

# Towards a living income calculation for cocoa households in Ghana and Côte d'Ivoire<sup>1</sup>

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## Abstract

The cocoa sector faces many challenges. According to available data, most of the farmers in West Africa live below the World Bank poverty line, and are under pressure from high inflation rates and declining inflation-adjusted cocoa prices. Meanwhile, according to the United Nations Guiding Principles on Business and Human Rights, all companies are responsible for ensuring human rights violations do not occur within their value chains. The introduction of a 'living income' is important for avoiding human rights abuses: Without a living income many of the problems within the sector cannot be solved. One of the major difficulties in defining a living income is a lack of accessible and reliable data on the present income sources of cocoa farmers.

In this paper, the authors present robust quantitative and qualitative data on current income diversification strategies among 3045 cocoa growing households in Ghana and Côte d'Ivoire. This extensive data set is collected in November 2016 – January 2017 (Ghana) and February-March 2017 (Cdi) by KIT, in collaboration with local research partners ALC and ALP. The data will be used to contribute to the ongoing efforts to develop an approach on how to calculate a living income for cocoa growing households in these two countries. The surveys gives important insights on how to proceed in the living income debate. The data collected on household size, farm size, income diversification and sources are sufficient baseline for the further debate on living income using a household approach.

Additionally, it shows that cocoa farming households have a diversified income. Even though, cocoa is still the most important crop for cocoa households, it accounts for only roughly 63% of total income. Furthermore, the research also collected qualitative data, which will help to understand intra household dynamics and economic decision-making.

Additional data on cocoa producing household's income and poverty levels will be published in the near future.

## 1. Introduction

Since cocoa prices reached a record low, in the year 2000, governments, the cocoa industry, academia and non-governmental organisations (NGOs) have been looking at the future of cocoa farming and the economic situation faced by cocoa farming households. The situation faced by cocoa farming households has also fed into an international debate on living wages and income, which is led by the Global Living Wage Coalition.<sup>2</sup> Standard-setting organisations, companies, NGOs and development institutions are trying to find common ground on the definition and calculation of a decent wage and a decent income for different sectors.

Many stakeholders agree that the situation of cocoa producing households has to be improved. However, one of the problems concerning the definition of a decent income for the cocoa sector is a lack of reliable and publicly available data on smallholder yields, income, income diversification, poverty levels and gender differentiations.

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<sup>1</sup> Bymolt, R., Laven, A., Steijn, C. and Tyszler, M. (forthcoming) Demystifying the cocoa sector in Ghana and Côte d'Ivoire. KIT, in collaboration with Hütz-Adams, F., Südwind Institute, and Ruf, F., CIRAD. Supported by the Jacobs Foundation, International Trade Initiative (IDH), UTZ, the Lindt Cocoa Foundation and the German Initiative for Sustainable Cocoa (GISCO).

<sup>2</sup> See [www.livingwagecoalition.org](http://www.livingwagecoalition.org).

## **2. Definition of a decent income**

Debate surrounding ‘decent income’ might be new for the cocoa sector, but it is part of a much broader discussion. The idea that remuneration for labour should provide a decent livelihood is not new. One of the earliest instances where the moral aspects of wage labour is discussed is in the Book of Leviticus which states that, “The labourer is worth his wages” (Leviticus 19:13). Greek philosophers, including Plato and Aristotle, discussed the necessity of decent remuneration. St. Thomas Aquinas followed in their footsteps in the 13th century, and in the 18th century Adam Smith also discussed the problem (Anker 2011: 1).

When the International Labour Organization (ILO) was founded in 1919 the preamble of the founding document declares fundamental rights for all workers. These include the necessity for “payment adequate to maintain a reasonable standard of living that is understood in their time and country”. The United Nations (UN) adopted this idea in their Universal Declaration of Human Rights: “Everyone who works has the right to just and favourable remuneration ensuring for himself and his family an existence worthy of human dignity, and supplemented, if necessary, by other means of social protection” (UN 1948: Article 23(3)).

