



Living Wage Report

Rural Costa Rica

Limón Province (Guápiles, Guácimo, Siquirres, and Matina regions) and Heredia Province (Puerto Viejo de Sarapiquí región)

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Photo Courtesy of Rainforest Alliance



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Living Wage Estimate

Rural Costa Rica

Limón Province and Heredia Province

Guápiles, Guácimo, Siquirres and Matina regions and Puerto de Sarapiquí region

SECTION I

INTRODUCTION

1. BACKGROUND

This report estimates a living wage for rural areas in the Limón Province and Heredia Province of Costa Rica. It is part of a series of living wage reports for the Global Living Wage Coalition (GLWC) using a new methodology to estimate living wages in rural and urban areas around the world. It focuses on the Rural areas of Guápiles, Guácimo, Siquirres, Matina in Limón Province, and Puerto Viejo de Sarapiquí in Heredia Province, because they are areas for various agricultural products, particularly banana and pineapple. Banana, pineapple and plantain wages were used for comparison to our living wage estimate. It cannot be stressed enough, however, that the living wage estimate is for these regions and not specifically for the banana sector.

The living wage estimate in this report is based on a study of living costs in rural Costa Rica. The study uses the methodology developed by Anker and Anker (2017). The methodology has gained wide-spread acceptance and has been used to estimate living wages in rural, urban and semi-urban areas around the world with reports from 13 countries already published by the Global Living Wage Coalition (GLWC) with additional reports in 7 more countries underway. These studies have been commissioned by members of the Global Living Wage Coalition which brings together Fairtrade International, Forest Stewardship Council (FSC), GoodWeave International, Rainforest Alliance (RA) joining forces with UTZ, and Social Accountability International (SAI), in partnership with the ISEAL Alliance and Richard Anker and Martha Anker. The GLWC formed with the shared mission to provide high quality and consistent knowledge and information about living wage levels, implementation, and impact necessary for stakeholders of all types to collaborate in a non-competitive environment toward wage increases globally. see continuous improvements in workers' wages, in the farms, factories and supply chains participating in their respective certification systems and beyond, and the long term goal for workers to be paid a living wage. Each living wage benchmark commissioned by the Coalition is made public to further this aim and to increase the opportunity for collaboration toward payment of a living wage.

The Global Living Wage Coalition sees the calculation and release of living wage benchmarks as the first step in a long-term process. The Coalition does not believe the benchmarks will or should supplant collective bargaining rights, but they should serve as a tool to support social dialogue between workers and employers. For many developing country producers, wages form an important part of the costs of production.

The present study was created in partnership with and utilizing funding from the Sustainable Trade Initiative (IDH) and several key private partners, with Rainforest Alliance and IDH as key implementing partners. Rainforest Alliance also provided logistical support for the fieldwork. The work of The Global Living Wage Coalition, including activities leading to this and other benchmarks, was further supported by the Ministry of Foreign Affairs of the Netherlands, Directorate-General for International Cooperation (DGIS).

2. LIVING WAGE ESTIMATE

The estimate of a gross living wage for rural Costa Rica for May 2017 is Costa Rican Colon (CRC) 414,981 (US\$741) per month (using an exchange rate of 560 CRC=1 US\$)¹. This gross living wage takes into consideration that workers have mandatory deductions to pay of 10.34% for the country's strong public social security system of the *Caja Costarricense del Seguro Social* and the Worker's Risk Fund. This means that the net take home pay living wage for workers paying these mandatory payroll deductions is CRC 375,055 (US\$ 670). When the prorated value of the 13th month bonus, known as the *aguinaldo*, is taken into consideration, the gross and net cash basic living wages needing to be received each month are CRC 386,204 (US\$ 689) and CRC 346,204 (US\$ 618).

Our living wage is around 50% higher than the agricultural minimum wage based on 26 work days a month². Our living wage is about 40% higher than average prevailing wages for salaried workers in the banana, pineapple and plantain sector³ in the region according to published data from ECE (2015) and ENAHO (2016). And our living wage is much higher than poverty line wages for Costa Rica (more than twice the national poverty line wage and 4.5 times the World Bank international poverty line wage), demonstrating how inadequate these poverty lines are in measuring decency for Costa Rica.

Measuring prevailing wages is quite difficult in Costa Rica's agricultural sector because of how workers are typically employed and paid. Most workers are employed temporarily on a task basis, or on a piece rate basis, and do not work in one agricultural sector (e.g. banana) the

¹ This represents the trimmed average exchange rate over the period of the study.

² The government establishes a daily minimum wage, and then multiplies this amount by 30.42 workdays per month (365/12). Given the labor dynamics in most agricultural sectors, in which workers earn on a daily task or piece rate basis, it is not realistic to assume they work more than 26 days a month.

³ This represents an average for three sectors, and that that is the maximum level of disaggregation the data the authors had access to allowed for.

entire year. Nor do these piece rate workers work 30 days in the month, and therefore, even if they are paid the daily minimum wage on the days they work, their total earnings would be less than the government monthly minimum wage which assumes 30 workdays per month.

While the banana sector was used as the backdrop for this study, it is important to underscore that the methodology used to estimate our living wage is relevant for all sectors in the same area in which the study was conducted. Indeed, the area used as a reference for this living wage benchmark is also one of the country's main areas for pineapple production, and contains other productive sectors, such as plantain, pulp and paper and the wood industry etc. In all, we feel that our living wage estimate is an important reference for rural Costa Rica in general.

All details on the specifics of how our living wage allows for a basic but decent standard of living as understood from international norms, are provided in the sections below. In the following section, a brief description of the context and methodology, as well as the fieldwork strategy is provided. This report is intended to provide a transparent look at how our living wage was estimated to allow readers to understand what goes into making a normative and yet location-specific living wage estimate.

3. CONTEXT

3.1. Costa Rica and its economy

Costa Rica is a 51,100 km² country in Central America with 4.8 million inhabitants (World Bank, 2016), of which just 27.4 percent live in rural areas (INEC-ENAH0, 2016). Costa Rica is an upper middle-income country with high levels of human development. In 2015, Costa Rica had a per capita Gross Domestic Product of US\$ 10,877 (Costa Rica Central Bank, 2017). The Human Development Index (HDI) value for 2015 was 0.776, and the country ranked 66 out of 188 (UNPD, 2016). Costa Rica is often considered an “exceptional case” in the Global South: one of the few developing countries that could create and maintain a strong public system of social protection (Martínez Franzoni, 2008), and a case of “health without wealth” (Noy, 2012). As a result, life expectancy in Costa Rica is 79.59, by far the highest in the Central American region (e.g. Nicaragua: 74.9; Honduras: 73.1; El Salvador: 73 and Guatemala: 71,8 years), at par with some of the most advanced countries in the world, like Norway (81.5), the Netherlands (81) and Germany (80.7) (World Bank, 2017; Voorend, 2016).

According to National Household Survey data (INEC-ENAH0, 2017), the country recently managed to reduce total poverty for the first time in decades. The percentage of people living in poverty fell from 22.3 to 20.5 percent between 2014 and 2016. The decrease of rural poverty for the same period was substantial from 30.3 to 25.7 percent for the same period; while urban poverty fell from 19.5 to 18.6 percent. However, still one in five Costa Ricans lives below the national poverty line (INEC-ENAH0, 2017), and in 2016, 6.3 percent of the country's households lived in extreme poverty (World Bank, 2017). Currently, the poorest quintile accumulates 3.9% of national income (INEC-ENAH0, 2016). Income inequality has been on a

steady rise over the last three decades, and the Gini coefficient was almost 0.52 in 2014 (Estado de la Nación, 2017), which represents a high level of inequality, even for the Central American region.

Costa Rica's economy is diverse. About 62% of GDP came from the services sector, while just over 32% came from the industrial sector in 2014. Agriculture still represents approximately 5.5% of GDP (World Bank, 2017), and provides employment for a substantial share of the population. Approximately 12.9% of the Costa Rican labor force works in agriculture, livestock and fisheries. Among employed women, only 4.6% find work in agriculture, but the sector employs 16.8% of employed men. It is also a sector that employs a lot of migrant labor, predominantly from Nicaragua (Voorend and Robles, 2011), much of which is hired through intermediaries (Voorend et al., 2013). In rural areas, the dependency on the agricultural sector is much larger: 36.8% of the rural labor force is employed in this sector of the economy (compared to only 4.6% in urban areas).

The unemployment rate in Costa Rica is currently at about 9% and has not decreased after an important increase in the years following the 2008 financial crisis (Voorend, 2016). One of the country's big challenges is the high informality of its economy. Informal employment in Costa Rica reached 45% of the employed population in late 2014. This value has oscillated between 36% and 45% between 2010 and 2014. That is, in 2016, the percentage of people employed in the informal sector was 41.4%, decreasing slightly from 2015 (by 3.9 percentage points). In 2016, the informal sector employed about 825,000 people, 502,000 men and 323,000 women (INEC-ECE, 2016). Most of these informal workers are less educated: half of the workers with only primary education are employed in the informal sector (OECD, 2016).

3.2. The locations for this study

This study focuses on the Guápiles, Guácimo, Siquirres and Matina regions in Limón Province, and also incorporates the Puerto Viejo de Sarapiquí region in Heredia Province. These are not only important banana production regions, but also important pineapple producing areas. The rationale for focusing on several locations within these regions was to ensure our living wage estimate is generalizable for the entire north-eastern region of Costa Rica. However, given Costa Rica is a small country, it is probable that the estimate is valid for many other rural regions in Costa Rica. The different locations in which this study was done are all within 50 km from the National Highway 32, which connects the country's capital San José with its main port, Limón. Figure 1 shows the regions we focused on and the specific fieldwork locations visited for the study.

The focus of the study was primarily on rural areas, with references to the peri-urban capitals of the cantons we visited. In Limón Province, fieldwork was done around the sites listed in the paragraph below. It is important to mention that while the town centers served as important for pricing several products and services (as prices are often lower for school articles, food items, etc.), most fieldwork was done in the rural areas surrounding these towns, several kilometers outside the city.

Guápiles is the cantonal capital of the Pococí canton and has an estimated population of about 35,000. It is a bustling small town on the National Highway 32 from San José to the Limón port in the east, at 67 km from San José. Guácimo, at 77 km from the capital, is located on the same highway a bit further to the east. It is the capital of the Guácimo canton, and is considerably smaller than Guápiles, with just under 20,000 inhabitants. Both towns are important transport hubs for pineapple and banana production. Siquirres is the cantonal peri-urban capital of the canton with the same name. The entire canton is home to just under 60,000 inhabitants, and about one third live in the town itself. It is located at about 100 km from the capital, along the same highway. Finally, Batán and Matina are very closely situated, further east along Highway 32 to the port of Limón, about 130 km from San José. Matina is the larger of the two, and the capital of the canton by the same name. Despite its classification as peri-urban, the feel of the town is rural and economic activity is concentrated along a couple of streets. Matina contains some of the canton's most important supermarkets and other services. Batán is a very small rural town of an estimated population of 5,000. It is only 6 km from Matina, and banana plantations stretch between the two towns.

In Heredia Province, we visited Puerto Viejo de Sarapiquí, a rural town of about 20,000 people located at about 80km to the north of San José, right at the heart of banana and pineapple production regions, as well as wood plantations for furniture and pallet production as well as for the pulp and paper industries. Again, only the town, being the capital of the canton of Sarapiquí, is classified as peri-urban. Four residential "barrios" are located on both banks of the Sarapiquí river, and most of its economic activity is concentrated in its main street passing the town's small central park and church. Despite its size, it hosts two supermarkets and a couple of pulperías, as well as offices of the main banks.

Again, most of the fieldwork (especially for housing) was conducted outside these town centers. At less than a kilometer away from the town centers, the peri-urban activity gives way to rural scenarios. Indeed, the rest of the regions in the cantons visited are officially classified as rural. It is important to note that most of Costa Rica's rural areas are relatively well connected to slightly larger towns, in terms of infrastructure and services.

3.3. The methodological strategy

All living wage studies using the Anker method combine information from secondary and primary data. The secondary data used for this report come from the National Household Surveys (*Encuesta Nacional de Hogares - ENAHO*, 2016), the National Income and Expenditure Surveys (*Encuesta Nacional de Ingresos y Gastos - ENIGH*, 2013), the Continuous Employment Surveys (*Encuesta Continua de Empleo - ECE*, 2015) and the National Household Census (*Censo Nacional de Población - Censo 2011*), all from the National Statistics Institute (*Instituto Nacional de Estadística y Censos - INEC*). As is common for living wage studies, secondary data was used to analyze the context and hypotheses for fieldwork, and to provide important input for the calculations of several of the elements of the living wage estimate, such as the reference family, the composition of household expenditure, a preliminary model diet, a basic

decent housing standard, and non-food non-housing costs. The processing of this data was done by two statisticians and the authors.

The primary data comes from fieldwork visits to the region. Fieldwork conducted for this report was done in February, March, and May of 2017, with a team of four, and with support from the coordinating standards organization. This fieldwork is aimed at collecting price data for an array of food items in the model diet used for our living wage estimate and collecting data to determine the cost of decent housing. Otherwise, fieldwork provides input for post-check exercises for non-food, non-housing expenditures (healthcare and education) and to gain some very general insight on labor relations and prevailing wages.

