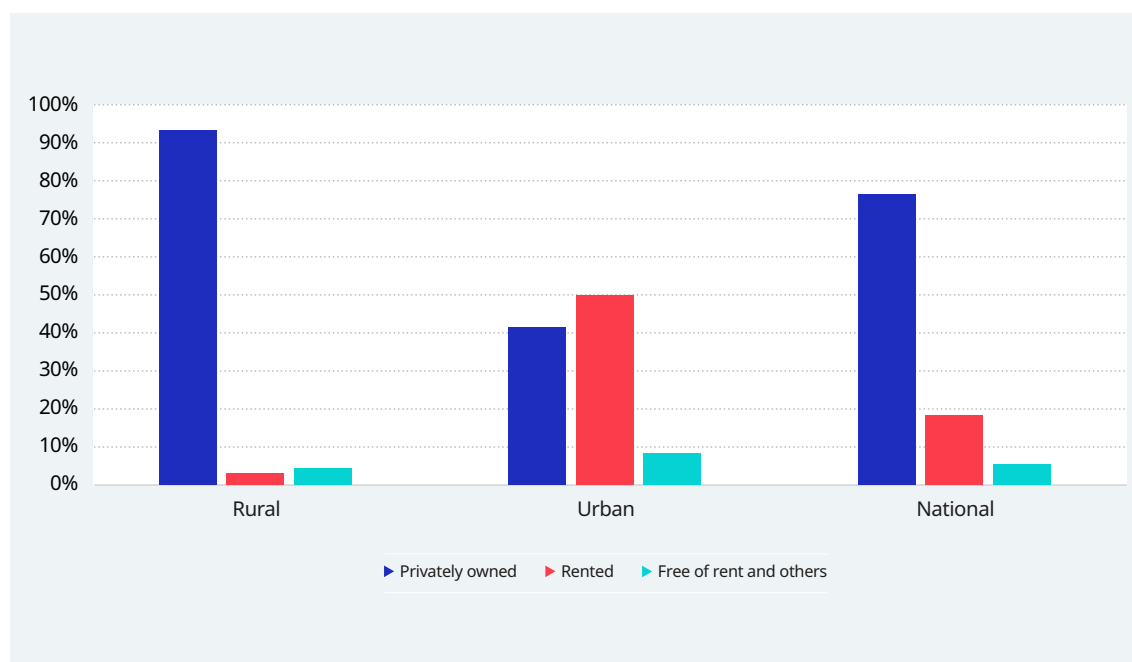
In the case of Ethiopia, the section on housing of the Ethiopian Socioeconomic Survey includes a significant set of indicators on the quality of the dwelling. This section includes information on the type of occupancy of the dwelling; the rent (if any); the number of persons per room; the materials of the walls, roof and floors; the type of kitchen; the characteristics of the toilet facilities, and the access to water.

Nationally, the majority of the Ethiopian population own their dwellings and only a small proportion rent them, as shown in figure 2. However, there are significant disparities

¹⁶ See UN-Habitat website, <https://unhabitat.org/>.

between rural and urban areas. While about 93 per cent of rural households appear to be homeowners, this figure falls to about 42 per cent in urban areas, with a national average of 77 per cent.

► **Figure 2: Percentage of households renting their dwellings, rural and urban areas, 2018–2019**



Source: ILO estimates based on *Ethiopian Socioeconomic Survey, 2018–2019*.

Only about 18 per cent of households rent their dwelling at the national level, with a share of 3 per cent and 50 per cent, respectively, in rural and urban areas. For those households renting their dwellings, the rent values can be found directly in the survey for a total of 1,685 households in 2018/2019.

Tables 11 and 12 show that there is considerable geographical heterogeneity in terms of the average cost of the estimated monthly rent in Ethiopia. Median monthly rent per adult equivalent in urban areas (Br208.33) is estimated to be more than twice the cost of rents in rural areas (Br90.91), with a national average of Br200. Even greater disparities are evident in median monthly rents per adult equivalent across the different regions of Ethiopia, which range from Br147 in Amhara to Br676 in Addis-Ababa, the capital city.

► **Table 11: Average and median rents by household and per adult equivalent (in Ethiopian birr), urban and rural areas, 2018–2019**

	Average monthly rent	Median monthly rent	Average monthly rent per adult equivalent	Median monthly rent per adult equivalent	Number of observations
Rural	224.59	200	116.91	90.91	105
Urban	861.39	400	431.12	208.33	1,580
National	794.47	350	398.10	200.00	1,685

Source: ILO estimates based on *Ethiopian Socioeconomic Survey, 2018–2019*.

► **Table 12: Average and median rents by household and per adult equivalent (in Ethiopian birr), by region, 2018–2019**

Region	Average monthly rent	Median monthly rent	Average monthly rent per adult equivalent	Median monthly rent per adult equivalent	Number of observations
Tigray	872	300	418	200	192
Afar	602	350	395	222	97
Amhara	452	270	244	147	160
Oromia	404	300	222	170	138
Somalie	962	600	422	294	30
Benshagul Gumuz	301	300	185	156	91
SNNP ^a	752	350	358	235	115
Gambelia	605	400	319	200	102
Harari	816	600	450	353	150
Addis Ababa	2080	1300	996	676	425
Diredwa	705	600	402	300	185

Source: ILO estimates based on *Ethiopian Socioeconomic Survey, 2018–2019*.

^a SNNP = Southern Nations, Nationalities, and Peoples' Region.

Another cause of disparities in monthly rents is the presence of wage-earners in a household. In the context of minimum wage fixing, households with at least 1 wage-earner may face needs directly related to their employment status. For example, with respect to housing expenditure, they may have to live in areas that are more expensive due to their job location. Moreover, they represent the direct beneficiaries of the minimum wage policy. Therefore, table 13 shows the average and median monthly housing expenditures paid by households comprising at least 1 wage-earner versus households without a wage-earner. Because of the rural/urban disparities observed, estimates are disaggregated. It can be seen that rents paid by households with at least 1 wage-earner are higher than those paid by households without a wage-earner in 2018, with greater differences observed in urban areas.

► **Table 13: Average and median monthly housing expenditures (in Ethiopian birr) by household and per adult equivalent, by type of household, 2018–2019**

		Average monthly rent	Median monthly rent	Average monthly rent per adult equivalent	Median monthly rent per adult equivalent	Number of observations
Rural	Households without wage-earners	214	200	105	91	83
	Households with at least 1 wage-earner	261	300	158	114	22
Urban	Households without wage-earners	777	350	397	200	899
	Households with at least 1 wage-earner	996	450	485	294	681

Source: ILO estimates based on *Ethiopian Socioeconomic Survey, 2018–2019*.