The United Nations International Covenant on Economic, Social and Cultural Rights is even more specific and declares: “[...] the right of everyone to the enjoyment of just and favourable conditions of work which ensure, in particular: remuneration which provides all workers, as a minimum, with [...] a decent living for themselves and their family” (UN 1966: Article 7).

It is obvious that a decent income is necessary to achieve the goals set by the UN in their Sustainable Development Goals. Goal 1 (End poverty in all its forms everywhere) and Goal 2 (End hunger, achieve food security and improved nutrition and promote sustainable agriculture) are directly connected to income levels. Today, approximately 2 billion people are involved in global value chains (Ruggie 2016), including roughly 5 million cocoa producing households (Anga 2016) and a great number of additional households integrated in the cocoa value chain as labourers, traders, transporters or input suppliers.

### **Responsibility of companies**

In today's globalised economy, companies often have a significant influence on the living conditions of their employees, and on the livelihoods of producers further down the value chain. The cocoa value chain is also subject to these dynamics.

With this in mind, the United Nations Human Rights Council formulated its resolution 17/4 of 16 June 2011 on the “UN Guiding Principles of Business and Human Rights” (UN 2011). Central aspects in these guiding principles are the duty of governments and companies to protect people, respect their rights and ensure remedy for those affected by abuses.

However, while governments, enterprises and institutions agree that a salary or income that allows the survival of a household is a core human right, there is still no generally accepted definition of a decent wage or income.

### **ILO definition of decent wage**

The ILO, which is the UN organisation responsible for developing conventions to protect the rights of workers, has defined basic standards for the calculation of a decent wage:

“The elements to be taken into consideration in determining the level of minimum wages shall, so far as possible and appropriate in relation to national practice and conditions, include:

(a) the needs of workers and their families, taking into account the general level of wages in the country, the cost of living, social security benefits, and the relative living standards of other social groups;

(b) economic factors, including the requirements of economic development, levels of productivity and the desirability of attaining and maintaining a high level of employment” (ILO Convention No. 131, Article 3, 1970).

This definition may serve as a role model for the cocoa industry: the income of household should be sufficient to cover the cost of living, and guarantee basic social security and living standards comparable to other social groups.

Usually, cost calculations review the average numbers of household members, and number of full-time equivalent workers per household (nationally or regionally), taking both into consideration. (Anker 2011: 6). Basic figures can then be calculated by looking at the:

- Cost of a nutritious low-cost diet, based on the recommendations of the World Health Organization;
- Cost of basic acceptable housing, based on recommendations of the United Nations Human Settlements Programme;
- Cost of clothing and footwear;
- Cost of health expenses, education and transport, based on the local average;
- Amount of savings required for unexpected events like accidents, diseases etc.<sup>3</sup>

The calculation of a decent wage therefore requires the availability of quality statistical data. Unfortunately, it is a major challenge for many countries to collect and produce reliable and high-quality statistical data. To overcome this problem, several initiatives are currently collecting living cost data from different value chains, including industrial and agricultural production on more than 20 countries. Due to the different background of value chains, some of these projects are using country or region-specific data; others collect data around specific factories.<sup>4</sup>

### *Situation in the cocoa sector*

In the cocoa sector, the first necessary step is to define the livelihood needs of cocoa producing household. Because of the lack of available data, it is a difficult task. Additionally, the methodology developed by the Global Living Wage Coalition for the calculation of a decent wage for labourers cannot be applied to farming households without adjustments. Unlike labourers, farming households have farming costs, such as inputs, cost of hired labour, interest costs due to investment loans, and potentially costs of renting land. Not only are the costs different, but the income is different as well. Farming households usually have more than just one income source, as they produce more than one crop. The crops can be sold, which increases income but may also increase the cash needed to buy food. Members of farming household sometimes also earn money as seasonal labourers or work as traders.

## **3. Methodology**

Between November 2016 and January 2017 (Ghana) and February and March 2017 (Côte d'Ivoire) an extensive data collection exercise was carried out by KIT, in collaboration with local research partners Agriculture and Lifecycle (ALC), Ghana and Agricole Local Partner (ALP), Côte d'Ivoire. The exercise collected robust quantitative and qualitative data on current income diversification strategies from 3,045 farming households in cocoa growing areas in Ghana and Côte d'Ivoire.