In terms of the methodology on the ground, initially fieldwork started with visits to a total of five banana plantations, where contact was made with the farm administration, and consequently with workers. The principle objective of this first contact was to get in contact with workers, and a secondary objective was to get a general impression of labor dynamics in the region's agricultural sector. From the contact with workers, we determined what kind of food items they eat, where they buy them, where they live, which kind of services they use and what they pay for them. It also served to coordinate visits to workers' houses, although in Costa Rica simply knocking on people's doors works just fine. People were generally very generous and willing to let the research team in their house. Farms were not selected to be a representative sample of farms in the region. Rather, they served as an "entrance" to workers and people and to understanding habits in the region. In following rounds of fieldwork visits, the research team went to the specified locations directly to collect data on food prices, rental costs and other expenditures related to healthcare, education, transport, etc.

Figure 1. Selected regions in Costa Rica, fieldwork locations and banana production



Source: Authors with Google Maps.

Notes: Red (over 90% of total production) and orange (less than 10%) areas in top map are banana growing cantons, Markers in bottom map indicate study sites

The research team visited local markets, shops and supermarkets, where information on the prices of different food items were collected. In total, over 700 different food prices were

registered. On occasions when food items were not sold by weight but by unit, the food items were bought to determine their weight and therefore price per kilo. This was not common in the supermarkets where people predominantly do their shopping, but it was more common on the open markets in Guácimo and Guápiles. Also, an estimated cost for basic but decent housing was obtained through visits to various neighborhoods and rented houses in the different fieldwork locations to obtain the cost of housing that met our minimum decency standard. Specifically, housing rental prices for over 30 houses were obtained as well as the conditions of each house. Finally, for the non-food, non-housing post-checks, we conducted a series of meetings and carried out short discussions with experts in the field, farm administration, health specialists, trade unionists, as well as people on the streets, with the objective to understand dynamics regarding local access to healthcare, education and transport.

As will be explained in each section below, the authors strived to make a conservative estimate of living costs. For example, the living wage model diet is basic, with food items that are consumed locally, are relatively inexpensive and readily available. Also, for our housing standard, we relied partly on the very conservative social housing standard from the Ministry of Health, Ministry of Housing and Human Settlement established by law in 2003 (Ministerio de Salud y Ministerio de Vivienda y Asentamientos Humanos, 2003). This means an interior living space of 42 m² (452 ft²) was used, which is small for an upper middle-income country like Costa Rica (Anker and Anker, 2017).

3.3. The context: The Costa Rican banana sector

As stressed above, our living wage estimate is mainly a reflection of the cost structure for a specific region for a basic but decent lifestyle in line with our assumptions, explained in detail in this report. That is, anybody living in the region we analyzed should earn at least our living wage to be able to live a basic but decent life, irrespective of the sector in which s/he works. However, in the living wage benchmarks under the GLWC, it is usual to compare the living wage estimate with a specific sector that is used as context. That is, the sector serves as a backdrop with information on labor dynamics which allow us to place our living wage in a specific context. In the case of Costa Rica, the banana sector provides context while banana, pineapple, and plantain together are used for prevailing wage comparisons since there is no secondary data available for wages in the banana sector specifically.

The region of interest for this living wage benchmark is Costa Rica's main banana producing area. With an estimate of two million tons of banana exported in 2000, Costa Rica is the second largest banana exporting country in the world after Ecuador. Banana is the most important agricultural export product, followed at a distance by pineapple and coffee. The country has one of the highest levels of banana production in the world due to its high degree of productivity and research in banana farming. By the end of 2015, productivity had reached 2,339 boxes per hectare (42.4 metric tons) (Corbana, 2017). In 2015, Costa Rica exported 101 million boxes of bananas with a weight of 18.14 kilos each; which means approximately 1.8 million metric tons (Corbana, 2017). Banana exports generated US\$ 833.4 million of foreign

exchange income. In total, banana exports comprised 8.6% of total national exports in 2015 (idem).

Historically, Costa Rican bananas have been sold mostly to the United States and the European Union. In recent years the primary destination has been the European Union (55%) followed by the US (36%) (Corbana, 2017). For geographical reasons, most of Costa Rica's bananas sold to the US and EU are exported through the Caribbean port of Limón, in the east of the country. From there, bananas are discharged mainly to ports on the US's East Coast, and ports in Italy, the United Kingdom, Germany, Belgium, the Netherlands, Spain, Greece and Finland (Corbana, 2017).

The crop is grown predominantly on large plantations by independent producers and multinational companies, which in 2004 controlled about 50 percent of the country's banana plantations (FAO, 2004). This high concentration of land among relatively few producers has not changed over the last 15 years, as in 2014, nationally, only 3.2% of all farms concentrate 86% of the total cultivated area (INEC, 2014).

The Limón Province in Costa Rica's North and Central Eastern Caribbean region is by far the most important banana producing region in Costa Rica. As can be seen in Table 1, 80% of the total 51,758 hectares of planted banana in the country is in this province. Heredia Province is the second largest banana producing province with just over 10% of national production.

Table 1. Number of banana farms and planted hectares by province in Costa Rica, 2014.

Province	Area Planted		Total number of farms	
	In Ha	%	Number	%
Limón	41,442	80.1	2,336	14.7
San José	1,063	2.1	5,899	37.0
Alajuela	154	0.3	2,206	13.9
Cartago	2,192	4.2	2,100	13.2
Heredia	5,382	10.4	507	3.2
Guanacaste	63	0.1	459	2.9
Puntarenas	1,462	2.8	2,417	15.2
Total	51,758.1	100.0	15,924	100.0

Source: Authors based on INEC. VI Censo Nacional Agropecuario, 2014.

The Limón Province hosts only 15% of the total number of banana farms in the country, but banana farms here are much larger than in the rest of the country. In Table 2, banana production is shown by the number of farms and the area planted per canton. Matina, Siquirres, Pococí, Sarapiquí, Limón and Guácimo (all in Limón Province) are the cantons with the largest extensions of banana production and relatively large farms. In Guácimo in particular, banana production is concentrated among only 48 large farms. In other banana

regions, such as Pérez Zeledón, there are large numbers of banana farms, but these together add up only to a relatively small number of hectares.

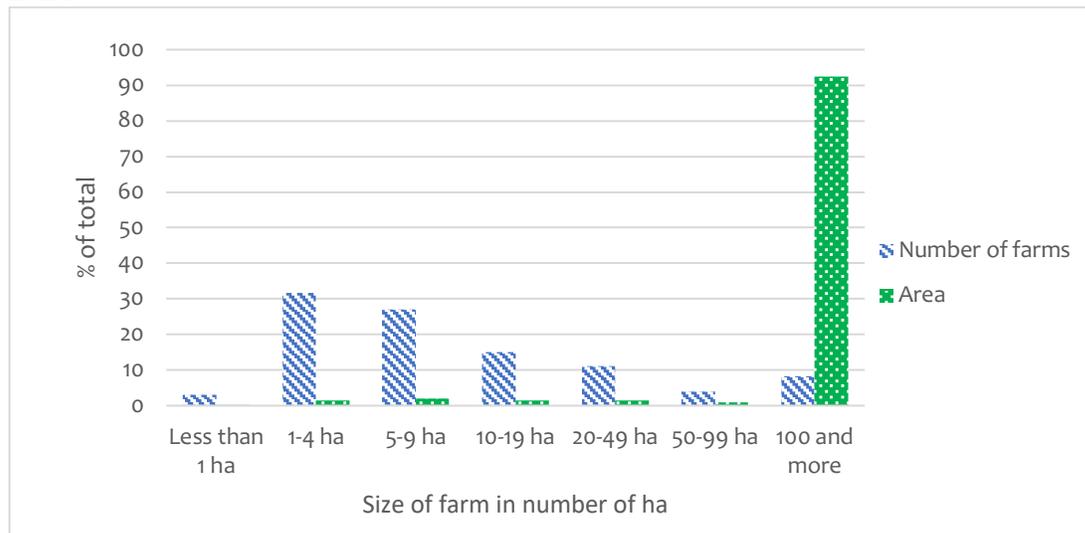
Table 2. Banana Farm number and size per canton, 2014.*(in bold cantons where fieldwork was conducted)*

Canton	Number of farms	Cultivated area (in ha)	Average farm size (in ha)
Matina, Limón	218	10,932	50.1
Siquirres, Limón	208	9,894	47.6
Pococí, Limón	210	8,310	39.6
Sarapiquí, Heredia	209	5,374	25.7
Limón, Limón	853	4,929	5.8
Guácimo, Limón	48	4,085	85.1
Talamanca, Limón	799	3,293	4.1
6 cantons in Puntarenas province	2,120	833	0.8
Parrita, Limón	20	609	30.5
Pérez Zeledón, San José	2,489	443	0.2
San Carlos, Alajuela	261	50	0.2
La Cruz, Guanacaste	59	10	0.2

Source: Authors based on INEC. VI Censo Nacional Agropecuario, 2014.

In Figure 2, the size of banana farms in Limón Province is plotted as a percentage of the total cultivated area by farm size in the province. There are 191 farms (or 8.2% of total number of farms) in Limón that concentrate over 37,000 hectares of cultivated banana. That is, large farms larger than 100 hectares account for over 90% of all banana plantations in the province, and based on the information of Table 1, just under 75% of all banana production in the country.

Figure 2. Banana farm size and cultivated area in percentages of total in Limón Province, 2014



Source: Authors based on INEC. VI Censo Nacional Agropecuario, 2014.

4. CONCEPT AND DEFINITION OF A LIVING WAGE

The idea of a living wage is a normative one. Workers and their family should not have to live in poverty. But the idea of a living wage goes a step further. Not only should a living wage keep workers and their families out of poverty, it should also allow them to participate in social and cultural life. In other words, wages should be sufficient to ensure that workers and their families can afford a decent basic life style considered acceptable by society at its current level of economic development. This wage should come from normal work hours without having to work overtime and cannot include forced labor or child labor.

The idea of a living wage is neither new nor radical. Adam Smith (1776), considered the founder of classical liberal economics, wrote:

No society can surely be flourishing and happy, of which far greater part of the members are poor and miserable. It is but equity besides that they who feed, clothe and lodge the whole body of the people should have such a share of the produce of their own labour as to be themselves well fed, clothed and lodged.

Similarly, American President Franklin D. Roosevelt (1933) wrote that “Liberty requires opportunity to make a living – a living decent according to the standard of the time, a living which gives men not only enough to live on but something to live for.”

There is now a growing consensus that living wage can be defined with Anker & Anker (2017) providing a reliable way for measuring it. The definition assumes that a living wage is place and time specific and should be sufficient to meet the needs of workers and their families for a basic and decent standard of living – and be earned during regular working hours. Our definition of a living wage was agreed upon by seven sustainability organizations and ISEAL

that comprise the Global Living Wage Coalition (GLWC), and has been widely accepted by a range of stakeholders around the world:

Remuneration received for a standard work week by a worker in a particular place sufficient to afford a decent standard of living of the worker and her or his family. Elements of a decent standard of living include food, water, housing, education, healthcare, transport, clothing and other essential needs including provision for unexpected events.

The presence of a robust and reliable methodology and a concrete definition of living wage allows for rigorous analysis of what the living wage is for a specific time and place. Subsequently, different stakeholders at various levels of the value chain, as well as involved actors outside the value chain (like civil society, trade unions, government, NGOs, etc.) can use this analysis as a reference during wage-setting negotiations.

5. HOW A LIVING WAGE IS ESTIMATED

The living wage in the rural areas of Costa Rica in this report is estimated based on the Anker Methodology (Anker and Anker, 2017). A thorough explanation on the rationale of each component of the living wage and how it is estimated are provided in the remainder of this report. This section provides only a brief introduction to how the estimation is done for each part as depicted in figures 3 through 5. To estimate our living wage, costs of a basic but decent quality of life in a specific place must be known. This basic but decent quality of life requires a nutritious low-cost diet; a decent basic house and utilities; funds to cover other basic costs such as health care, education, transport, communication, recreation and cultural activities and participation in social life; and a little extra money to provide a buffer for emergencies and unexpected events. This is estimated for a typical size family with a typical number of full-time workers per couple. The following figures depict the process used to calculate our gross living wage.

To estimate costs for each component of basic needs such as food, housing, and utilities, secondary statistical data were combined with primary data collected in several locations within rural areas of north eastern Costa Rica in February through May of 2017. The estimates of costs for each of these components is discussed in detail in the following sections.

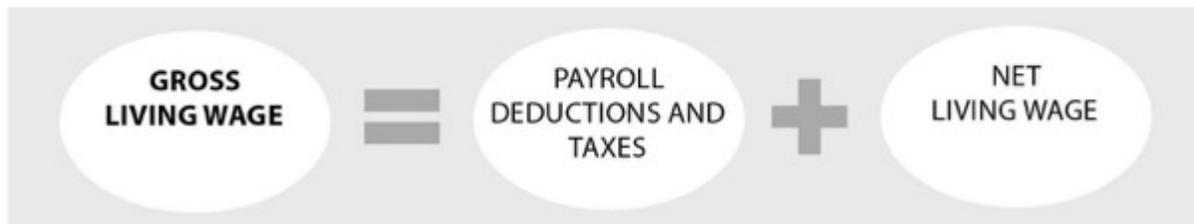
Figure 3: Components of a basic but decent life for a family



Figure 4: From cost of basic but decent life to net living wage



Figure 5: From net living wage to gross living wage



Source: Anker and Anker (2017).