After the preceding analyses, we proceed to the estimation of the cost of decent housing in Ethiopia. An important first step involves assessing the quality of each houses in the sample. One way to do this requires devising and implementing a scoring system that is based on the quality of housing characteristics. This information is available in the *Ethiopian Socioeconomic Survey, 2018–2019*. We then use the relationship between the quality of housing and the cost of rent to estimate the cost of decent housing, which is identified based on national and international standards for decent housing characteristics.

Assessing the level of decency of a dwelling

The first step consists of selecting the indicators needed to identify a decent dwelling. In this regard, the methodology builds around four key dimensions used by UN-Habitat in the definition of what constitutes a slum, which is the most widely used definition worldwide. According to this definition, a slum consists of a household or a group of people living under the same roof and lacking one or more of the five characteristics listed in table 14. As most countries do not include information on tenure in their income and expenditure survey, our methodology excludes this dimension from the analysis. Therefore, we focus on four of the five categories – durability, living space, access to water and access to sanitation facilities.

► Table 14: Five key dimensions for identifying slums

Durability of dwellings	A dwelling is considered durable if it is built on a non-hazardous location and has a structure that is permanent and adequate enough to protect its inhabitants from the extremes of climatic conditions such as rain, heat, cold and humidity.
Sufficient living area	A dwelling is considered to provide a sufficient living area for the family members if not more than three people share the same room.
Access to safe water	A household is considered to have access to improved water supply if it has sufficient amounts of water for family use, at an affordable price, available to household members without being subject to extreme effort, especially for women and children.
Access to sanitation	A household is considered to have adequate access to sanitation if an excreta disposal system, in the form of either a private toilet or a public toilet shared with a reasonable number of people, is available to household members.
Tenure security	De facto or de jure secure tenure status and protection against forced eviction

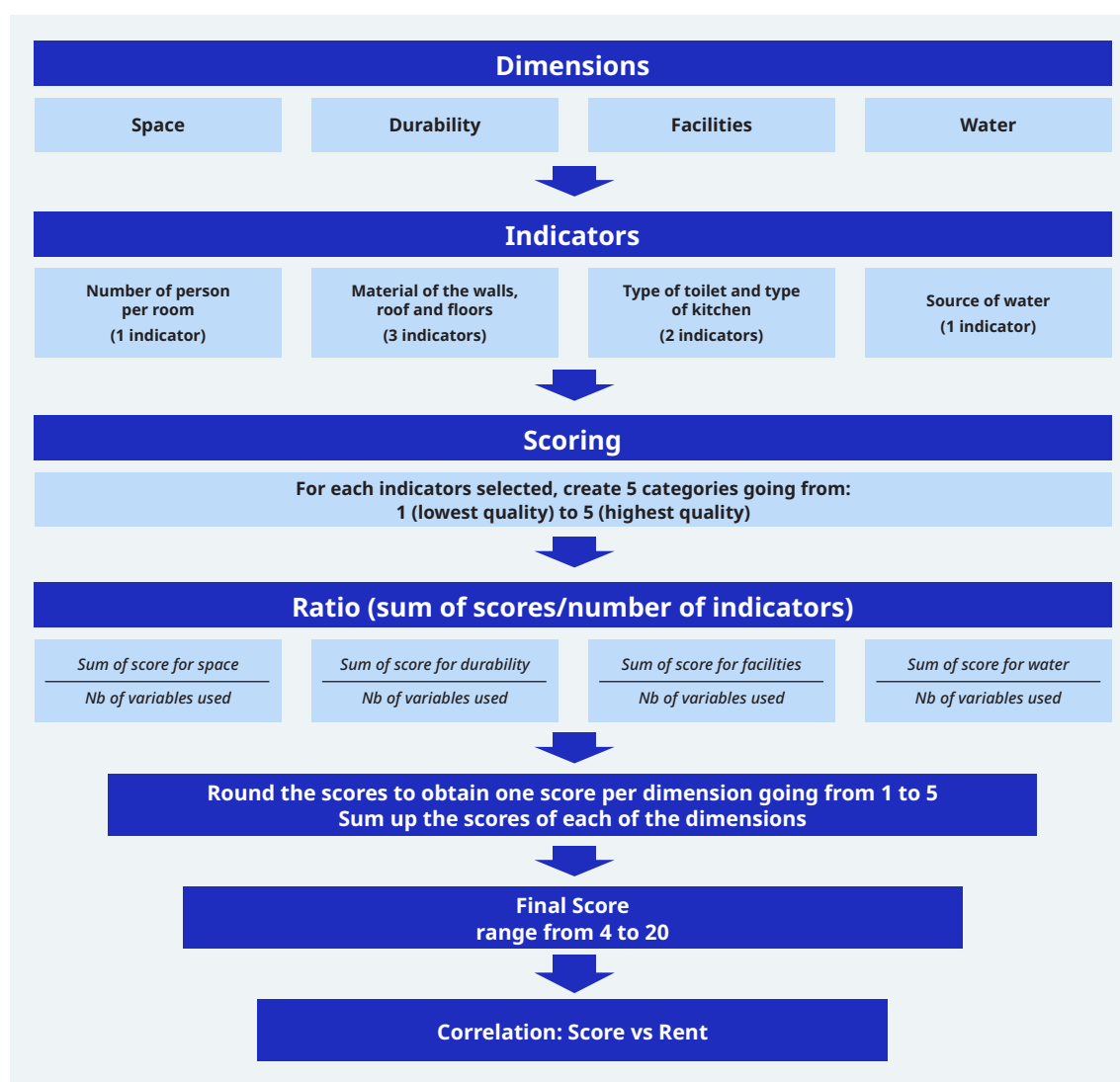
Source: UN-Habitat (2006; 2011; 2014).