The survey covered social-economic characteristics and income sources of the farming households, nutrition and food security questions and detailed questions on the production and sales of two major crops (out of nine possible crops) per household. The survey contained questions covering the Dietary Diversity Index (DDI) and the Poverty Probability Index (PPI) and included DHS Wealth Index survey questions.

The focus group discussions (FGD) consisted of a variety of different exercises aimed at supporting the survey questions and understanding the 'why, how, and for whom?'. The participatory exercises included scoring and ranking, and provided the opportunity to probe farmers' perceptions to understand risks and their behaviour<sup>5</sup>. The FGD participants included all survey respondents.

### *Sampling of villages*

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<sup>3</sup> A handbook with detailed information on how to do these calculations according to the Anker Methodology, which is used by the Global Living Wage Coalition see: Anker/Anker 2017.

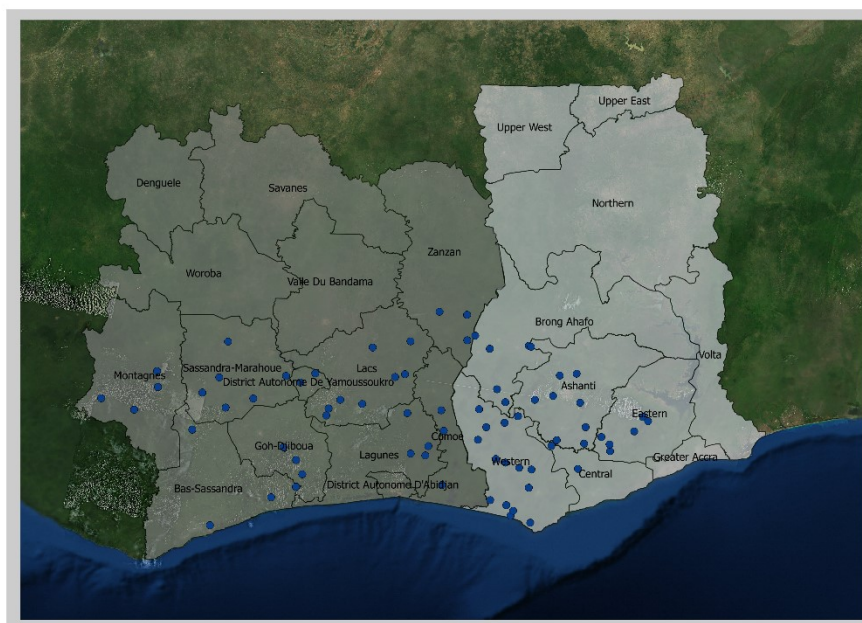
<sup>4</sup> See [www.livingwagecoalition.org](http://www.livingwagecoalition.org). A growing number of studies are available.

<sup>5</sup> The KIT team developed a set of adapted participatory development (PADev) exercises [www.padev.nl](http://www.padev.nl).

Fieldwork took place in 37 villages in Ghana and 37 villages in Côte d'Ivoire. The number of villages allocated per geographical area was proportional to recent cocoa production figures. The local research partners provided a list of all potential villages in the selected locations, which were then randomly selected.

The selected villages were notified in advance. Map 1 indicates the location of the selected villages in Ghana and Côte d'Ivoire.

Map 1: Location of sampled villages



#### Sampling of respondents

Respondents from each village were selected by means of a transect: the village was divided into four areas (North, East, South, West) and 10 houses were randomly sampled. The household member that was encountered was invited for the interview. For all 10 members invited the researchers made sure at least three were women. In the final sample, in both countries, 34% of respondents were women.

## 4. Initial findings

The household survey produced an extensive dataset on many different aspects of life in cocoa producing areas of Ghana and Côte d'Ivoire and analysis of this data is ongoing. In early 2018 the final report and full dataset will be made available to the public.