5.1 Migrant workers

Of special note is the role of migrant workers in Costa Rica’s agricultural sector. Costa Rica has the highest percentage of migrants in the total population (about 9%) in Latin America (Voorend, 2016). Three out of every four migrants are from Nicaragua (INEC-Censo, 2011). About 75% of Nicaraguan migrant workers find work in agriculture, construction, domestic service or informal commerce (Voorend, 2016). Also, in the Caribbean, there is migrant labor from indigenous communities that live around the border with Panama.

Migrant workers do not often bring their family to Costa Rica, especially initially, for several reasons. First, they are typically young when they migrate, and have not always formed families. In that case, it is common that they form families in Costa Rica. Second, the legal framework makes it difficult to migrate to Costa Rica and formalize migratory status (Fouratt, 2014; Voorend, 2016). Third, because this migration is predominantly related to work, migration forms part of a family strategy: often it is decided that one family member should

migrate to Costa Rica. In such cases, they typically send a substantial proportion of their wages to Nicaragua to support family members. This means that most Nicaraguan migrants are not only very concerned with living costs and living conditions in Costa Rica, but also those in Nicaragua. Given this situation, it might seem logical to estimate a living wage for rural Costa Rica partly based on living costs and living standards in Nicaragua. We do not feel that this would be correct as explained below. We feel that a living wage for Costa Rica should be based on living costs and living standards required for decency in the Costa Rica.

First of all, there has to be one living wage for all workers in rural Costa Rica. There cannot be one living wage for Costa Rican workers (who support a family in Costa Rica based on Costa Rican standards and costs) and another living wage for Nicaraguan workers (some of whom support families in Costa Rica, while others support a family in Nicaragua based on Nicaraguan costs and standards). Separate living wages for Costa Ricans and Nicaraguans would probably lead to discrimination based on nationality - and in the end, might lead to a race to the bottom toward the lower living wage. Secondly, we feel that all workers in Costa Rica (regardless of their nationality) should be able to afford a living standard considered decent for Costa Rica. Estimating a living wage based mainly on living costs and standards considered acceptable in Nicaragua - - that are probably lower than in Costa Rica because Nicaragua is much poorer - - would mean that Costa Rican workers would be not be able to earn what constitutes a living wage in their own country.

The decision to base our living wage for rural Costa Rica exclusively on Costa Rican conditions and costs is generalizable to other countries (see GLWC living wage report for Dominican Republic, for example). It means that it would not be appropriate for a living wage for agriculture in any country (say United States for example) to be based on living standards and living costs in another country (say Mexico). This has worldwide implications for standard setting organizations, because many countries have immigrant workers in agriculture.

SECTION II

COST OF A BASIC BUT DECENT LIFE FOR A WORKER AND THEIR FAMILY

6. FOOD COSTS

In this section, the cost of a simple, relatively inexpensive but nutritious model diet is presented. The total daily food costs for the model diet for the study area was estimated at CRC 1,672 (US\$ 2.98) per person per day. For the reference family of four people, two adults and two children, this represents CRC 203,366 (US\$ 363) per month. However, we took into consideration that the well-established and free school food program reduces the cost of preparing meals at home. This represents an average monthly value for a reference family of CRC 9,982 (US\$ 17.83). Therefore, the total monthly food cost for a reference family is CRC 193,385 (US\$ 345). How the living wage model diet was set and how its cost was determined are explained in this section.

Food cost per day per person of the model diet:

= CRC 1,672 (US\$ 2.98)

6.1 General principles of model diet

The general principles used to establish a model diet for rural Costa Rica were the following. First, the diet should be nutritious, that is, contain the sufficient number of calories, proteins, fats, carbohydrates, and micronutrients. For this, World Health Organization (WHO) standards were used as a reference, in accordance with the Anker methodology. This includes acceptable amounts of macronutrients (10-15% of calories from proteins, 15-30% calories from fats, and 55-75% calories from carbohydrates) and sufficient micronutrients. Second, the model diet should be consistent with local food preferences, to ensure that the food items therein will be consumed; and is expressed in number of portions easily understandable to laypersons. Finally, the model diet should be as low in cost as possible. The model diet for rural Costa Rica contains 2,378 calories per person.⁴ This was estimated using Schofield equation for estimating a basal metabolic rate as recommended by WHO assuming agricultural workers have a vigorous physical activity level, while other family members have a moderate level of physical activity. In the following sections, it will be explained how the cost of this model diet was estimated.

⁴ The required 2,378 calories per person per day we used for our reference family size is higher than the 2,256 number of calories used in the poverty line diet. The main reason for this difference is our assumption that agricultural workers have vigorous physical activity which requires additional calories.

6.2 Model diet

To develop our model diet, the Anker methodology includes tools to determine the number of calories required per person, and consequently how this requirement can be translated into a diet that meets WHO/FAO nutritional standards for not only the number of calories, but also the percentage of calories from macronutrients (proteins, fats, and carbohydrates), and amounts of fruits and vegetables to help ensure sufficient micronutrients. For rural Costa Rica, we started with the latest poverty line diet for rural Costa Rica that is based on actual consumptions patterns in rural areas (INEC, 2011). From there, adjustments were made. Firstly, the number of food items was reduced from 44 to 23, to make it simpler, and second, the quantity of certain food items was reduced or increased depending on nutritional values and WHO/FAO maximum and minimum standards for certain food items (e.g. in Costa Rica sugar consumption is more than three times the maximum allowed 30g of sugar a day according to WHO standards). Secondly, less expensive food items in rural Costa Rica were identified and used to represent each major food group.

Finally, during fieldwork, the model diet was validated in the different locations. Indeed, the food items in our model diet were widely consumed in the fieldwork locations for this study. Then, for these items, local food prices were collected. The cost of the final model diet was increased slightly by small percentages typical for an upper-middle income country like Costa Rica, to account for needed variety for nutrition in the diet, especially for fruits and vegetables (as well as to also compensate for the lower number of food items) (13%); minimal spoilage (4%); and salt/spices/sauces/condiments to make the diet palatable (3%). Also, much care was taken to ensure to keep the cost of the model diet as low as possible, while respecting local food preferences and nutritional requirements. In Table 3, our model diet is presented. Annex A1 contains a detailed comparison of our model diet with the poverty line diet. Here, it suffices to present the most important differences.

First of all, whereas prepared cereals are only minimally lower (by 5 grams), the less expensive unprepared cereals and grains (rice, pasta, maize flour) are 62 grams higher. Second, roots and tubers (potato, plantain, cassava), which contain significant amounts of dietary fiber are 39 grams higher. Beans, which are not only a cheap source of proteins but also contain an abundance of soluble fiber which can lower cholesterol and triglyceride levels, are 19 grams higher.

Third, while dairy products are similar, eggs are considerably greater. Where the poverty line diet allowed for one egg every two days, our model diet allows for one egg a day. Eggs are an inexpensive source of high quality protein. Fourth, total amount of meats and fish are 38 grams greater, because of the high-quality protein they provide. However, relatively expensive sausage was taken out from our model diet, while amount of relatively inexpensive chicken was increased. In total, we allowed for 9 portions (of 85 grams each) per person per week of chicken, beef or fish. Fifth, an important difference with the poverty line diet is that our living wage model diet has substantially more vegetables and fruits, with 87 grams more of vegetables and 39 grams more of fruit. This was done, because vegetable and fruit

consumption are unacceptably low in the poverty line diet according to WHO recommendations. Finally, amount of sugar is much lower in our model diet by 72 grams in order to meet WHO recommendations since the poverty line diet contains much too much sugar.

Despite these differences between our living wage model diet and the rural poverty line model diet, the cost of our living wage model diet and the rural poverty line diet are fairly similar (CRC 1,672 compared to CRC 1,459), especially considering that our living wage model diet contains more calories (2,378 compared to 2,256) because we assume vigorous physical activity for agricultural work such as on banana plantations for one adult. At the same time, our living wage model diet and poverty line diets are relatively expensive at slightly less than US\$ 3 per person per day. This relatively high cost can be traced partly to government policy to make Costa Rica self-sufficient in food production. Costa Rica has a strong policy of food and security sovereignty which includes price support measures for many staple foods. According to the OECD (2017: 25), “Costa Rica has one of the highest domestic rice prices in the world. Consumers, particularly those with fewer resources, which include small-scale rice farmers, allocate a significant portion of their income to purchase this staple at a price higher than the international market price.” The price support system is accompanied by high tariffs on imported agricultural products such as a “tariff of 151% for poultry, 66% for dairy products, 46% for both pork meat and sugar, and 36% for rice, among others”. The OECD (2017) reports that “According to the Consumer Support Estimate (CSE), policies to support agricultural prices generate an implicit tax on consumers (first buyers of the product), and increased expenditure on consumption by 21% in the (2013-15 period). As poorer households spend a higher proportion of their income on food, this in effect functions as a regressive tax.”

Table 3. Composition of the living wage model diet, prices of food items in CRC, and cost of the model diet

FOOD ITEM	EDIBLE GRAMS	PURCHASED GRAMS	COST PER KILO	COST	COMMENTS
1.A Cereals and grains					
Rice, white	215	215	637	136.9	Approx. 1 cup of rice
Maize flour (corn flour)	35	35	1,112	38.9	One medium sized tortilla a day
1.B Prepared cereals					
Bread, white	32	32	1,982	63.4	One small roll of white bread
Macaroni, spaghetti, dry	18	18	1,497	26.7	2 meals of pasta per week
2.A Roots and tubers (starchy)					
Potato	32	43	947	41.0	Slightly less than 1 kilo of potatoes (908g) per family per week
Cassava	16	19	478	9.2	Slightly less than ½ a kilo of yuca (454g) per family per week
Plantains	25	38	428	16.5	Half a medium sized plantain (of 350g) per person per week
3. Pulses, legumes, beans					
Black beans	63	63	931	58.7	2 and ¼ servings of beans
4. Dairy					
Milk (cow)	193	193	642	123.5	1.5 cups per day per child, 50ml for adults
White cheese ("Queso blanco")	14	14	2,666	38.1	100g a week per person per week
5. Eggs					
Chicken egg	53	60	1,120	67.2	1 egg per day
6. Meats & Fish					
Chicken thighs broiler or fryer meat	49	71	1,736	124.0	4 portions of chicken per week
Beef (beefsteak - low fat)	36	36	3,836	139.7	3 portions of beef per week
Fish, White	24	24	2,665	64.7	1 portion of fish per week
7A. Green Leafy Vegetables					
Cabbage	64	80	1,020	81.3	Slightly less than ½ kilo per week (448g)
7.B Other vegetables					
Tomato	64	70	1,306	91.5	Slightly less than ½ kilo per week (448g)
Onion	64	71	1,274	90.3	Slightly less than ½ kilo per week (448g)

Table 3. Composition of the living wage model diet, prices of food items in CRC, and cost of the model diet

FOOD ITEM	EDIBLE GRAMS	PURCHASED GRAMS	COST PER KILO	COST	COMMENTS
8. Fruits					
Banana	48	65	485	31.3	Approx. 6 bananas a week
Papaya	48	77	594	45.8	1/3 kilo of papaya per week
9. Oils & fats					
Oil (soybean, peanut, palm, canola, etc.)	32	32	894	29.0	Approx. 2 tablespoons
10. Sugar					
White sugar	30	30	633	19.0	Maximum amount of sugar allowed by WHO
11. Nonalcoholic beverages (e.g. coffee or tea)					
Coffee	7.9	7.9	3,500	27.6	2 cups for adults per day, and + 1/4 cup per kid
12. Other					
Natilla (sour cream)	14.8	14.8	1,935	28.6	One tablespoon serving per person
Total cost of model diet excluding additional costs indicated below				1,393	
Total cost of model diet including additional costs indicated below				1,672	
Percentage added for salt, spices, sauces, and condiments				3%	
Percentage for spoilage & waste				4%	
Percentage added for variety				13%	

Source: Authors.

6.3 Food prices

Most food prices were collected in local shops and supermarkets where most local workers and their families do their shopping. Also, the local farmers' markets of Guácimo and Siquirres were visited to compare prices, although most workers interviewed did not seem to regularly do their shopping there. Local supermarkets (e.g. el "chino") were visited, and where larger supermarket chains were available, like Mega Súper and Palí (generally considered to be the least expensive) with national coverage, they were preferred. Some people said they do shopping on the weekend in larger towns, such as Guácimo, Guápiles and for people in Matina, in Limón city. In all these venues, food prices were collected.

Many food price references for each food item were documented. Most of these references were obtained by observing price tags, and if these were not available, by asking the vendors. Whenever food items were not sold at a standard price per kilo or in a standard packaging with the weight written on it, these food items were purchased and weighed to obtain a price per average weight, and in order to calculate (or rather confirm) wastage (from taking away the skin, for example). Consequently, for each location, price data that seemed like outliers were ignored as were prices from *feria agricultor* (local farmers air markets) and *pulpería* (small shops) for food items not often bought there. After this, for each food item, the lowest price per market (usually supermarket) was selected, resulting in four or five price references representing the cheapest price per location. This was done to imitate the way that cost-conscious shoppers do their shopping. Then, we took the mean across all locations.