We then use a scoring system to assess the quality of the houses based on the information provided in Income and Expenditure Surveys. The variables available include: the number of persons per room; materials used for walls, floors and roofs; types of kitchen; types of toilet facilities; and the water access source. It is important to acknowledge that although most income and expenditure surveys provide information on housing characteristics, questionnaires can differ by country which may result in discrepancies across countries

in the number and type of variables employed to estimate decent housing. Our scoring system method is summarized in figure 3 and shows that the relevant indicators/variables are identified for each dimension. For example, to assess the durability of a house, one may use information on the material of the walls and roof, while estimating m2 per person is a viable way to assess the living space. It is important to note that even though multiple variables are often available for capturing the quality of some dimensions (for example durability), for other dimensions there may be only one (for example living space, facilities, water).

For each selected variable, we create five scores ranked from 1 to 5 (lowest to highest levels of quality). Table 15 summarizes the system used to create the score for each selected variable. For example, in the case of Ethiopia, “natural sources” are the lowest ranked material for both roofs, floors and walls, while “no facilities” are lowest ranked type of toilets, kitchen, and access to water source. In contrast, “blocks” and “cement” are respectively the best wall and roof material and “ceramic/ marble” the best material for floors. “Flush toilet”, “modern” and “piped water in the dwelling”, respectively, are the highest ranked types of toilet and kitchen and type of access to water source.

► Figure 3: Scoring system method to assess the quality of housing



► Table 15: Scoring system across housing dimensions and examples, 2018–2019

Coding system ^a (scoring)	Housing dimensions						
	Space	Durability			Facilities		Water
	No. of persons per room	Material of walls	Material of roof	Material of floor	Toilet	Kitchen	Source
1	Higher than 5	Natural sources ^b	Natural sources ^b	Natural sources ^b	No facilities	No kitchen	No facilities ^c
2	]3 ; 5]	Metal material ^d	Wood ^e /Plastic	Wood ^e	Pit latrine & no slab	N/A	Unprotected source ^f
3	]2 ; 3]	Wood ^e	Metal material ^d	Plastic	Pit latrine & slab	Traditional	Piped water in public space
4	]1.3 ; 2]	Stone / Asbestos	Asbestos	Brick / Cement	Pit latrine ventilated	N/A	Piped water near the dwelling
5	Less than or equal to 1.3	Blocks ^g	Cement ^h	Ceramic / Marble	Flush toilet	Modern	Piped water in the dwelling

Source: ILO estimates based on *Ethiopian Socioeconomic Survey, 2018–2019*.

^a Coding system: 1 (lowest quality) to 5 (highest quality). ^b Natural sources: bamboo, mud, reed, thatch, dung. ^c No facilities: rain, spring, surface water etc. ^d Metal material: iron sheets, zinc. ^e Wood: wood based material. ^f Unprotected source: dug/well/tanker-truck. ^g Blocks: unplaster/plaster with cement. ^h Cement= screed and tiles, concrete.

In order to evaluate each dimension equally, irrespective of the number of indicators available in the database, we divide the sum of scores by the number of indicators used. After rounding-up the sum, a score ranging from 1 to 5 is obtained for each dimension.

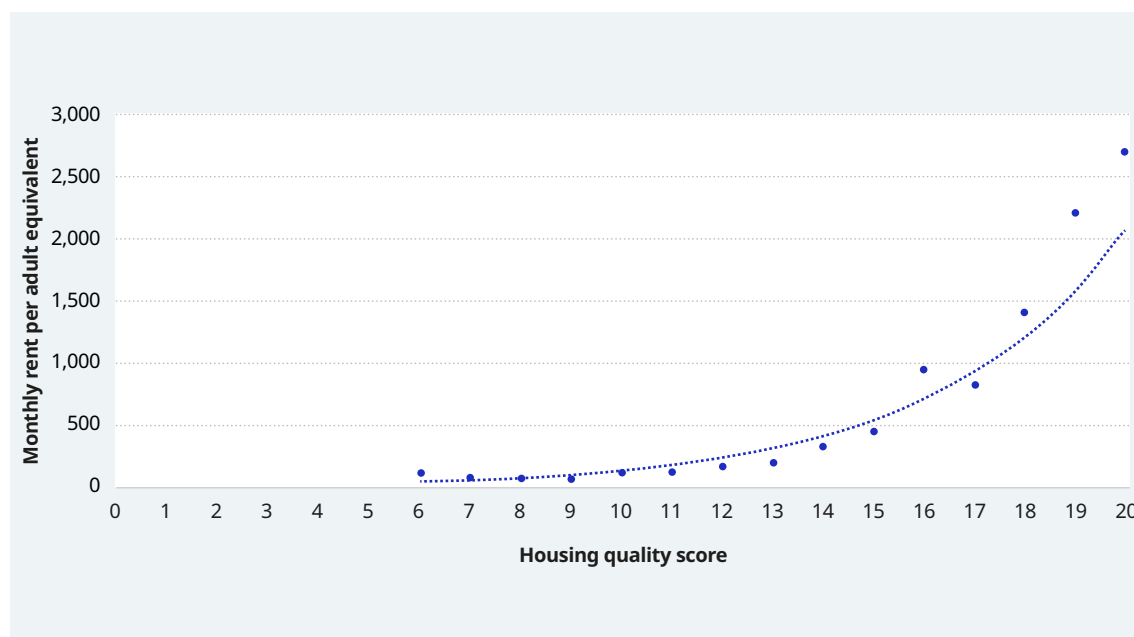
To arrive at a final housing quality score, the values of each dimension are summed. The final scores rank the quality of dwellings from 4 (minimum score in each dimension) to 20 (maximum score in all dimensions). For a given score, various combinations of housing characteristics are possible, a caveat of this approach is that it allows for compensation. This means that even though a dwelling may not have access to sanitation – which would technically classify it as a slum – it can still achieve an adequate score by performing very well in other dimensions. However, we assume that there are trade-offs between dimensions and households can in principle choose to reduce the quality of one dimension in exchange for improvements in another without increasing their housing budget.

The remainder of this methodology rests on the assumption that dwelling quality is the main determinant of household rent costs and, consequently, both variables should exhibit a strong positive correlation. We can test this assumption by estimating and charting the average cost of rent at each score level. As we can see in figure 4, in Ethiopia rent is positively correlated to the housing quality score of the dwelling and it follows a non-linear relationship. Using this relationship, we can estimate the monthly rent per adult equivalent for each level of housing quality scores. The final step is therefore to identify the minimum housing quality score that corresponds to a decent house and identify the corresponding rent level.

In the case of Ethiopia, as explained below, a score of 3 per housing dimension seems the minimum acceptable score, which represents a score of 12 in total for decent housing, as follows.