### Definition of a cocoa producing household

Calculating the living income from cocoa farmers requires a household approach as the living income should provide sufficient income for the whole family. In our study, we defined cocoa households as those for whom cocoa was their most or second most important crop. For Ghana this was 84% of the total sample (N = 1,318), and for Côte d'Ivoire this was 61% (N = 910).

Table 1: Most important or second most important crop (combined), by country

	Ghana	Côte d'Ivoire	p-value	sig
Cocoa	84%	61%	0.00	***
Plantain	26%	5%	0.00	***
Cassava	23%	25%	0.29	
Maize	10%	6%	0.00	***
Palm	8%	4%	0.00	***
Rice	5%	12%	0.00	***

Peppers	5%	0%	0.00	***
Rubber	3%	9%	0.00	***
Tomatoes	3%	2%	0.33	
Cashews	2%	15%	0.00	***
Cocoyam	2%	0%	0.00	***
Coconut	2%	0%	0.00	***
Okra	2%	3%	0.04	**
Yam	1%	8%	0.00	***
Eggplant	1%	4%	0.00	***
Chili	0%	8%	0.00	***
Groundnuts	0%	5%	0.00	***
Coffee	0%	7%	0.00	***
N	1,318	910		

## Dependency ratio

Household size has often been used to estimate poverty and livelihood status, and particularly to estimate income per person per day. In Ghana, cocoa households had an average of 5.85 persons, compared with 5.3 persons in non-cocoa households (p-value < 0.01). In Côte d'Ivoire, an average of 6.98 persons lived in each cocoa household compared with 6.5 persons in non-cocoa households (p-value < 0.05).

Table 2: Mean number of members in the household, by cocoa vs non-cocoa households

	Ghana cocoa	Ghana non-cocoa	p- value	sig	CdI cocoa	CdI non- cocoa	p- value	sig
Mean	5.85	5.3	0.01	***	6.98	6.5	0.02	**
std.error	0.08	0.16			0.12	0.15		
N	1,310	240			889	565		

In Ghana, in cocoa growing households, the dependency ratio<sup>6</sup> was found to be 1.02, compared with 0.80 for non-cocoa growing households (p-value < 0.01). This suggests that there is more of a burden on productive members of cocoa producing households than in non-cocoa households. However, there was found to be no statistical difference between cocoa and non-cocoa households in Côte d'Ivoire (cocoa 1.08, non-cocoa 1.18).

Table 3: Household, dependency ratio, by cocoa vs non-cocoa households

	Ghana cocoa	Ghana non-cocoa	p-value	sig	CdI cocoa	CdI non- cocoa	p-value	sig
Mean	1.02	0.80	0	***	1.08	1.18	0.12	
std.error	0.03	0.05			0.03	0.05		
N	1,282	237			882	558		

Furthermore, when disaggregating by the sex of the household head, significant differences in the number of people in the household were found. In Ghana, female headed households had an average of 5 members compared with 5.94 members for male headed households (p-value < 0.01). In Côte d'Ivoire, female headed households had an average of 5.29 members compared with 6.99 members for male headed households (p-value < 0.01).

<sup>6</sup> The dependency ratio is used to measure the pressure on the productive population. It is an age-population ratio of those typically not in the labour force (the dependent population is aged 0 to 14, and 65+) and those typically in the labour force (the productive population is aged 15 to 64). Based on survey household composition data, we can calculate the dependency ratio.

Table 4: Mean number of members in the household, by sex of household head

	Ghana female head	Ghana male head	p-value	sig	CdI female head	CdI male head	p-value	sig
Mean	5	5.94	0	***	5.29	6.99	0	***
std.error	0.16	0.07			0.27	0.1		
N	286	1,262			153	1,296		

## Size of farms

On average, Ghanaian farmers in our sample cultivate 3.65 ha under cocoa, with most reporting between 2 and 5 ha. In Côte d'Ivoire, farmers cultivate 4.17 ha under cocoa, with most reporting between 2 and 5 ha. It should be noted that not all of this land has mature cocoa trees, which typically yield well after around 5 years. In Ghana, the *abunu*<sup>7</sup> sharecropping arrangement is sometimes utilised by households who want to expand their own cocoa land by working on the land of others.