Since we collected food prices in February and March, and again in May through June, there is an implicit assumption that these prices are representative of food prices throughout the year. Given planting and harvest seasons for a variety of crops, there is no reason to believe that these months are abnormal months. First, the time span of food price collection was five months, which covers almost half a year. Second, in Costa Rica the climate conditions warrant a relatively constant production of food and we found that most food items are abundant throughout the year, and while prices of individual food items do fluctuate slightly, it seemed reasonable to assume that such fluctuations do not alter the food prices and costs considerably. Third, if food prices for some food items fluctuate over the year, this would mainly affect vegetables and fruits, or grains. Given the abundance of vegetables, fruits and grains available throughout the year, people can simply substitute food items for an alternative food item. Therefore, we assume that the prices documented are representative for most, if not all the year. Also, the percentage added for variability for our living wage model diet allows for substitution of certain food items which might be more expensive at a certain point in the year, for another, cheaper food item. This is especially true for fruits and vegetables, of which there was abundant supply in the fieldwork locations. Considering this discussion, in the end no adjustment was felt to be necessary for seasonality of food prices.

Figure 6. Photos of local food markets





Note: Pictures are illustrative of typical food markets in the region. Sources from top left clockwise to bottom : Mega Super CC BY-NC-SA 2.0; Bazaar CC BY-ND 2.0; Pali Supermarket CC BY 2.0; Limon produce market CC BY-SA 2.0; Market at Port Limon CC BY-NC-ND 2.0; Neighborhood Market CC BY-NC-ND 2.0.

6.4 School and Adolescent Food and Nutrition Program

The daily cost of the model diet is estimated to be CRC 1,672 (US\$ 2.98). For a reference family of 4, this would mean a total daily cost of CRC 6,686, and a monthly cost of CRC 203,366 (US\$ 363). However, this does not represent the actual cost of food for a reference family, because it does not consider that part of these costs is covered by Costa Rica's free school food program.

The School and Adolescent Food and Nutrition Program (Programa de Alimentación y Nutrición del Escolar y del Adolescente), or PANEA, is a school food program under the Ministry of Public Education, created in 1974. It provides free lunch for children in primary and secondary education in targeted areas, based on poverty and nutrition measures. According to a World Food Programme Report by Sidaner and Montenegro (2014), the program has ensured universal coverage for primary education since 2013, while secondary education is not universal but remains targeted. School lunch meals are served 200 days per year and are believed to represent about one-third of daily calorie requirements.

We assume all children in primary school, ages 4 through 12, receive a daily free lunch. Given coverage rates in secondary school are about 47% (Sidaner and Montenegro, 2014), we assume half of all students in secondary education receive a free lunch from the school food program. With these assumptions, the average daily value of meals at home avoided for a reference family with two children is CRC 328 (US\$ 0.59)⁵. This represents a monthly value of CRC 9,982 (US\$ 17.82), which we subtracted from the monthly cost of our model diet for our reference family.

In all, then, the monthly cost of our model diet for the reference family is estimated to be CRC 193,385 (US\$ 345).

7. HOUSING COSTS

Housing costs are estimated by summing up the costs of rent for an acceptable dwelling, utility costs, and minor repairs and maintenance. In this, the Anker methodology differs from other methodologies to measure living wages and poverty lines where all non-food costs (including housing costs) are estimated in one go. That is, housing costs are separated from the non-food costs black box, and are based on a basic but acceptable standard, and not actual spending patterns. This is a novel methodological strategy that avoids reproducing poverty consumption patterns and provides better estimates of the cost of acceptable housing especially in countries where housing conditions for workers are poor at present as well as in countries where the cost/value of owner occupied housing is not properly considered in household expenditure statistics.

In the Costa Rican context, being an upper-middle income country, many houses in rural areas meet the minimum standard acceptable by the WHO, UN-HABITAT and others. People in rural Costa Rica generally have access to relatively decent housing, often a stand-alone house on a small piece of land with access to publicly provided water and electricity. Many of these houses are owned by the inhabitants, and as a minimum comply with the national social housing standard. This standard is an interior space of 42 m² (452 ft²). The house is typically made of thin prefabricated walls, a zinc roof, a cement floor, two sleeping rooms, a small living room and kitchen and a shower, and a flush toilet with a septic tank. This 42 m² interior space does not include an outside sink for washing clothes, and a small terrace, which are typically outside to the back of the house.

However, given Costa Rica's high inequality, and the Limón Province's high levels of poverty, during fieldwork it was not uncommon to encounter houses in the banana producing rural areas that were far removed from this standard. Indeed, during fieldwork, the research team encountered several houses in deplorable state. In this context, fieldwork was crucial to determine the cost of a house that meets our living wage decency standard.

⁵ Value of free lunch at school = # of children X (Average value of free lunch at school for relevant age groups) X (number of grades during which children receive free lunch at school/18) X (number of school days per year/365).

For the rural areas of Costa Rica's Limón Province, the minimum standard for housing as described in the next section, is estimated to cost about CRC 75,000 per month for a family of 4 (two adults and two children). This amount represents the rental price for an acceptable house over the different locations visited during fieldwork. Rental prices were collected by visiting houses in the fieldwork sites and asking around for rental prices for houses that met our minimum conditions, as well as several that didn't. In all places, rental markets seemed relatively well developed, and it was not difficult to obtain rental prices.

This amount does not include utility costs and maintenance and repair costs, which we estimate average about CRC 31,000 (US\$ 55) per month (see below). This gives a total of CRC 106,000 (US\$ 189) per month for housing, thereby representing just under 18% of total expenditure, slightly below what secondary data indicate for the 30th percentile of income distribution for Costa Rica's rural areas (19.4%). Below, some examples are presented of the types of housing that were encountered during fieldwork. In Figure 7, some of the houses we visited are shown.

Figure 7. Photos of local housing



Note: Top-left: Acceptable social housing standard. Top-right: Acceptable housing, although not in good repair. Bottom-left and right: unacceptable housing by living wage standard. Source: Courtesy of Koen Voorend.

In general, in rural Costa Rica, housing conditions are good. Most houses have strong prefabricated or cement structures that comply with the country's strict seismic codes, cement or tiled floors, and typically a zinc roof. The most basic houses do not have a ceiling, but this is often one of the first additions when families have a bit more income. Houses are generally not very large, but not smaller than the social housing minimum of 42 m² of living space. Typically, houses in rural areas have at least two bedrooms, a gas-fueled or electric kitchen, a shower with a flush-toilet linked to a septic tank, a small living room and a small terrace given that the temperature allows for outside living all year around. Water and electricity are almost always available and are publicly provided. Table 4 summarizes the available secondary data on housing conditions for rural Costa Rica.

Table 4. Housing conditions in rural Costa Rica, according to secondary sources (Censo 2011, and ENAHO 2016)

Source and year:	ENAHO 2016	Censo 2011
Characteristics	Rural %	Study locations (Guácimo) %
Roof		
Zinc or metal	99.0	99.4
Thatched	0.2	0.0
Fibrolit, Ricalit or asbest (fibrocement)	0.2	0.4
Other	0.6	0.2
Floor		
Cement/tile	33.1	55.7
Ceramics, mosaics	56.9	37.6
Earth/dung	2.0	1.5
Wood	8.0	5.1
Other	0.0	0.1
Walls		
Cement/stone/brick/Prefab	62.0	66.9
Wood planks	17.2	13.1
Zócalo (cement-wood, cement-fibrocement, Fibrolit, Ricalit)	19.5	19.0
Other	1.4	1.0
Lighting source		
Electricity	98.4	98.8
Other	1.3	0.2
No electricity	0.3	0.9
Cooking fuel		
Gas	55.8	60.4
Electricity	31.6	30.6
Wood or Charcoal	11.9	7.5
Other	0.7	1.5
Water source		
Piped into dwelling or yard	85.0	83.6
Protected well (pozo)	7.0	14.8
River or stream	7.8	1.1
Other source	0.2	0.6
Toilet facility		
Flush toilet with septic tank	89.9	96.2
Pit Latrine with slab	4.5	3.0
Other	5.2	0.1
No facility, bush	0.5	0.7

Source and year:	ENAHO 2016	Censo 2011
Characteristics	Rural %	Study locations (Guácimo) %
Number of bedrooms		
0	1.2	3.3
1	9.6	11.0
2	45.4	48.2
3	33.9	30.0
4+	9.9	7.5
Median	2.0	2.0
Mean	2.55	2.43
Consumer durables		
Refrigerator	91.9	-
Washing machine	-	-
Motorbike/motor scooter	23.1	11.3
Car	34.3	20.5

Source: Authors based on INEC-Censo 2011 and INEC-ENAHO 2016.

7.1 Standard for basic acceptable local housing

Our standard for basic acceptable housing for rural Costa Rica was arrived at based on four sources, which mutually reinforced one another. First, the WHO, other international organizations and international covenants and conventions set minimum standards which include adequate living space, ventilation, light etc., and which do not allow certain conditions, such as earth flooring (Anker & Anker, 2017). Second, based on secondary data for rural Costa Rica, and specifically for the Guácimo region which is at the center of the fieldwork sites visited (Table 4). Based on this information, it was determined what the predominant actual housing conditions are at present. Third, a minimum standard for social housing for Costa Rica was consulted. This social housing standard is from the Presidency of Costa Rica, the Ministry of Health and the Ministry of Housing and Human Settlement and was established by law in 2003 (Ministerio de Salud y Ministerio de Vivienda y Asentamientos Humanos, 2003). Importantly, the minimum size of the house (42 m²) was used from this social housing standard. Social housing is quite basic: it constitutes of a two-bedroom house, with one toilet and shower combination, a small kitchen and a living room. Each room typically has one window. It also typically has a small washing sink outside the back of the house. The materials used for this standard are usually prefabricated cement walls, a cement or tiled floor, and a zinc roof. Usually, there is electricity, although cooking is often done with gas. Water is usually piped into the dwelling, and the toilet facility connects to a septic tank.

Finally, during fieldwork, observation was used to determine whether our housing standard was representative for the study regions. The minimum acceptable standard for housing for our reference family of four includes the following as indicated in Table 5. It meets minimum

international standards and the Costa Rica social housing standard and is consistent with typical current local housing conditions in rural Costa Rica.

Table 5. Minimum living wage housing standard for rural Costa Rica

Element	Minimum standard
Structure, Roof and Floor	<ul style="list-style-type: none"> - Permanent structure and walls: made of concrete, cement, prefabricated material or bricks. Zinc and wood are unacceptable. - Roof: made of corrugated iron without leaks. - Floor: made of cement or tiles.
Electricity, and cooking fuel	<ul style="list-style-type: none"> - Lighting source: electricity is standard, as it seems to be most common in the rural areas of interest. - Cooking fuel: Electricity or gas as a minimum acceptable standard.
Water source and toilet	<ul style="list-style-type: none"> - Water: piped into dwelling or yard. - Toilet facility: minimum acceptable standard is a septic tank with a flush toilet.
Number of rooms: Minimum number of m ²	<ul style="list-style-type: none"> - Two bedrooms - One (small) living room - 42 m², consistent with the minimum standard of social housing
Other:	<ul style="list-style-type: none"> - Minimum one window per room - Ceiling at least at 2 meters, although ceiling is not a must. Not common to have ceiling, but just the roof. - Safe food storage: separate area. - Minimum indoor pollution from cooking: separate space for cooking, or good ventilation - No site hazards - No garbage on the street

Source: Authors.

7.2 Rent for basic acceptable housing

In the fieldwork locations of Puerto Viejo de Sarapiquí, Siquirres, and in between Matina and Batán, information was collected for 31 houses, most of which were visited and inspected. Given the more peri-urban nature of Guápiles and Guácimo, we decided to focus on the locations outside of the town centers. Generally, people were open to let the research team into their homes and access was relatively easy. Four of the inspected houses were dropped from analysis because some of the necessary information was missing, or because the provided information on rental prices was deemed too unreliable (for example, an estimate given by neighbors). Six houses were inspected online through popular house rental sites which provide detailed information on the conditions and composition of the house as well as photos which allowed for inspection of the materials used in construction. We only used

houses from these sites for which all the necessary information was available, or which could be completed after a phone call to the proprietor. Rental markets were generally well developed, and it was not difficult in the field to obtain information on rent. Table 6 provides the information gathered for rental houses in the region, some of which meet the standard while others do not.