1. In terms of space, we follow UN-Habitat (2014), which provides that in a dwelling, not more than 3 persons should share the same room. This corresponds to dwellings with more than 2 persons and up to 3 persons per room (score of 3).
2. In terms of the durability of dwellings, for Ethiopia this is defined in terms of the type of material. According to UN-Habitat (2014), a dwelling should have a permanent and

► Figure 4: Monthly rent per adult equivalent (in Ethiopian birr) by housing quality score, 2018–2019



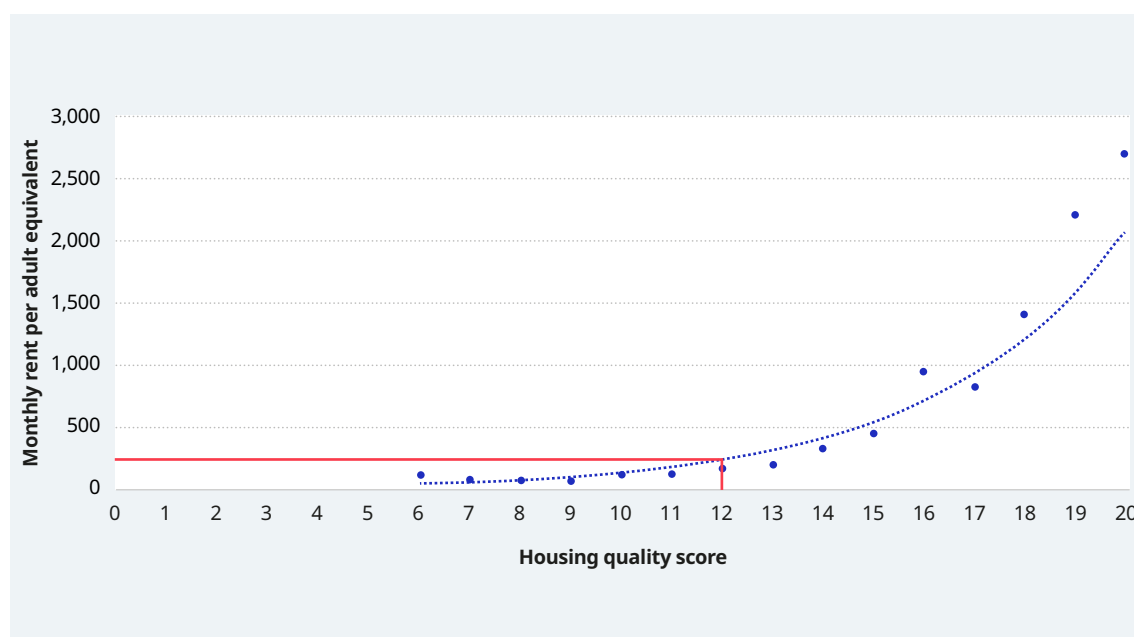
Source: ILO estimates based on *Ethiopian Socioeconomic Survey, 2018–2019*.

adequate structure that protects family members from extreme climatic conditions such as rain, heat, cold, and humidity. The structure should be permanent in terms of building material for walls, roof and floor (UN-Habitat 2014). For Ethiopia, the minimum quality material for a decent housing (score of 3) is represented by wood for walls, metal material for roofing and cement or plastic tiles for flooring.

3. In term of facilities, a family should have access to improved sanitation with an excreta disposal system, which can be either a private or a public toilet shared with a reasonable number of people, and should hygienically separate human waste from human contact. Therefore, a pit latrine with a slab is selected as the minimum decent housing threshold for toilets (score of 3) (table 15). This is in line with the threshold defined by UN-Habitat (2014), whereby improved facilities include flush/pour-flush toilets or latrines connected to a sewer, septic tank or pit, a ventilated improved pit latrine, a pit latrine with a slab or platform that covers the pit entirely, and composting toilets/latrines. Moreover, a traditional kitchen is considered as the minimum requirement for a decent housing (score of 3).
4. The minimum level for water access is represented by households with at least a standpipe available outside the dwelling (score of 3). This is in line with the minimum threshold defined by Anker and Anker (2017), which provides that safe water access must be in or near the house. Moreover, UN-Habitat (2014) states that households should have access to improved water supply with at least a public standpipe (table 15).

Having identified the total score of 12 as the minimum decent-housing standard for a house, the next step consists in identifying the associated cost of rent for a dwelling at this score from the fitted regression line. Rather than using the observed data points, the fitted regression line is preferable since it captures the estimated relationship between housing quality and cost of rent. Figure 6 shows that a house with a decent-housing score of 12 would cost about Br245 per month per adult equivalent in 2018, when analysing the national distribution.

► Figure 5: Monthly rent associated with the decent housing score (in Ethiopian birr), 2018–2019



Source: ILO estimates based on *Ethiopian Socioeconomic Survey, 2018–2019*.

► Table 16: Examples of dwellings across a range of housing quality scores, with respective monthly rents (in Ethiopian birr), 2018–2019

Final score	Monthly rent per adult equivalent ^a	Monthly rent for a family of 5	Example of house						
			No. of persons per room	Material of walls	Material of roof	Material of floor	Toilet	Kitchen	Water source
5	38	126	Greater than 5	Natural sources	Natural sources	Natural sources	No facilities	No kitchen	Rain, surface water
10	144	476	]2 ; 3]	Metal material	Wood/ plastic	Wood	Pit latrine & slab	Traditional	Unprotected source
11	188	621	]2 ; 3]	Metal material	Wood/ plastic	Wood	Pit latrine with slab	Traditional	Protected source
12	245	811	]2 ; 3]	Wood	Iron sheet	Plastic tiles	Pit latrine with slab	Traditional	Protected source
13	320	1,059	]2 ; 3]	Stone	Asbestos	Cement tiles	Pit latrine with slab	Traditional	Protected source
14	418	1,382	]1.3 ; 2]	Stone asbestos	Asbestos	Brick/cement	Pit latrine & slab	Traditional	Protected source
15	546	1,804	]1.3 ; 2]	Stone / asbestos	Asbestos	Brick/cement	Pit latrine & slab	Traditional	Piped water near the dwelling
20	2,068	6,833	Less than or equal to 1.3	Blocks	Cement	Ceramic / marble	Flush toilet	Modern	Piped water in the dwelling

Source: ILO estimates based on *Ethiopian Socioeconomic Survey, 2018–2019*.