Table 5: Mean land under cocoa, owned, leased, *abunu*, *abusa* (hectares), by country

	Ghana	Cote d'Ivoire	p-value	sig
Land under cocoa (ha)	3.65	4.17	0	***
Land under cocoa, with trees older than 5 years (ha)	2.8	3.48	0	***
Cocoa land owned (ha)	2.74	3.89	0	***
Cocoa land leased (ha)	0.02	0.01	0.43	
Cocoa land <i>abunu</i> sharecropping (ha)	0.74	0.01	0	***
Cocoa land <i>abusa</i> sharecropping (ha)	0.09	0.08	0.77	
N	1,199	787		

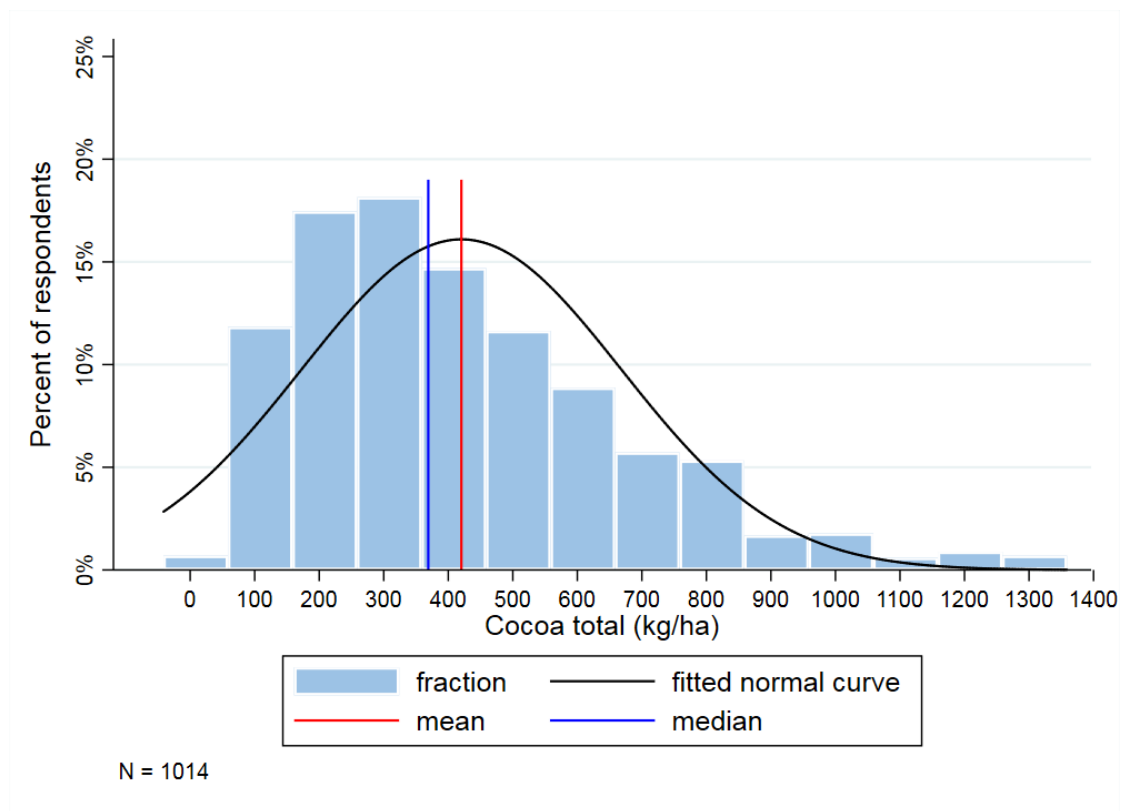
## Yield

Yield is calculated as a function of reported 64 kg bags (Ghana) or kg (Côte d'Ivoire) of cocoa produced divided by the number of hectares a household has under productive cocoa land. Only farmers who said that they know how much land they had under cocoa were asked to provide estimation of land sizes.