Table 6. Rented housing units and costs

Acceptable standard?	Rent in local currency	Size in m ² & rooms	Comments
Puerto Viejo Sarapiquí			
Yes	100,000	74 m ² LR, 3BR, K	Very large. Includes wash room, and separate bathroom and kitchen with good ventilation. Good repair, complies with standard.
Yes	100,000	66 m ² LR, 2BR, K	Bigger house, larger rooms. Kitchen and bathroom slightly bigger than social housing standard. Good repair, complies with standard. Quite luxurious compared.
Yes	95,000	52 m ² LR, 2BR, K	Slightly bigger house, separate kitchen and wash room. Good repair, complies with standard.
Yes	80,000	42 m ² LR, 2BR, K	Social housing standard. Separate kitchen with adequate ventilation, small wash room. Good repair, complies with standard.
No	80,000	35 m ² LR, 1BR, K	Too small, only one bedroom. Good repair. Possible commercial space, so more expensive. Not suitable for reference family according to housing standard.
No	75,000	49 m ² LR, 2BR, K	Bad repair. Holes in walls, partly made of wood (with holes). Exposed wires, poor state of zinc tiles for roof. Size and set up according to social housing standard.
Yes	70,000	42 m ² LR, 2BR, K	Social housing standard. Separate kitchen with adequate ventilation, small wash room. Good repair, complies with standard.
No	65,000	38 m ² LR, 1 BR, K	Too small, only one bedroom. Good repair. Not suitable for reference family according to housing standard.
No	60,000	30 m ² LR, 1BR, K	Too small, only one bedroom. Good repair. Not suitable for reference family according to housing standard.
No	55,000	40 m ² LR, 2BR, K	Terribly poor house for one large family. No formal separation between rooms (only one room). Kitchen inside, bad ventilation, dark. Parts are dirt floor. Bad repair. Not acceptable.
No	50,000	42 m ² LR, 2BR, K	Similar to social housing standard in size, but zinc walls, too hot. Poor quality ventilation, few windows.
No	50,000	43 m ² LR, 2BR, K	House made of wood, wood floor. Holes in walls and floor. Bad repair, poor condition of materials. Not acceptable.
Siquirres			

Acceptable standard?	Rent in local currency	Size in m ² & rooms	Comments
Yes	90,000	42 m ² LR, 2BR, K	Social housing standard, good repair. Complies with standard.
Yes	80,000	46 m ² LR, 2BR, K	Slightly bigger than social housing. Good repair, complies with standard.
Yes	78,000	46 m ² LR, 2BR, K	Slightly bigger than social housing. Good repair, complies with standard.
Yes	75,000	42 m ² LR, 2BR, K	Social housing standard, good repair. Complies with standard.
Yes	75,000	43 m ² LR, 2BR, K	Good repair. Meets all standards, complies with standard.
No	75,000	30 m ² LR, 2BR, K	Too small, bad repair. Risk of flooding (close to river). Not acceptable.
No	70,000	34 m ² LR, 2BR, K	Too small, bad repair. Not acceptable.
Yes	65,000	42 m ² LR, 2BR, K	Social housing standard, decent but not excellent repair. Complies with standard, but only barely. Needs repair and maintenance.
No	65,000	50 m ² LR, 2BR, K	Walls and roof in poor/decent repair. Needs repair and maintenance. Especially walls look questionable. Bit of a question mark, but too much of a doubt to meet standard.
No	65,000	47 m ² LR, 1 BR, K	House with only one room. Decent but not in good repair. Quite large for a house with only one room. In current state, not suitable for reference family.
Between Matina and Batán			
Yes	80,000	56 m ² LR, 2BR, K	House in good repair, slightly larger than social housing standard. Meets all specification, complies with standard.
Yes	80,000	46 m ² LR, 2BR, K	Social housing standard, in good repair. Meets all standards, complies with standard.
Yes	78,000	46 m ² LR, 2BR, K	Social housing standard, in good repair. Meets all standards, complies with standard.
Yes	75,000	42 m ² LR, 2BR, K	Social housing standard, in good repair. Meets all standards, complies with standard.
No	50,000	40 m ² LR, 2BR, K	House in bad shape. Originally social housing standard, but in need of maintenance and repair. No flush toilet for septic tank. Dark. In current state, not suitable for reference family.

Source: Authors.

Looking at rents observed in table 6 for inexpensive acceptable housing, it was determined that CRC 75,000 is a reasonable amount, as it allows for a basic acceptable house in all the locations visited⁶.

7.3 Utilities and other housing costs

Our estimate of utility and other housing costs is based on information from several sources. First, the research team asked workers for electricity and water utility costs in the different study locations. Utility costs were obtained from 20 workers or people owning or renting a house. Normally, people knew the exact amount or had a good estimate since these costs are paid monthly. We considered such estimates reasonably reliable. Based on this information, a median cost of CRC 10,000 was obtained for water and CRC 21,000 for electricity for a household of four.

Second, rural household expenditure data for 30th percentile of households from a household expenditure survey was used, and the actual amounts spent per household were calculated. This gave amounts for water and electricity of CRC 5,242 and CRC 12,010, respectively. These are substantially lower than the above estimates, but they may not reflect levels of consumption associated with a decency standard for a household of four, as the survey includes many small households.

For electricity, we also looked at a 2012 study (AECR, 2012) based on data from the National Electricity Institute which shows that the monthly cost for a family of four in the intermediate usage range that includes electrical appliances we would consider part of the living wage standard such as an electrical stove, thermal shower or water heating, television, a computer, radio, oven, etc. This was about CRC 24,000 for a household of four members.

Values from these different sources varied. It was decided to allocate CRC 7,000 for water and CRC 17,000 for electricity (roughly average of our three different estimates with overweighting of values from the household expenditure survey).

Additionally, given that 55.8% of rural households use gas for cooking, we added a small amount for the cost of gas. To obtain the cost of gas for a typical family of four, we made telephone consults about the price of gas tanks, and typical usage. The estimates were all quite similar. A typical gas tank costs CRC 7,000, and a family uses approximately one tank per month. We then multiplied this monthly cost by 55.8% and obtained a monthly cost of CRC 4,000.⁷

⁶ Additionally, as a cross-reference, an average rent per m² was calculated based on the acceptable houses only. This gave an average per m² price of CRC 1,700. Using a living space of 42 m², this translates into a rent of about CRC 72,000 which is very close to our CRC 75,000.

⁷ This represents the percentage of families that cook on gas. Families that use gas for cooking use on average less electricity than families that cook on electric stoves, all other things being equal. Therefore, part of the monthly costs of cooking is covered in the amount included for electricity, and therefore only a partial mark-up was made.

Finally, the cost for routine maintenance and repairs depends very much on the state of the house. Given that the state of many houses in the study regions we visited were in quite good repair, it was decided to reserve only a small amount of CRC 3,000 per month for maintenance and repair, in the understanding, that the state of the house warrants several years without necessary repair costs. That is, these costs would not have to be incurred yearly. This is slightly higher than the estimate when we multiply the percentage spent for repairs of total household expenditure in household expenditure survey data by the cost of our model diet (CRC 2,132) as well as what secondary household expenditure data suggest: CRC 1,817. It was felt, however, that these amounts are extremely low and do not represent these costs for decent maintenance and repair.

In all, housing costs are estimated at CRC 106,000 for a very basic but decent standard of housing in all the locations we visited. In Table 7, the breakdown of housing costs is summarized.

Table 7. Overview of housing cost estimates for basic but decent housing

Item	Monthly cost in CRC
Rent	75,000
Water costs	7,000
Electricity costs	17,000
Gas costs	4,000
Repair and maintenance costs	3,000
Total costs per month	106,000

Source: Authors.

8. NON-FOOD AND NON-HOUSING COSTS

Non-food and non-housing (NFNH) costs are estimated in a different way than food costs and housing costs. Whereas food costs and housing costs are estimated based on normative standards - nutritious diet and healthy housing standard – NFNH costs are based mainly on secondary data and so current household expenditures in rural Costa Rica according to recent household expenditure survey data. This is done because it would be too difficult and time consuming to decide on appropriate standards and prices for the many NFNH needs of families that include clothing and footwear; furniture and household equipment; health care; education; recreation and culture; transportation, telephones; personal care; etc. However, since health care and education are considered human rights around the world, separate enquiries and post checks are done and NFNH is adjusted when necessary to make sure that sufficient funds are included in our estimate of NFNH needs for these human rights.

Non-food non-housing (NFNH) costs for rural Costa Rica were estimated in five steps. In step 1, a preliminary estimate of NFNH costs was made based on current expenditure patterns in rural Costa Rica according to data from the 2014 National Survey on Income and Expenses

(INEC-ENIGH, 2013). This approach, which relies on a variant of Engels's law,⁸ is simple and provides a preliminary estimate of the cost of all NFNH needs. As such, the approach avoids having to make a long list of NFNH needs and then finding the cost for each of these, as is common in other estimates of living wages (Anker, 2011) and poverty lines (Anker, 2006b)⁹. Because we did not want to reproduce spending patterns related to poverty (in Costa Rica, nationally 20.5% of the population lives in poverty, but the rural poverty rate is 27% according to the World Bank), it was decided to use household expenditure data for rural Costa Rica for households at the 30th percentile of the rural household expenditure distribution (which is slightly above the rural poverty line of 27%) as a reference for the preliminary NFNH estimate. Step 2 adjusts for the fact that meals eaten away from home are included within the food expenditure group in Costa Rican statistics. Part of the cost of eating away from home should go into the costs of food, whereas the taxes, profits and services should go into NFNH. For Costa Rica, after consulting several rural vendors, and local restaurants (with mostly but not exclusively family labor), it was estimated that 55% of the selling price of meals consists of profit, taxes and service costs with approximately 45% for food costs. To confirm this, on two separate occasions, a meal was bought at a restaurant and all ingredients were weighed separately, after which the costs of these ingredients was verified based on food cost data collected for our living wage study. The estimate of the costs of food compared to other costs largely confirmed this 45%-55% distribution for rural areas.

Step 3 excludes tobacco, since this is deemed unnecessary for a decent living standard. Also, half of the expenditure for private vehicle purchase and operation was excluded in these calculations, as it was considered unnecessary for decency to own a private vehicle, given the good public transportation system in Costa Rica (based on the assumption that private vehicle transport is around twice as expensive as public transport). Steps one through three gave the following information on the distribution of household spending (Table 8).

⁸ Engel's law is from 1857 and states that the percentage of total expenditure that households spend for food decreases as household income increases (see Anker 2011).

⁹ For step 1, the Anker methodology deviates from typical poverty line and living wage methodologies that estimate all non-food costs in one group (Anker, 2006a, 2006b, and 2011). That is, in the Anker methodology, housing costs are taken out of the residual non-food category and are estimated based on normative standards for decent healthy housing (see previous section). The remaining costs for NFNH needs are then based on secondary data, not using normative standards.

Table 8. Distribution of household spending at 30th percentile of rural household expenditure distribution in Costa Rica used to estimate NFNH costs and living wage

Expenditure group	30th percent of distribution % Expenditure
Food	32.8
Housing	19.4
NFNH¹	44.4
Healthcare	3.0
Education	1.6
Transport (-1/2 of private vehicle purchase and operation)	7.9
Out (tobacco and ½ of private vehicle purchase and operation)²	3.4
Total	100

Source: Authors based on INEC-ENIGH 2013.

Notes: ¹ Other standard expenditure groups in the international standard classification include the following: “Clothing and Footwear” (4.4%); “Household contents and appliances” (5.7%); “Telecommunications” (4.8%); “Recreation and Culture” (5.9%); “Meals and drinks away” (profit and services costs only) (4.1%); “Alcohol and tobacco” (0.5%); and “Miscellaneous” (6.5%). Note that the 0.5% for alcohol represents only approximately 3-4 beers per family per month. ² “Tobacco” (0.2%) was excluded from NFNH costs, as well as ½ of private vehicle purchase and operation (3.2%), as a private vehicle was deemed unnecessary for decency.

NFNH to Food ratio is 1.35.

From step 4, the NFNH-Food ratio is 1.35. Therefore, NFNH costs are estimated by multiplying the cost of our model diet by the NFNH-Food ratio of 1.35. For the reference family, the monthly cost of the model diet, which already took into consideration the value of the free school lunch, is CRC 193,385 (US\$ 345). Total monthly NFNH cost, then, is estimated to be CRC 261,839 (US\$ 468) per month. This preliminary NFNH estimate is based on secondary data. It includes funds for clothing and footwear; household furniture, contents and appliances; healthcare; education; transportation; communications; recreation and culture; eating away from home; and miscellaneous goods and services such as insurance, bank services, and personal care.

However, the above NFNH estimate must be critically analyzed as will be explained in detail in section 9. Indeed, the last step analyses typical costs of healthcare and education based on fieldwork data to determine if the cost estimates for these items included in the preliminary NFNH estimate largely corresponds to what is actually needed for decency. Where necessary, adjustments are made to ensure adequate funds for these human rights.

9. POST CHECKS OF NON-FOOD AND NON-HOUSING COSTS

Blind and uncritical use of an extrapolation method to estimate NFNH costs based solely on secondary data runs the risk of underestimating amounts required for NFNH needs that meet a decent standard. Therefore, it is important to make sure that there are sufficient funds available for health care and education, as these are considered internationally as human rights. Table 9 shows the monthly amounts of spending on health and education included in the preliminary estimate of NFNH costs.

Table 9. Monthly spending estimates on healthcare and education included in preliminary NFNH estimate before possible post check adjustments

NFNH Sub-Major Expenditure Group	% of total rural household expenditure, 30 th percentile (ENIGH, 2013)	Monthly amount in CRC in preliminary NFNH (CRC)
Healthcare	3.0	17,568
Education	1.6	9,470

Source: Authors based on INEC- ENIGH, 2013.

The amount for education seems appropriate at first glance, while health expenditure seems high given the strong and high-quality healthcare system in Costa Rica – although it is worth noting that the percentages for education and healthcare are low compared to those for other countries due to the availability and quality of these government services in Costa Rica. In the following sections, the appropriateness of these two values shown in table 9 are analyzed in more detail.