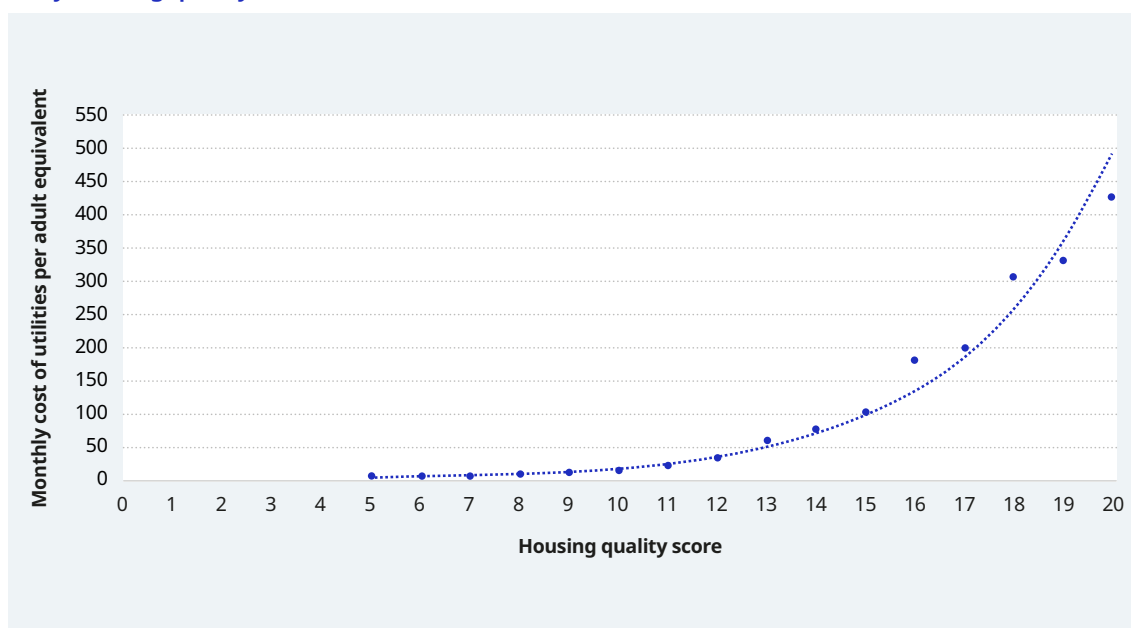
^a For a family of 3.30 adults equivalent (average of a family of 5 using the OECD equivalence scale).

What does a decent dwelling look like? Table 16 summarizes examples of dwelling characteristics for a range of housing quality score in Ethiopia. Different combinations of housing characteristics correspond to a particular score and monthly cost. Our minimum decent housing score of 12 is highlighted in red, for which the monthly rental value for a family of 5 using the OECD adult equivalent values, is Br811 in 2018 at the national level.

4.2 Utilities

Once we have constructed our scoring system for estimating the cost of renting a decent dwelling, obtaining the expected cost of utilities is relatively straightforward. We use the total expenditure on utilities for all households in the survey, which is the sum of the expenditures on water, waste, electricity, other sources of energy and other services at the household level¹⁷. As a second step, we calculate expected household utility costs by computing average utility costs for each housing quality score and retrieve the value that corresponds to the minimum decent housing score identified above, which is 12 (figure 6).

► **Figure 6: Monthly utilities expenditure per adult equivalent (in Ethiopian birr) by housing quality score, 2018**



Source: ILO estimates based on *Ethiopian Socioeconomic Survey, 2018–2019*.

Note: Based on a minimum decent housing score of 12, we calculate the mean utilities expenditure per adult equivalent for these households, with an exponential approximation.

After applying this methodology at the national level, we obtain the estimated cost of utilities for a decent dwelling. The results of this exercise are summarized in table 17 and show that the monthly cost of utilities per adult equivalent for a decent dwelling in Ethiopia is estimated at about Br39.36 per month.

¹⁷ Phone and Internet utilization were included in the communications group in expenditures on other essential goods and services.

► **Table 17: Estimated monthly cost of utilities for a family of 5 in a decent dwelling (in Ethiopian birr) , 2018–2019**

	Decent level score	Monthly cost of utilities per adult equivalent	Average number of adult equivalents per household ^a	Monetary value per month
National	12	39,36	3,30	130

Source: ILO estimates based on *Ethiopian Socioeconomic Survey, 2018–2019*.

^a Average number of adult equivalents per household is calculated using the OECD equivalence scale.

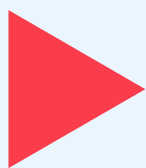
4.3 Estimation of the total cost of housing

Finally, summing the estimated rent and utilities costs for a decent housing, table 18 shows the total monthly cost of decent housing, including utilities, at the national level in Ethiopia, which averages Br941 for a family of 5 and using the OECD adult equivalence scale.

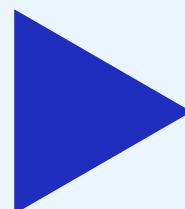
► **Table 18: Estimated monthly cost of decent housing for a family of 5 (in Ethiopian birr), 2018–2019**

Housing score	Monthly cost of rent	Monthly cost of utilities	Monthly cost of housing
12	811	130	941

Source: ILO estimates based on *Ethiopian Socioeconomic Survey, 2018–2019*.



5 Other expenditures



► 5. Other expenditures

We have explicitly defined our methodology for estimating the amount of required remuneration to ensure that workers and their families can adequately cover basic needs in the two largest expenditure categories. There are, however, other types of household expenses that are important in everyday life - and therefore cannot be omitted from the analysis. These include health and education and other essential goods and services and in this section we estimate their respective costs for a basic living standard.

In contrast to the food and housing expenditure categories and as mentioned in the overview of the methodology, the remaining expenses are computed *using a relative measure*.

5.1 Health and education

Good health is fundamental to human happiness and well-being, and it also makes invaluable contributions to economic progress, as healthy populations live longer, are more productive, and accumulate more savings. At the same time, education is central to sustainable development, it is a potent driver of development and one of the powerful instruments for alleviating poverty and regenerating health; it empowers people to be more productive, to make a better living and have a better quality of life, while also adding to a country's overall economic growth.