In Ghana, the average cocoa yield for main and light seasons combined was calculated as 420 kg/ha in 2016, with a median yield of 369 kg/ha. The distribution shows that farmers typically yield between 100 and 1000 kg/ha, with the majority between 100 and 500 kg/ha.

Figure 1: Cocoa yield with trees older than 5 years, main + light season (kg/ha), Ghana

<sup>7</sup> *Abusa* refers to a sharing arrangement of profit between farm owners and tenants, in which the tenants take one-third. In the case of *Abusa* the farm has been already established by the farm owner, and the farm can be harvested (and profits shared) from the first year of the arrangement. When the sharing arrangement are *Abunu*, it means the profits or the land is divided into two. A major difference with *Abusa* is that the farm has not yet been established, which means the tenant has to wait for several years until the trees start bearing fruit (Bymolt et al. forthcoming).



In Côte d'Ivoire, yields were found to be lower than in Ghana, averaging 362 kg/ha (p-value < 0.01), with a median of 320 kg/ha. In terms of distribution, Côte d'Ivoire farmers also typically yielded between 100 and 1000 kg/ha, with the majority grouping between 100 and 500 kg/ha. The main difference between Ghana and Côte d'Ivoire is that there was found to be a higher proportion of Ivorian households with a very low yield of 0-100 kg/ha (9% of farmers), and a lower proportion of farmers with more than 500 kg/ha.

Figure 2: Cocoa yield with trees older than 5 years, main + light season (kg/ha), Côte d'Ivoire

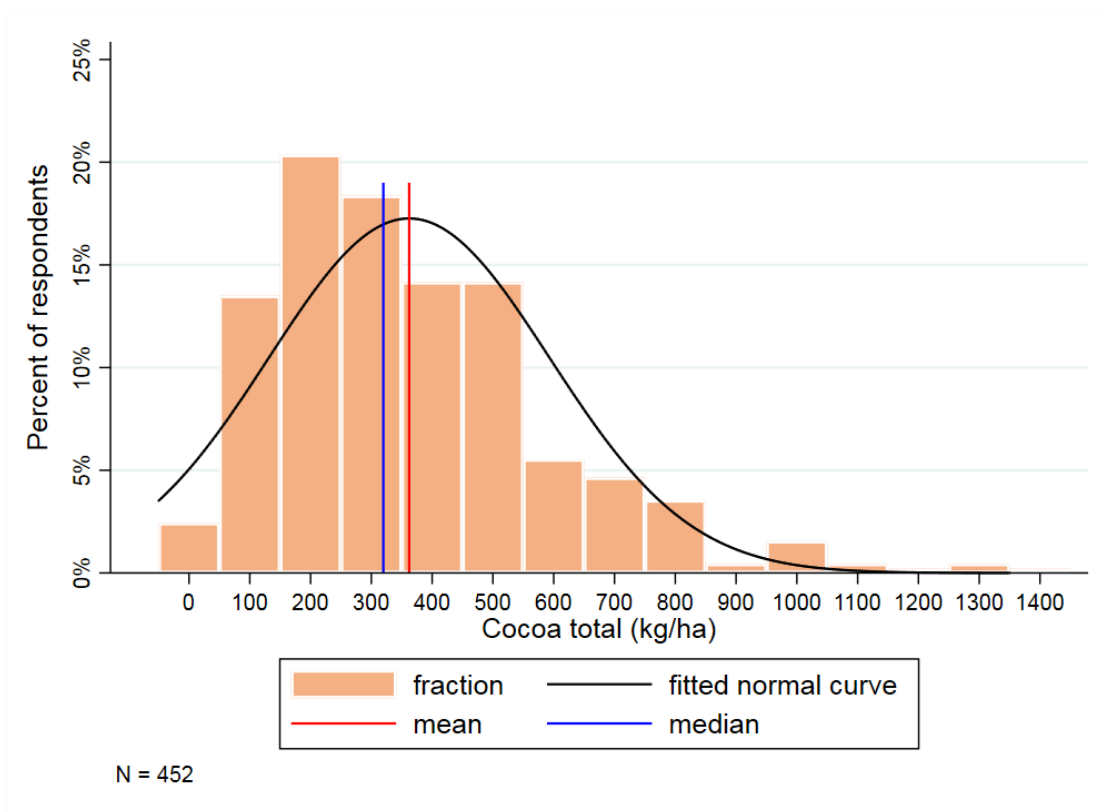


Table 6: Cocoa yield with trees older than 5 years, main + light season (kg/ha), by country