9.1 Healthcare post check

In line with its generous social policies, Costa Rica has an extensive public healthcare system. The *Caja Costarricense del Seguro Social* [Costa Rican Social Security Fund] (CCSS) is the public institution in charge of social security in Costa Rica, and it manages the provision and structure of public healthcare. It is home of Costa Rica’s principle social protection scheme (sickness, maternity and disability) and oversees all 29 public hospitals in the country through which the CCSS coordinates and executes healthcare prevention programs, such as vaccinations, and curative healthcare programs.

Costa Rica has a universal health care system that explains its remarkable performance compared to other countries regarding outcome and coverage indicators. Costa Rica has accomplished almost universal (coverage rates of about 90%) and free healthcare coverage, including for vulnerable and non-contributing groups, and is hailed as a healthcare “success story” (Noy, 2012) and a promising case of “health without wealth” (Noy, 2013). For example, together with Cuba, it leads the ranks of life expectancy at birth for 2015 (79.6 years) in the whole of the Americas (CEPAL, 2013), not so far behind some of the most advanced North European countries like Norway (81.5 years), the Netherlands (81 years) and Germany (80.7 years) (HDR, 2014). Currently, a Costa Rican lives on average 6 years longer than any of his or

her Central American contemporaries. Similarly, Costa Rica outperforms Argentina and Uruguay with regards to child mortality.

That said, the 1980s heralded a period of structural reforms that resulted in cutbacks in social spending. This has put Costa Rica's health system under strain, resulting in financial difficulties (PAHO, 2011), long waiting lines and more private healthcare spending, especially for middle and higher income groups (Martínez Franzoni and Sánchez-Ancochea, 2013). For example, between 2000 and 2009, the share of private healthcare spending in total healthcare spending increased from 23% to 33% (Martínez Franzoni and Sánchez-Ancochea, 2013), mostly driven by middle and upper-middle income groups. While this points to the strains within the healthcare system, most lower income and lower-middle income groups continue to depend heavily on the CCSS provision of public healthcare, which guarantees free medical attention and medicine for all insured.

Given that we assume formal labor relations for at least one member in our reference family when estimating our living wage and that such workers have public health insurance, a person earning a living wage should have access to the CCSS. For this reason, we assume that workers making a living wage make almost exclusive use of the CCSS for medical attention and medicine with private healthcare only playing a marginal role. Of course, even for a family that goes to the CCSS for most of its medical needs, there is a need for some private healthcare and so some limited costs associated with healthcare. Sometimes, for example, private healthcare is needed to save time and not have to miss work.

The amount spent on healthcare by households at the 30th percentile of the income distribution in Costa Rica was CRC 14,246 (1.6% only of all household spending) according to INEC-ENIG (2013)¹⁰. This estimate is based on data from a large household sample survey and as such is indicative of actual healthcare spending of workers. This estimate (CRC 14,246) is around CRC 3,300 less than amount for healthcare included in the preliminary NFNH estimate (CRC 17,568). Because the health care system in Costa Rica is excellent and widely available to workers and their families, we decided to make a *downward* post-check adjustment for healthcare of CRC 4,000 (a bit more more than the CRC 3,300 indicated above). Having a negative post check adjustment is unusual for the Anker methodology, because in most countries actual healthcare expenditures of working class families are often insufficient to meet adequate healthcare needs, and so upward healthcare post check adjustments are common and downward adjustments are generally not allowed. However, in the case of Costa Rica, we felt that a small downward healthcare post check adjustment is justified in recognition of Costa Rica's excellent and widely available healthcare system.

¹⁰ When we visited healthcare clinics and pharmacies in the study region to find out the cost of healthcare for workers and their families for routine illnesses in the few times per year when the public healthcare system is not used, we found that the spending for healthcare made by families at the 30th percentile of the income distribution according to INEC-ENIG (2013) was indeed sufficient to cover routine healthcare costs for the family.

9.2 Education post check

Similarly, we did a post-check for children's education. Costa Rica has a public education system that provides free primary and secondary education. This includes 2 years of pre-school, 6 years of primary school and 5 years of secondary education. This is considered good quality education, although the education system has felt the effects of the 1980s financial crisis and the 1990s consequent austerity measures. This has given way to a parallel private school system that competes with the public system, although this applies mainly to families from middle and upper income categories (Martínez Franzoni and Sánchez-Ancochea, 2013). For our living wage estimate, we assume that it is acceptable for children of workers to attend public school where there are no tuition fees.

There are, however, other costs related to public education, which families must cover. During fieldwork, people told us that generally a small yearly inscription fee is charged of about CRC 1,500 and another monthly fee of around CRC 1,000 is charged as a voluntary parent fee, as a small contribution to school activities and materials. Otherwise, the cost of school materials, such as writing blocks, pencils and pens, as well as uniforms and backpack must be covered. For this, during fieldwork, we visited several shops where these items were sold, and documented prices. We also asked workers how many of these items they buy per year, to be able to calculate an estimate of public school costs to parents.

CEPAL considers completion of secondary school as minimum for breaking the poverty cycle, and the Anker living wage methodology considers completion of secondary school as a human right and necessary for decency. Table 11 indicates the post-check estimate for education:

Table 11. Overview of Estimate of Typical Yearly Education Costs per Reference Family for Public School

Type of expense	Preschool (1)	Primary (2)	Secondary (3)
Inscription	1,350	1,500	2,500
Other voluntary parent fees	9,900	11,000	11,000
Materials	9,000	10,000	15,500
Uniforms (2) + Sports uniforms (1) + School shoes (1) + Sports shoes (1) + School bag (1)	20,592	41,184	56,386
Yearly education cost per child	40,842	63,684	85,386
Number of years in each level	2	6	5
Total education cost per child per level	81,684	382,104	426,929
Total costs			
<i>Total cost of education per child (4) = (1) + (2) + (3)</i>			890,717

<i>Average yearly cost of education per child (18 years) (5)</i> <i>= (4)/18</i>	49,484
Average yearly cost of education for reference family (6) = (5) x 2 children	98,969
Estimate of monthly cost of education for reference family (7) = (6) / 12 months	8,247

Source: Authors.

Based on these calculations, the post-check for education suggests that the average monthly costs for education for a reference family are about CRC 8,247. This is similar to the CRC 9,470 already included in the preliminary NFNH estimate. Therefore, it was decided not to make a post-check adjustment for education.

10. PROVISION FOR UNEXPECTED EVENTS TO ENSURE SUSTAINABILITY

Since large unforeseen expenses and events can quickly throw workers with a basic life style into poverty and debt from which they may not be able to recover, it is common when estimating a net living wage to add a small margin above the cost of a basic quality life to allow for unexpected events. Margins of 5 and 10 percent are the most common in living wage methodologies (Anker, 2011). For rural Costa Rica, it was decided to use a 5% margin for sustainability to allow for unforeseen emergencies. This percentage is recommended in the Anker methodology and has been used in living wage studies in other countries. Note that interest and debt payments are ignored in our calculations. It is assumed that a living wage would be sufficient to enable workers to stay out of crippling debt. The distribution of the costs of a basic, but decent life in the Caribbean region of Costa Rica, then, is summarized in Table 12.

Table 12. Monthly cost structure of basic, decent life in rural/urban Costa Rica

Item	CRC	US\$
Food cost per month for reference family (1) [1=a-b]	193,385	345
Model diet cost per month for reference family (a)	203,366	363
Food cost per person per day for model diet	1,672	2.98
Monthly value of school food program (b)	9,982	17.82
Housing costs per month (2)	106,000	189
Rent per month for acceptable housing	75,000	134
Utilities and minor repairs per month	31,000	55
Non-Food Non-Housing per month after post check adjustments (3)	257,839	460
Non-Food Non-Housing - Preliminary estimate	261,839	468
Healthcare post check adjustment	-4,000	-7
Education post check adjustment	0	0
Additional 5% for sustainability and emergencies (4)	27,861	50
Total household costs per month for basic but decent living standard for reference family (5) [5=1+2+3+4]	585,085	1,045

Source: Authors.

SECTION III

LIVING WAGE FOR WORKERS

11. FAMILY SIZE NEEDING TO BE SUPPORTED BY LIVING WAGE

Living wage is a family concept. This is clearly shown by the ILO comprehensive review of living wages (Anker, 2011). The need for a living wage to support a family is also included in the living wage definition of the Global Living Wage Coalition (see Section 4 above). It is, therefore, necessary to determine an appropriate family size for rural Costa Rica for estimating a living wage.

A family size of 4 persons (two adults and two children) is used for rural Costa Rica. This family size is based on information on: (i) fertility rate and child mortality rate and therefore number of surviving children women in rural Costa Rica are typically having, and (ii) average household size.

First, for 2014, the total fertility rate for Costa Rica was 1.8 (World Bank, 2014). However, based on household data for the regions in question, fertility rates in study areas are higher than the national average. Guácimo has a total fertility rate of 1.9, Pococí and Siquirres 2.0, and Matina 2.3 (INEC, 2013). It seems prudent to base calculations for the family size on a fertility rate more in accordance with the specific region's data. When 2016 under-five child mortality rate of around 11 per 1000 births is considered for the region (nationally, this rate is lower at around 8), the number of children born and surviving to age 5 is 1.98 for our study regions. This mortality adjusted fertility rate implies an average family size of 4 persons (2 adults and 2 or more children).

Second, household data for 2016 suggest that the average household size varies somewhat according to the specific source. For example, excluding households with only one member, the National Household Survey of 2016, reports an average household size of 3.63 members in rural areas (INEC-ENAH0, 2016). The National Census of 2011, a slightly older source but specifically designed to document demographic tendencies and household characteristics with national coverage (and not based on sampling), estimates an average household size at 3.86 members (again excluding one-member households).

However, the Anker methodology recommends an adjustment to take into consideration that single person households do not include children and very large households are almost always extended family households in which there is a high likelihood of having more than 2 workers. This is a scenario not contemplated when the number of workers in the reference family is determined and so the living wage benchmark is estimated. Therefore, we excluded households with one person and households with more than $2 + \text{total fertility rate} + 3$. In the case of rural Costa Rica, this means that the average household size for households between 2 and 7 people is calculated. In this case, the average household size (HH₂₋₇) is 3.55 according

to INEC-ENAH0 (2016), and 3.70 according to the Census data (INEC-Censo, 2011). For the region of interest, taking Guácimo as a reference, this number is 3.64.

In summary, a family size of four persons (two adults and two children) is reasonable for our reference family size. It is consistent with the total fertility rate for study areas. And while a family size of 4 is greater than the adjusted average household size of around 3.6 for rural Costa Rica and study areas, this 3.6 value for average household size is significantly affected downward by the prevalence of female-headed households (around 30% of all households in Costa Rica according to World Bank 2017). The importance of this downward bias for the reported average household size for estimating our living wage is that female-headed households have fewer workers than other households and this fact is not taken into consideration in how the number of full-time workers in our reference family is calculated (see next section). Indeed, the dependency ratio for families with 4 persons (with two adults) that have the possibility of having 2 workers is almost identical to the dependency ratio for families with of 3.6 persons that takes into consideration the 30% prevalence rate of female-headed households in Costa Rica (and the fact that 30% of such families have at most 1 worker in the family).

12. NUMBER OF FULL-TIME EQUIVALENT WORKERS IN FAMILY PROVIDING SUPPORT

Given that the living wage is a family concept, it is appropriate to expect more than one adult in a family to provide support through work¹¹. Therefore, it is necessary to determine the number of full-time working adults per reference family that provide financial support.

In this report, we use 1.56 full-time equivalent workers per family to estimate the living wage for rural Costa Rica. This means that the monthly cost of a decent but basic living standard for a family of 4 persons of CRC 585,085 (US\$ 1,045) is divided by 1.56 to determine the **take home pay required to pay for the cost of a basic but decent lifestyle in rural Costa Rica, without considering any taxes and deductions. That is, the net monthly living wage for rural Costa Rica is CRC 375,055 (US\$ 670).**

To determine this number of full-time equivalent workers per household to use to estimate a living wage, data was gathered for rural Costa Rica on: (i) labor force participation rates (LFPR), (ii) unemployment rates, and (iii) number of hours worked to determine the extent of part-time employment. From this data, the likelihood of full-time employment is calculated as follows:

Likelihood of full-time employment = LFPR × (1-unemployment rate) × (1 – part-time employment rate/2)

¹¹ Under the Anker living wage methodology, it is considered unacceptable for children to work and be expected to provide support for the family. Therefore, in the living wage benchmark calculations, it is assumed they do not work, which is consistent with the decency concept of a living wage.

To calculate the likelihood of full-time employment, average participation rates of men and women were used. This gave the following likelihood of full time employment.

Table 13. Estimate of percentage of adults who are full-time equivalent workers for rural Costa Rica

Variable	Age group	Rural		
		Men	Women	Average
Labor force participation rate	25-59	89.88	43.73	
Unemployment rate	25-59	0.0366	0.0384	
Part-time employment rate *	15+	0.1893	0.3689	
Estimated percentage of persons working full-time **	25-59	78.39	34.30	56.35

* % of employed with temporary work, working less than 30 hours per week. Used the average for all regions, excluding the Central Valley, which is predominantly urban.
 ** Calculated as: LFPR × (1-Unemployment rate/100) × (1- (Part-time employment rate/100/2)).

Source: Authors based on INEC-ENAH0, 2016; INEC-ENE, 2016.