To estimate the cost of health and education, we first calculate the average monthly household expenditure per capita by quintile for 2018. Table 19 shows that spending on health and education is much lower for all quintiles at the national level than in urban areas. This is because access to health and education is scarce in rural areas and therefore a very high proportion of households in rural areas report zero expenditure on health and education, as a review of the household expenditure database reveals. Consequently, it was necessary to consider a change in the reference households, so that only households in urban areas are considered. Otherwise, including households living in rural areas would underestimate the needs of workers and their families for social benefits as important as health and education, which are fundamental human rights and central to human development.

► **Table 19: Average monthly spending on health and education per capita by quintile (in Ethiopian birr), national and urban estimates, 2018–2019**

Quintile	National		Urban	
	Health	Education	Health	Education
1	7	7	16	13
2	8	14	13	29
3	13	20	19	45
4	23	43	26	74
5	46	142	60	195
Total	19	42	37	104

Source: ILO estimates based on *Ethiopian Socioeconomic Survey, 2018–2019*.

Accordingly, the estimated costs related to health and education needs correspond to the average monthly expenditures per capita of the reference quintile. That reference quintile is the one identified earlier in the food section and in which the average calorie consumption is closest to the 2,950 kcal benchmark (quintile 2; see section 3.3). It should be noted that although quintile 4 has been used to estimate food needs, the reference quintile identified on the basis of calorie consumption as a starting point remains quintile 2, which is the reference to be considered for estimating the needs of workers in terms of health and education expenditures, as well as in terms of spending on other essentials.

To ensure that the estimated cost of health and education in Ethiopia is for a representative family size and takes into account household size, we multiply the estimated cost of health and education for a single member of the family by the number of persons present in the household as shown in table 20.¹⁸ This is equal to Br210 in 2018 for a reference family size of 5, when considering urban estimates. Unlike the estimation of food, housing and other essentials goods and services needs, the estimation of health and education needs uses per capita estimates rather than per adult equivalents because of the absence of economies of scale for such expenditures. Indeed, it doesn't seem appropriate to assume that an additional member in the family will spend less in term of health or education or that a child would spend less than an adult in these two categories. In fact, with respect to education, it is actually the opposite. However, for the sake of simplicity and so that the baseline methodology may be easily adaptable and applied, the same estimation method is used for health and education expenditures. This is why, all individuals in the family are considered equally for both expenditures through the use of per capita estimates.

► **Table 20: Monthly estimate of the cost of health and education and per capita and for a family of 5 (in Ethiopian birr), 2018–2019**

	Monthly cost of health and education – per capita	Average number of persons in a household	Monthly cost of health and education for a family of 5
National	22	5	109
Urban	42	5	210

Source: ILO estimates based on *Ethiopian Socioeconomic Survey, 2018–2019*.

5.2 Other essential goods and services

As was done for health and education, this section estimates the monthly cost of other essential goods and services, such as clothing, shoes, transportation, communications, durable goods, culture and leisure, and other services and expenses not related to consumption. Table 21 illustrates the distribution of average expenditure by quintile for 2018 in Ethiopia.

¹⁸ See section 2 for a description of equivalence scales and their use.

► **Table 21: Average monthly expenditure per adult equivalent on other essential goods and services per quintile (in Ethiopian birr), national estimates, 2018–2019**

Quintile	Other essential goods and services- adult equivalent (National)
1	65
2	108
3	169
4	262
5	531
Total	227

Source: ILO estimates based on *Ethiopian Socioeconomic Survey, 2018–2019*.

Note: Other essential goods and services expenditure does not include spending on tobacco and salaries for domestic workers.

As for the methodology used for health and education expenses, the average monthly expenditure of households in the reference quintile (quintile 2) is used here as a reference point to calculate the basic needs of other essentials. However, contrary to health and education expenditures, there is no need to consider only urban households for estimating the needs of workers in terms of other essential goods and services. At the national level, total needs for other essential goods and services, not related to health and education, amount to Br357 for a family of 5 in 2018 (see table 22).

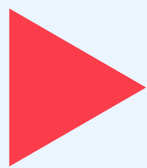
► **Table 22: Total cost estimate of other essential goods and services per adult equivalent and for a family of 5 (in Ethiopian birr), 2018–2019**

	Monthly cost of other essential goods and services - adult equivalent	Average number of adult equivalents per household	Monthly cost of other essential goods and services for a family of 5
National	108	3.30	357

Source: ILO estimates based on *Ethiopian Socioeconomic Survey, 2018–2019*.

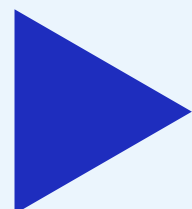


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6

A wage that meets
the needs of workers
and their families



► 6. A wage that meets the needs of workers and their families

Using the estimation of the costs of basic needs in terms of food, housing, health and education, and other essential goods and services calculated above, we can estimate the cost of basic needs for a family of 5 in Ethiopia in 2018. Table 23 shows that according to our estimates, at the national level an estimated Br 5278 per month is needed to cover the needs of a family of 5 in Ethiopia.

► **Table 23: Estimated needs for a family of 5 (in Ethiopian birr), 2018–2019**

	Food	Housing	Education	Health	Other essential goods and services	Total
National	3,770	941	143	67	357	5,278

Source: ILO estimates based on *Ethiopian Socioeconomic Survey, 2018–2019*.

In sum, table 24 shows the estimated monthly needs disaggregated by the main expenditure groups, as analysed above. These needs are presented as the monthly cost for families ranging from 2 to 5 members, as well as for 1 adult equivalent.

► **Table 24: Monthly cost of each expenditure category for families of 1 to 5 members (in Ethiopian birr), 2018–2019**

	Cost of needs for 1 adult equivalent	Cost of needs for a family of 2	Cost of needs for a family of 3	Cost of needs for a family of 4	Cost of needs for a family of 5
Total	1,411	2,424	3,339	4,281	5,278
<i>Food</i>	976	1696	2347	3,027	3,770
<i>Housing</i>	285	467	628	787	941
Rent	245	402	541	678	811
Utilities	39	65	87	109	130
<i>Other expenditures</i>	150	261	364	467	567
Health and education	42	84	126	168	210
Other essentials	108	177	238	298	357

Source: ILO estimates based on *Ethiopian Socioeconomic Survey, 2018–2019*.

Note: For reference, estimated needs for 1 member of the household are converted into those for the whole family using the AEEI scale for food and OECD scale for housing and other essentials (see table 9). For health and education, as those costs are given in per capita value there is no need to use equivalence scales and therefore the number of persons in the household is used.