	Ghana	Côte d'Ivoire	pvalue	sig
Mean	420,31	362,18	0,00	***
std.error	7,78	10,87		
N	1014	452		

Côte d'Ivoire households have a higher average total production of 1325 kg compared to 1175 kg in Ghana. This difference in total production is mainly due to bigger average cocoa farms in Côte d'Ivoire.

Table 7: Total cocoa production per household (kg), (main + light season), by country

	Ghana	Côte d'Ivoire	pvalue	sig
mean	1.175,10	1.325,96	0,04	**
std.error	37,18	67,40		
N	1014	452		

## The value of cocoa production



In Ghana, the average price reported by farmers was US\$ 1.51/kg<sup>8</sup> while in Côte d'Ivoire this was US\$ 1.71/kg<sup>9</sup>. Therefore, the average value of the total cocoa production in a year was US\$1776; in Côte d'Ivoire, the estimated value was higher, with an average of US\$2269.<sup>10</sup>

Table 8: Value of total cocoa production per household (USD)

	Ghana	Côte d'Ivoire	pvalue	significance
mean	1.776,05	2.268,66	0,00	***
std.error	56,20	115,31		
N	1104	452		

That implies that farmers in Ghana produce a value of US\$635 per productive hectare, while in Côte d'Ivoire, US\$620 per productive hectare.

Table 9: Value of cocoa production over land with trees older than 5 years (USD/ha), by country

	Ghana	Cote d'Ivoire	pvalue	sig
Mean	635.72	619.40	0.47	
std.error	11.77	18.60		
N	1014	452		

## Share of cocoa in the household income

Cocoa households in Ghana and Côte d'Ivoire diversify their incomes by cultivating multiple crops or doing other activities such as livestock raising or operating small businesses<sup>11</sup>. Nonetheless, cocoa is the most important income source accounting for 61% of household income in Ghana and for 66% in Côte d'Ivoire.

Table 10: Estimated household income from the sale of cocoa as a percent of total household income

	Ghana Cocoa hh	Côte d'Ivoire Cocoa hh	Pvalue	significance
mean	61%	66%	0,00	***
std.error	1%	1%		
N	1314	909		

<sup>8</sup> This is calculated as 425 CEDIS per bag of 64kg and an exchange rate of 0.227600 USD/CEDIS (rate of June 12th, 2017)

<sup>9</sup> This is calculated as 1000 CFA/kg and an exchange rate of 0.0017109 USD/CFA (rate of June 12th, 2017)

<sup>10</sup> All figures about the value of the production and yield of the farmers in Table 8, and 9 respectively are neither the net income (no costs deducted) nor the gross income (since not based on the share of sold production), but the potential gross revenue if 100% of the production had been sold.

<sup>11</sup> Respondents categorised their income sources as follows: Sale of cocoa; Sale of other crops; Sale of livestock or livestock products; Sale of fish; Sale of bush products; farm labour for other people; non-agricultural labour; small business or trading; salary employment with a company; Salary employment in government job (teacher, nurse, police, agric officer etc); Sale or lease of land; Remittances; Other.

## 5. Conclusions

The surveys conducted by the researchers gave important insights on how to proceed in the living income debate. The data collected on household size, farm size, income diversification and sources are sufficient baseline for the further debate on living income using a household approach.

Additionally, it shows that cocoa farming households have a diversified income. Even though, cocoa is still the most important crop for cocoa households, it accounts for only roughly 63% of total income. Furthermore, the research also collected qualitative data, which will help to understand intra household dynamics and economic decision-making.

Additional data on cocoa producing household's income and poverty levels will be published in the first quarter of 2018.

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