Using the data from Table 13, the likelihood of full-time employment for men and women between 25-59 years in rural Costa Rica is estimated to be 0.56. This implies 1.56 full-time equivalent workers per household for rural Costa Rica for estimating our living wage benchmark when one adult in a family is a full-time year around worker such as on a plantation.

13. TAKE HOME PAY REQUIRED AND TAKING TAXES AND MANDATORY DEDUCTIONS FROM PAY INTO ACCOUNT

To estimate a gross living wage, it is necessary to consider income tax and mandatory deductions from pay to ensure that workers have sufficient take home pay to be able to afford a decent standard of living for their family.

In Costa Rica in formal labor relations in the private sector, the most important mandatory payroll deduction for workers is the *Caja Costarricense del Seguro Social* (CCSS) of 9.34%, which gives access to the country’s healthcare system and a basic universal pension system. Additionally, workers are expected to contribute another 1.0% under the Worker’s Protection Law (*Ley de Protección al Trabajador*). That is, in total 10.34%. For this report, in the calculations of our gross living wage, we assume that both CCSS and Worker Protection deductions are made and that workers are registered in the social security institute. The employer pays another 26.33% of a worker’s salary, but this is not considered in the calculation of the gross living wage, as this is a business expense and does not affect the worker’s gross salary or take home pay.

Income taxes in Costa Rica do not apply to monthly incomes under CRC 799,000 in 2017. That is, workers in the agricultural sectors would not be expected to pay income tax, even if they earn a living wage. Thus, over the net living wage, a typical agricultural worker with a formal labor contract would pay 9.34% of his or her wage for CCSS and 1.0% for the Worker's Protection Law, and no income tax. That is, a total of 10.34%.

SECTION IV

ESTIMATING GAPS BETWEEN LIVING WAGE AND PREVAILING WAGES

14. PREVAILING WAGES

14.1 Basic wage, cash allowances and bonuses

Workers in Costa Rica must receive a bonus in the form of a 13th month, commonly known as *aguinaldo*. This bonus is paid in December, and constitutes an obligatory payment under Costa Rican law.

However, informal labor relations are relatively common in agriculture, and not all (especially temporary) workers receive this bonus. According to a survey in 2013, about 35% of workers in agriculture do not receive the 13th month (MISOC, 2013). Data from INEC (2016) suggests this percentage is a bit higher at 37.9% (INEC-ENAH0, 2016). Data from the Continuous Employment Survey for 2017 confirm this for rural areas, showing that about 36% of workers have no work risk insurance, another obligatory insurance which employers must pay.

This high degree of informality in agricultural work has a lot to do with the type of work and remuneration that is common in the sector. Agricultural labor demand can be quite elastic depending on weather conditions, and therefore flexible (albeit informal) hiring practices are relatively common. For example, it is common in agricultural sectors to work with subcontractors who assemble work teams. While the subcontractor may have a formal labor relation with the producer, this is not always the case for the rest of the workers the subcontractor employs (Voorend, Robles and Venegas, 2013). At the same time, a common form of remuneration in the agricultural sectors is piece rate. That is, many workers receive remuneration based on a certain task, or by weight or quantity of product harvested. Such kinds of labor relations are not always backed by a formal contract.

All in all, then, there are two types of agricultural workers. One with a permanent and formal contract who receives the 13th month (and has health and work risk insurance), and another with a temporary and informal work relation, who does not.

14.2 In-kind benefits as partial payment of living wage

In-kind benefits are allowed as partial payment of a living wage based on guidelines set forth in the Anker methodology (Anker and Anker, 2017). Typical in-kind benefits include things such as housing, meals, transport, food rations, and health clinic. There is, however, a 30% maximum limit on the portion of the total wage that can be paid in in-kind benefits according to the Anker methodology. In addition, for in-kind benefits to be counted as partial payment of a living wage, they must be provided at a basic standard of decency.

Banana farms in Costa Rica differ greatly in the types of in-kind benefits offered. Some farms provide housing for workers, but this is typically not provided for all workers or for families, nor by all farms. Similarly, some farms provide transport service to and from the farm (with some charging for this), while other farms do not provide transport. Some farms offer school supplies for their fixed workers, but not for temporary workers.

When a particular in-kind benefit is provided throughout an industry, its fair and reasonable value is estimated in an Anker methodology living wage report, and the cash living wage required is reduced accordingly on the assumption that most workers in the industry receive this in-kind benefit. However, when there is a great deal of variation among establishments in the in-kind benefits provided in an industry, it is not considered appropriate to reduce the cash living wage for the industry, since there would be too much variation in the value of in-kind benefits. Instead, fair and reasonable values of in-kind benefits (and therefore cash living wage) and gap to a living wage would need to be calculated on a farm by farm basis. For example, when farm A provides free meals, farm A should be given “credit” for this and the gap to a living wage for farm A would be reduced.

Given the large variation of in-kind benefits in the banana industry in Costa Rica, we did not feel that it was appropriate to consider the value of in-kind benefits as partial payment of a living wage for the banana industry as a whole.

15. LIVING WAGE IN CONTEXT AND COMPARED TO OTHER WAGES

To compare the living wage estimate with prevailing wages, we use data from secondary sources on minimum wages and prevailing wages for temporary and fixed workers, as well as international and national poverty line wages.

First, we used the minimum wage for agricultural workers. The minimum wage per month for agricultural workers was calculated in a different way than done by the government. The government minimum wage per month is determined by multiplying 365/12 days per month, or every day, times the daily minimum wage. This is unrealistic for daily workers who do not have a formal monthly contract. Therefore, we calculated a more realistic minimum wage per month for many agricultural workers by multiplying the daily minimum wage by 26 workdays per month.

Second, we used national and international poverty line wages. These poverty lines were converted to poverty line wages for our reference family by multiplying by four (number of family members in our reference size family) and dividing by the same number of full-time equivalent workers in our reference family of 1.56.

Third, we used data from secondary sources on prevailing wages in agriculture, specifically for the pineapple, banana and plantain sectors. These prevailing wage estimates come from national survey data from the National Institute for Statistics (INEC). Specifically, we used data from the Income and Expenditure Survey for 2013 (INEC-ENIGH, 2013), which indicate average income for salaried workers in the banana, pineapple and plantain sectors in Costa

Rica. Similarly, the National Household Survey gives an average income for low-skilled workers in banana, pineapple and plantain sectors for 2016 (INEC-ENAHO, 2016), and finally, the Continuous Employment Survey does the same for 2015 (INEC-ECE, 2015)¹².

15.1 Wage ladder

Figure 8 provides a wage ladder that compares our living wage to poverty line wages, the minimum wage, and prevailing wages. For comparison, prevailing wage estimates were, where appropriate, adjusted for inflation to 2017 and increased by the prorated monthly value of the 13th month bonus paid in December for workers with a formal contract. Readers are referred to discussion in the previous section for information on the various wages included in the wage ladder.

The comparisons presented in Figure 8 paint a picture of a situation where current prevailing wages are below a living wage. In addition, it is worth noting that the wage references in Figure 8 indicate gross wages which might include overtime pay and do not take into consideration that workers must pay payroll taxes.

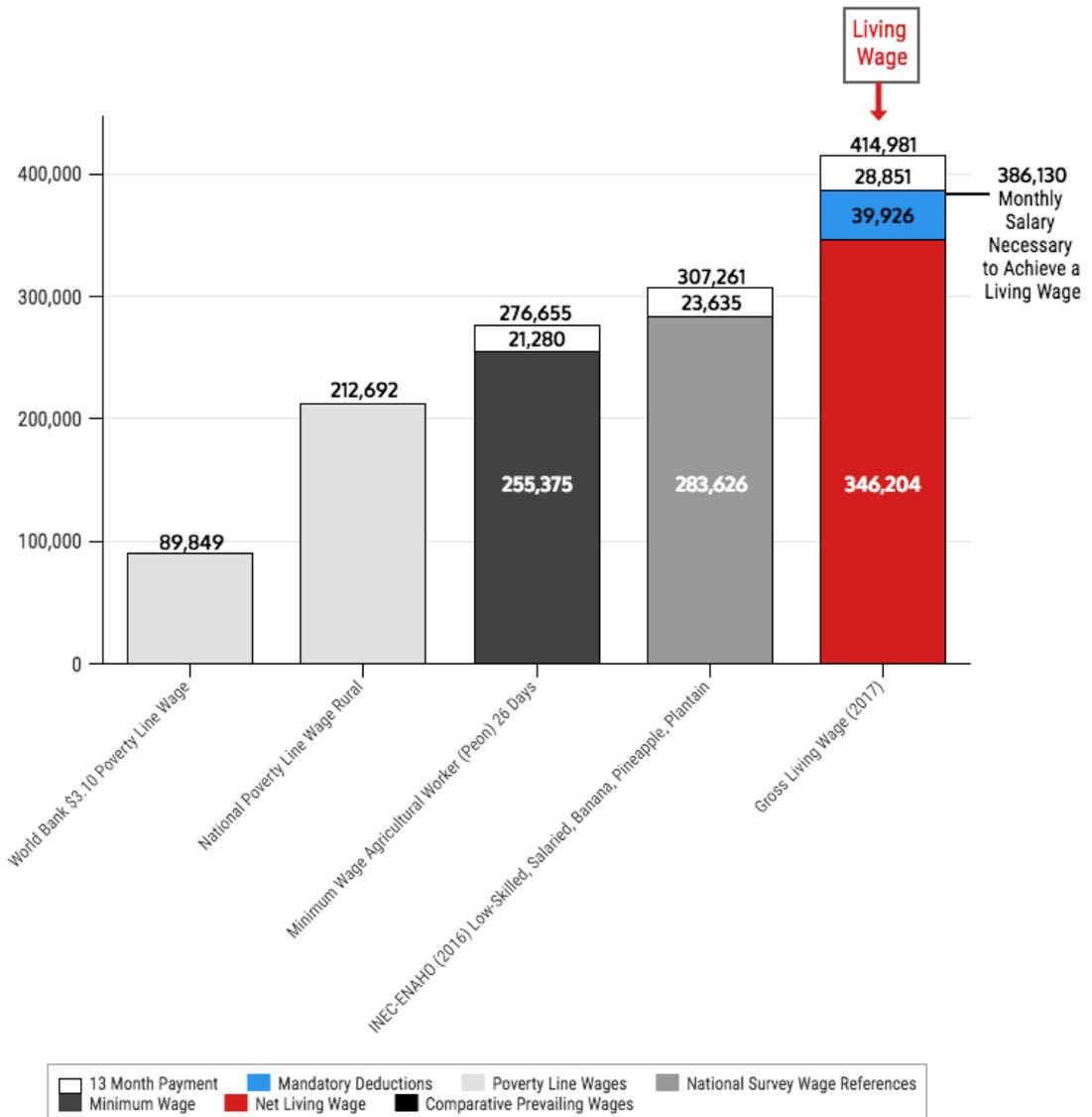
As can be seen from Figure 8, our gross living wage is around 40% higher than prevailing wages in the banana, pineapple and plantain sector (INEC-ENAHO, 2016) even though prevailing wages include overtime pay whereas a living wage must be earned in normal working hours. The gap between our living wage and the agricultural minimum wage is somewhere around 50% for minimum wage workers hired on a daily basis. Our living wage is around twice the national poverty line wage and around 4.5 times the World Bank international poverty line wage – demonstrating how inappropriately low these poverty lines are for measuring decency in Costa Rica.

It should be clear from this report that current gaps to a living wage reflect low wages in the agricultural sector rather than extravagant standards for our living wage estimate, as throughout this report rather conservative assumptions of a basic but decent living standard for Costa Rica were used to estimate our living wage. This presents a big challenge for Costa Rica's agricultural sector and meeting this challenge will require the involvement of all of the stakeholders in the international value chain.¹³

¹² There are more recent INEC-ECE surveys, but we only had access to disaggregated sector wages for the 2015 survey.

¹³ There is also another challenge of informal labor relations of agricultural workers, since a large proportion of agriculture workers do not have a formal contract.

Wage ladder for living wage per month for rural Costa Rica (in CRC), Limón and Heredia



Source: Authors.

Notes: 1 World Bank Poverty Line was converted to CRC using the World Bank’s Private Consumption PPP (purchasing power parity) and converted to a wage using the living wage reference family size and number of full-time workers. National poverty line was converted to a wage using the living wage reference family size and number of full-time workers. /2 These data refer to gross wages (not including 13th month) from main job. Adjusted for inflation to 2017. Value in another source was practically the same; INEC-ECE (2015) reported CRC 283,619 for low-skilled salaried workers in banana, pineapple and plantain. /3 Calculated based on minimum wage per day and 26 workdays per month. 4/ This refers to the net (after taxes) monthly cash wage which would be enough to afford a decent standard of living if the 13th month bonus is paid. If the 13th month bonus is not paid, this monthly cash amount would

need to be increased by the prorated monthly value of the 13th month bonus. /5 This refers to the prorated monthly value of the 13th month bonus which is paid in December.

16. CONCLUSIONS

This report has estimated a living wage for rural areas of Costa Rica's Limón Province (specifically for the Guápiles, Guácimo, Siquirres, and Matina regions) and Heredia Province (Puerto Viejo de Sarapiquí region), with a specific although not exclusive focus on the banana industry, where about 85-90% of total banana production in Costa Rica is concentrated. This area is also an important pineapple producing region. Table 14 provides a summary of the details of the living wage estimate. Table 15 indicates some key assumptions of the living wage estimate.