Finally, when estimating a needs-based wage, the total cost for a household is defrayed over the number of full-time equivalent workers assumed to work in a household. To obtain an estimate of wage levels that meet the basic needs of workers and their families the total cost for a household is divided by the expected number of household full-time working adults. In contrast to family size, the assumption regarding the number of full-time workers has a reducing effect on needs-based wages. Household total costs are divided by the number of full-time workers assumed to be employed in the family. As for family size, determining the most realistic measure of working adults to be used as the denominator in the calculations is an important methodological choice that impacts the overall needs-based wage level.

Broadly, this choice relates to what constitute the most suitable measure of the number of full-time working adults to use as the denominator in the calculation. In the baseline methodology applied in this report, the number of full-time working adults is set normatively at 1.5 full time working adults per family of more than 1 person. This decision is made for various reasons. First, it allows the use of a number of working adults that is always between 1 and 2 working adults, which is a desirable result as argued by Anker and Anker (2017). Secondly, it appears to be an attractive assumption from a normative point of view as it allows for workers to carry out essential unpaid family work and avoids shifting the burden of low employment opportunities to employers. Thirdly, it appears relatively coherent with the empirical realities of the family of references observed based on the expenditure survey. Finally, it simplifies calculations and avoids having to estimate the number of full-time working adults which in some cases may be difficult to reliably assess through income and expenditure surveys, which are not designed to assess the status of labour markets. Also, in addition to the results based on the hypothesis of 1.5 working adults per family, we also include the extreme values of 1 working adult and 2 working adults in order to thereby provide a full range of needs-based wage levels that be relevant to minimum wage setting.

Accordingly, table 25 explores three scenarios for the number of working adults in the household: (a) 1 full-time worker; (b) 1.5 full-time working adults; and (c) 2 full-time workers. Depending on the different scenarios considered, the monthly salary required to cover the needs of the workers and their families varies significantly, from Br2,639 for scenario (c) to Br5,278 for scenario (a). For a family of 5 comprising 1.5 full-time working adults, Br3,519 would be necessary to cover their needs. This analysis highlights the importance of the underlying assumptions to be considered when defining the family size and the number of working adults expected to support a family.

► **Table 25: Needs-based wage-level estimate to cover the basic needs of a family of 5 (in Ethiopian birr), 2018–2019**

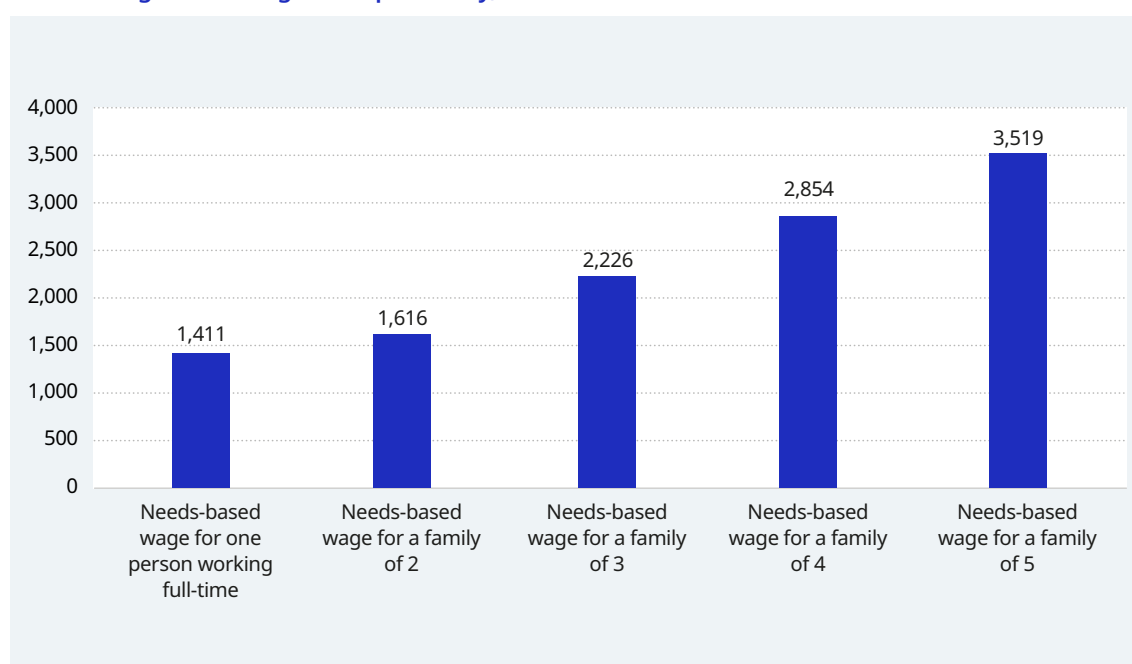
Scenarios	Monthly cost of basic needs for a family of 5	Number of minimum wage-earners in the family	Monthly wage needed to cover the needs of workers and their families
(a)	5,278	1	5,278
(b)	5,278	1.5	3,519
(c)	5,278	2	2,639

Source: ILO estimates based on *Ethiopian Socioeconomic Survey, 2018–2019*.

In estimating the needs-based wage for different family sizes and assuming 1.5 working adults for families of more than 1 member, we can observe that the needs-based wage ranges from Br1,411 per months for 1 individual working full-time to Br3,519 per month for a family of 5 with 1.5 adults working full-time (see figure 7). Furthermore, we observe that a family of 4 with 1.5 working adults would require a wage of Br2,854 to cover their needs. This

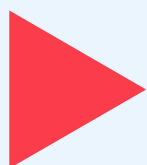
reflects the importance of the assumptions we consider when defining the reference family size. In Ethiopia, since there is no minimum wage system, the results cannot be compared to a minimum wage level.

► **Figure 7: Needs-based wage estimates for various family sizes (in Ethiopian birr), assuming 1.5 working adults per family, 2018–2019**

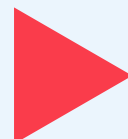
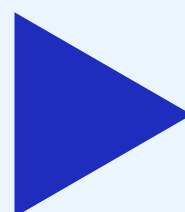


Source: ILO estimates based on *Ethiopian Socioeconomic Survey, 2018–2019*.