Our net living wage for rural Costa Rica is CRC 375,055 (US\$ 670), and our gross living wage is CRC 414,981 (US\$741) that takes into consideration that workers have mandatory payroll deductions for the public social security system and workers' protection insurance. This means that for workers with a formal contract who receive by law a 13th month bonus, the net cash basic living wage and gross cash basic living wage required to be received each month is CRC 346,204 (US\$ 618) and CRC 386,130 (US\$ 689) respectively.

The gap between our gross living wage and current prevailing wage (that includes overtime pay) in the banana, pineapple and plantain sector is around 40%. The gap to the agricultural minimum wage is around 50% based on a more realistic 26 workdays per month for workers hired on a daily basis. Our gross living wage is close to twice the national poverty line wage. These gaps to our living wage are not due to our living wage being extravagantly high. As demonstrated throughout this report, we used conservative assumptions to estimate our living wage. For example, for our model diet we used the poverty line diet as the principle reference. Similarly, for our housing standard, we used the government's conservative social housing standard as a reference. This means that a house of 42 m² was considered acceptable, which is quite small for an upper-middle income country such as Costa Rica.

It is worth noting that the presence of excellent public services in Costa Rica reduced our living wage, since they significantly reduced education and healthcare costs. In addition, food costs were reduced by a school lunch program. On the other hand, government policy to make Costa Rica self-sufficient in food production significantly increased food prices in Costa Rica and so our living wage.

Appropriate mechanisms need to be worked out to narrow the gap between a living wage and prevailing wages of agricultural workers in Costa Rica and to eventually move to payment of a living wage so that workers are able to afford a better living standard and eventually a decent living standard. In order to achieve this objective, it is important to involve the entire supply chain/value chain, since agricultural employers in Costa Rica alone do not appear to be able to cover the costs that paying a living wage implies. As it is, many employers told us that they feel they are under heavy pressure from international markets which they feel leave

them with little margin for improvement in wages. It is, therefore, of utmost importance to include international buyers and retailers of agricultural produce in any attempts to improve wages on the ground.

Table 14. Living wage and monthly cost structure of basic, decent life in rural Costa Rica

Item	CRC	US\$
PART I. FAMILY EXPENSES		
Food cost per month for reference family (1) [1=1a-1b]	193,385	345
Model diet cost per month for reference family (1a)	203,366	363
Model diet food cost per person per day	1,672	2.98
Monthly value of school food program (1b)	9,982	17.82
Housing costs per month (2)	106,000	189
Rent per month for acceptable housing	75,000	134
Utilities and minor repairs per month	31,000	55
Non-Food Non-Housing cost per month after post check adjustments (3)	257,839	460
Non-Food Non-Housing - Preliminary estimate	261,839	468
Healthcare post check adjustment	-4,000	-7
Education post check adjustment	0	0
Additional 5% for sustainability and emergencies (4)	27,861	50
Total costs per month for basic but decent living standard for reference family (5) [5 = 1+2+3+4A+4B]	585,085	1,045
PART II. LIVING WAGE PER MONTH		
Net living wage per month (6) [6 = 5/# full-time workers]	375,055	670
Statutory deductions from pay (7A) ^a	39,926	77
Gross living wage per month (8) [8 = 6+7A]	414,981	741
PART III: CASH (BASIC) LIVING WAGE NEEDING TO BE RECEIVED EACH MONTH ASSUMING WORKERS RECEIVE TYPICAL BONUSES AND BENEFITS IN AGRO INDUSTRY		
Value per month of common in-kind benefits in industry or establishment (9A)	0	0
Prorated monthly value of 13 th month bonus (9B) ^b	28,851	52
Net cash (basic) living wage needed each month assuming workers receive typical in-kind benefits, cash allowances, bonuses, and benefits in an industry or establishment (10) [10 = 6 - 9A - 9B]	346,204	618
Gross cash (basic) living wage needed each month assuming workers receive typical in-kind benefits, cash allowances, bonuses, and benefits in an industry or establishment (11) [11 = 10 + 7A]	386,204	689

Source: Authors.

Notes:

a. Statutory deductions from pay include 9.34% for CCSS (Costa Rica's Social Security System) and 1.0% for the Worker's Risk Fund.

b. Common cash allowances and bonuses include a 13th month bonus known as Aguinaldo. Taxes are not paid on the Aguinaldo.

Table 15. Key values and assumptions for living wage estimate

Key values and assumptions	Comments
Location (& industry if relevant)	Rural Costa Rica, Limón and Heredia Provinces (banana sector)
Exchange rate of local currency to US\$	560 CRC = 1 US\$
Number of full-time workdays per month	26
Number of hours in normal workweek	48
Number of workers per couple	1.56
Reference family size	4
Number of children in reference family	2
Preliminary ratio of non-food non-housing costs to food costs	1.354

Source: Authors.

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ANNEXES

Table A1. Comparison of the Living Wage Model Diet (LW) and the Poverty Line diet (PL)

Food Group	Food Item	RURAL CBA - PL Diet							LIVING WAGE DIET							
		Number of food items	EDIBLE GRAMS	PURCHASED GRAMS	Calories	% CALORIES DIET	Daily cost in CRC February 2017	% in cost structure	Number of food items	EDIBLE GRAMS	PURCHASED GRAMS	Calories	% CALORIES DIET	Daily cost in CRC February 2017	Daily cost CRC 2017	% in cost structure
Cereals and grains		4	206	206	744	32.94	147.03	9.4	3	267.9	267.9	968.8	40.1	202.54	202.54	12.1
	Rice	1	162	162	584	25.84			1	215.0	215.0	776.2	32.2	136.88		
	Pasta	1	9	9	33	1.45			1	17.9	17.9	66.3	2.7	26.73		
	Cereals	1	9	9	31	1.38										
	Maize Flour	1	26	26	96	4.27			1	35.0	35.0	126.4	5.2	38.93		
Prepared cereals		4	37	37	107	4.76	87.85	5.6	1	32.0	32.0	85.1	3.5	63.42	63.42	3.8
	Bread	-														
	Salty bread	1	24	24	58	2.58			1	32.0	32.0	85.1	3.5	63.42		
	Sweet cookie	1	6	6	19	0.84										
	Sweet Cookie	1	5	5	23	1.03										
	salty	1	2	2	7	0.31										
Roots and tubers		2	48	62	47	2.07	56.12	3.6	3	73.6	101.0	81.4	3.4	66.64	66.64	4.0
	Potato	1	25	32	19	0.84			1	32.4	43.2	25.0	1.0	40.96		
	Plantain	1	23	30	28	1.23			1	25.0	38.5	30.5	1.3	16.45		
	Cassava								1	16.2	19.3	25.9	1.1	9.23		
Pulses, beans, legumes,		2	44	44	153	6.75	45.53	2.9	1	63.0	63.0	218.0	9.0	58.66	58.66	3.5
	Beans	-														
	Black	1	36	36	124	5.47			1	63.0	63.0	218.0	9.0	58.66		
	Beans - Red	1	8	8	29	1.28										
Dairy		2	208	208	118	5.24	166.75	10.6	2	206.8	206.8	144.6	6.0	161.59	161.59	9.7

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Food Group	Food Item	RURAL CBA - PL Diet							LIVING WAGE DIET							
		Number of food items	EDIBLE GRAMS	PURCHASED GRAMS	Calories	% CALORIES DIET	Daily cost in CRC February 2017	% in cost structure	Number of food items	EDIBLE GRAMS	PURCHASED GRAMS	Calories	% CALORIES DIET	Daily cost in CRC February 2017	Daily cost CRC 2017	% in cost structure
Eggs	Milk	1	198	198	98	4.36			1	192.5	192.5	117.4	4.9	123.51		
	Cheese	1	10	10	20	0.88			1	14.3	14.3	27.1	1.1	38.08		
		1	24	27	36	1.57	39.33	2.5	1	52.8	60.0	75.5	3.1	67.21	67.21	4.0
	Egg	1	24	27	36	1.57			1	52.8	60.0	75.5	3.1	67.21		
Meats and Fish				94						132.1						
	Beef	2	25	25	61	2.73	110.52	7.1	1	36.4	36.4	106.0	4.4	139.73	139.73	8.4
	Steak	1	14	14	35	1.56			1	36.4	36.4	106.0	4.4	139.73		
	Ground meat	1	11	11	26	1.17										
	Chicken	2	27	34	56	2.5	73.38	4.7	1	48.6	71.4	104.4	4.3	124.01	124.01	7.4
	Chicken-thigh	1	10	12	20	0.9			1	48.6	71.4	104.4	4.3	124.01		
	Chicken - whole	1	17	22	36	1.6										
	Sausages		21	21	64	2.83	57.60	3.7	0	0.0	0.0	0.0	0.0	0.00	0.00	0.0
	Mortadela	1	10	10	30	1.32				0.0	0.0	0.0	0.0	0.00		
	Salchichón	1	11	11	34	1.51				0.0						
	Fish		14	14	41	1.84	93.51	6.0	1	24.3	24.3	24.5	1.0	64.72	64.72	3.9
	Tuna	1	14	14	41	1.84										
	Tilapia/white fish								1	24.3	24.3	24.5	1.0	64.72		
Vegetables		8	87	97	29	1.33	170.92	10.9	3	191.3	220.7	52.9	2.2	263.11	263.11	15.7
	Tomato	1	30	31	6	0.28			1	63.8	70.1	11.5	0.5	91.51		
	Onion	1	18	20	8	0.36			1	63.8	70.9	25.5	1.1	90.28		
	Coriander	1	2	3	1	0.04										
	Paprika	1	5	5	2	0.08										
	Chayote	1	11	13	3	0.15										
	Cabbage	1	12	15	3	0.15			1	63.8	79.7	15.9	0.7	81.32		

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Food Group	Food Item	RURAL CBA - PL Diet							LIVING WAGE DIET							
		Number of food items	EDIBLE GRAMS	PURCHASED GRAMS	Calories	% CALORIES DIET	Daily cost in CRC February 2017	% in cost structure	Number of food items	EDIBLE GRAMS	PURCHASED GRAMS	Calories	% CALORIES DIET	Daily cost in CRC February 2017	Daily cost CRC 2017	% in cost structure
Fruits	Carrot	1	7	7	3	0.13										
	Garlic	1	2	3	3	0.14										
		4	39	50	23	1.02	38.62	2.5	2	95.7	141.8	63.1	2.6	77.15	77.15	4.6
	Banana	1	10	13	9	0.41			1	47.8	64.6	42.6	1.8	31.32		
	Papaya								1	47.8	77.2	20.6	0.9	45.83		
	Orange	1	18	24	8	0.34										
	Apple	1	5	5	3	0.13										
Pineapple	1	6	8	3	0.14											
Oils and fats		4	47	47	353	15.63	67.04	4.3	2	47.2	47.2	337.4	14.0	57.59	57.59	3.4
	Vegetable oil	1	18	18	159	7.05			1	32.4	32.4	286.3	11.9	28.95		
	Manteca vegetal	1	16	16	136	6.02										
	Margarine	1	6	6	43	1.91										
	Natilla	1	7	7	15	0.65			1	14.8	14.8	51.1	2.1	28.64		
Sugar		1	102	102	392	17.36	86.24	5.5	1	30.0	30.0	116.1	4.8	18.99	18.99	1.1
	Sugar	1	102	102	392	17.36			1	30.0	30.0	116.1	4.8	18.99		
Non-alcoholic beverages		2	34	34	12	0.53	95.33	6.1	1	7.9	7.9	0.1	0.0	27.56	27.56	1.6
	Coffee	1	10	10	0	0			1	7.9	7.9	0.1	0.0	27.56		
	Natural drinks	1	24	24	12	0.53										
Condiments and Spices		3	20	20	20	0.9	53.44	3.4								
	Condiments	1	4	4	9	0.42										
	Sauces/spices	1	10	10	11	0.48										
	Salt	1	6	6	-	-										

Living Wage Report for Rural Costa Rica, Limón Province and Heredia Province

Food Group	Food Item	RURAL CBA - PL Diet							LIVING WAGE DIET							
		Number of food items	EDIBLE GRAMS	PURCHASED GRAMS	Calories	% CALORIES DIET	Daily cost in CRC February 2017	% in cost structure	Number of food items	EDIBLE GRAMS	PURCHASED GRAMS	Calories	% CALORIES DIET	Daily cost in CRC February 2017	Daily cost CRC 2017	% in cost structure
Daily per capita value		44	983	1028	2256	100	1389.2	95.2								
	Percentage added for salt, spices, sauces, and condiments - PL: 0% (already in) LW: 3%						0.00	0.0							41.79	2.5
	Percentage added for spoilage and waste - PL: 5%; LW: 4%						69.46	4.4							55.72	3.3
	Percentage added for variety - LW: 14%. PL: (0% but more food items in PL diet)/ NOTE 1														181.08	10.8
	Total daily cost of diet in CRC						1458.6	100							1671.5	100
	Total daily cost of diet in US\$						2.60								2.98	

Note:

The PL diet has 44 food items; the LW diet 23. That is, the PL diet has almost 50% more food items. The 14% added for variety in the LW diet case is needed, because it includes fewer food items than the PL diet.