This study has provided estimates of the needs of workers and their families in Ethiopia that constitutes a solid basis for discussions in the context of minimum wage-setting. However, while doing so, it is important to remember that these results contribute to only one part of the criteria that need to be taken into account when setting minimum wage levels. This information needs to be balanced by the consideration of economic factors, including the requirements for economic development, levels of productivity and the desirability of attaining and maintaining a high level of employment. An appropriate balance between these two sets of considerations is essential to ensure that minimum wages are adapted to the national context and that both the effective protection of workers and the development of sustainable enterprises are considered. In this regard, the present report should be considered as complementary to the evaluation of a wide set of economic factors. This is particularly relevant given the current context of the global economic crisis that has emerged due to the COVID-19 pandemic.



Appendices



► Appendix I: Food composition of food items in Ethiopia

Food ID	kcal/100g	Protein	Fat	Carbs	Food ID	kcal/100g	Protein	Fat	Carbs
Teff	358	11	2.5	73	Ground nuts	567	20.4	43.2	20.3
Wheat	326	12.4	2.2	58.7	Other pulse or nut (SPECIFY)	567	20.4	43.2	20.3
Barley	361	9.8	2.8	76.2	Other seed (SPECIFY)	417	10.5	16	60.1
Maize	353	9	4.5	64.3	Green chili pepper (kariya)	321	14.2	12.6	23.1
Sorghum	344	10.5	3.3	63.1	Red pepper (berbere)	311	8.7	9.6	58.8
Millet	348	10.9	4.1	62.6	Greens (kale, cabbage, etc.)	28	1.6	0.1	3.9
Horse beans	300	26.1	1.8	31.7	Tomato	22	1	0.2	3.3
Field pea	324	20.4	1.9	47.8	Other vegetable (SPECIFY)	28	1.6	0.1	3.9
Chickpea	357	19.6	3.7	63.5	Orange	45	0.7	0.3	8.9
Lentils	297	25.4	1.8	29.4	Other fruit (SPECIFY)	56	1	0	11
Haricot beans	335	22.1	1.5	53.2	Sweet potato	115	1.5	0.2	25.3
Niger seed	483	17.3	33.9	34.2	Boye/yam	128	1.9	0.2	27.5
Linseed	498	18	34	37.2	Cassava	153	1.2	0.3	35.6
Onion	37	1.1	0.1	6.9	Godere	102	1.8	0.1	23.8
Banana	99	1.2	0.2	22.1	Other tuber or stem (SPECIFY)	43	1.4	0.1	10.5
Potato	80	1.9	0.1	16.9	Goat & mutton meat	165	17.5	10.6	0
Kocho	171	1.2	0.2	41.3	Beef	126	21.7	4.3	0
Milk	65	3.4	3.7	4.4	Poultry	134	20.4	5.9	0
Cheese	122	16.3	3.5	5.7	Fish	108	18	4	0
Eggs	139	12.6	9.5	0.7	Purchased Injera	136	4.4	0.9	29.8

Food ID	kcal/100g	Protein	Fat	Carbs	Food ID	kcal/100g	Protein	Fat	Carbs
Sugar	400	0	0	100	Purchased bread or biscuits	367	15.4	13.6	52.3
Salt	0	0	0	0	Pasta/macaroni	359	12.5	1.5	72
Coffee	2	0.1	0	0.5	other prepared food and consumed at home	352	7.8	2.2	73.8
Chat / Kat	0	0	0	0	Butter/ghee	720	0.8	79.6	0.2
Bula	225	0.2	0.1	55.4	Oils (processed)	900	0	100	0
Other cereal (SPECIFY)	352	7.8	2.2	73.8	Tea	0	0.1	0	0
Ground nuts	567	20.4	43.2	20.3	Soft drinks/soda	40	0	0	10
Other pulse or nut (SPECIFY)	567	20.4	43.2	20.3	Beer	35	0.3	0	2
Other seed (SPECIFY)	417	10.5	16	60.1	Tella	31	0.5	0	2.7

Source: ILO estimates based on *Ethiopian Socioeconomic Survey 2015-2016*, wave 3.

Note: Here we use the average price of calories for similar goods consumed by the same household to estimate the calorie intake. For example: we use the average price of calories obtained from pork, beef, buffalo, chicken and duck to estimate the calories obtained from "other meat".

For the cases in which no similar food items have been consumed in the household, we take the average of the population. For example: if a household has consumed only "other meat", we take the average price of calories obtained from pork, beef, buffalo, chicken and duck from all the household in the sample. In order to estimate the calories obtained from food away from home (FAFH), we compute the total amount spent on food divided by the total calories consumed. The price of those calories is then used to transform FAFH expenditure into calories.

► Appendix II: Supplementary tables

► Table 26: Threshold of decent housing based on UN-Habitat definition for slums

Space	Overcrowding can be expressed in terms of m ² available per capita or by the number of people per dwelling, per room or per bedroom. UN-Habitat defines overcrowding as those households with more than 3 persons per room.
Durability	"Durable housing" is generally defined as a "unit that is built on a non-hazardous location and has a structure permanent and adequate to protect its inhabitants from the extreme of climate conditions such as rain, heat, cold, and humidity". This is usually based on the material used for the construction of walls, roofs and floors. Permanent materials are considered (for example burnt brick, stones, concrete, tiles, and so on); and non-permanent (temporary) materials that are replaced frequently (for example grass, bamboo, leaves, mud and so on).
Facilities: sanitation	A household that has access to basic sanitation is defined as having sustainable access to safe, hygienic and convenient facilities for human excreta disposal. In urban areas, this is characterized by direct connection to a public, piped sewer; direct connection to a septic system; or access to pour-flush latrines or ventilated improved pit latrines.
Water accessibility	The water should be affordable and of sufficient quantity that it is available without excessive expenditure of effort and time. The household should have access to an improved water supply, with household connection, a public standpipe shared by a maximum of 2 households, a borehole well, a protected spring or rainwater collection.

Source: UN-Habitat (2006).

► Table 27: Equivalence to 1 average adult man by household size (OECD and AEEI), 2018–2019

Household size		1	2	3	4	5	6	7	8	9	10
Average adult equivalent	(OECD)	1.00	1.64	2.20	2.76	3.30	3.83	4.38	4.90	5.44	6.07
	(AEEI)	0.90	1.74	2.41	3.10	3.86	4.60	5.34	6.10	6.80	7.75

Source: ILO estimates based on *Ethiopian Socioeconomic Survey, 2018–2019*.

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Ministry of Foreign Affairs of the
Netherlands

International Labour Office
4, route des Morillons
CH-1211 Geneva 22, Switzerland