

How can different types of smallholder commodity farmers be supported to achieve a living income?

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Abstract

Many sources indicate that smallholder commodity farmers are poor, but there is a paucity of data on how many of them are poor and the depth of their poverty. The living income concept establishes the net annual income required for a household in a particular place to afford a decent standard of living. Based on datasets on smallholder cocoa and tea farmers in Ghana, Côte d'Ivoire and Kenya and existing literature, we conclude that a large proportion do not have the potential to earn a living income based on their current situation. Because these farmers typically cultivate small farms and have low capacity to invest and diversify, there is no silver bullet to move them out of poverty. We present an assessment approach that results in insights on which interventions will be most effective in improving the livelihoods of different types of farmers. While it is morally imperative that all households living in poverty should be supported to improve their resilience, the assessment approach and literature indicate that a most effective focus of short- to medium-term interventions for households with a low likelihood of generating a living income could be: improving food security and health, finding off-farm employment, and social assistance programmes. In the long term, landscape-level land governance policies can be considered to address land fragmentation. Achieving living incomes through smallholder commodity production also requires more discussion and engagement with farmers and their household members, coordination between all involved stakeholders, and the sharing of lessons learned and data.

Keywords: smallholder commodity farmers; poverty benchmarks; living income; behaviour change; land governance; social assistance programme

1. The living income concept in the context of smallholder commodity production

1.1 Smallholder commodity production, poverty and intervention impacts

Millions of smallholder commodity farmers produce the raw material for tea, coffee, chocolate and other products, and many of them are poor

Millions of people, globally, including many smallholder farmers, earn revenue from the cultivation or processing of agricultural commodities such as cocoa, coffee, cotton, sugar, oil palm and tea (Voora, Bermúdez et al. 2019a, 2019b, 2019c, 2020; Voora, Larrea et al. 2019, 2020) (Table 1). Commodity production and processing are thus important economic activities within local food systems. The production of these crops, largely, takes place in lower- and middle-income countries; throughout the literature, it is clear that many of the smallholder farmers in these commodity sectors are poor (Voora, Bermúdez et al. 2019b, 2019a, 2019c, 2020; Voora, Larrea et al. 2019, 2020). They have no control over global market prices and are often hampered by limited negotiating power. They are vulnerable to price changes in markets, as well as to climate change (International Food Policy Research Institute [IFPRI] 2020). In times of oversupply and market speculation, commodity prices can fall below the cost of production, so smallholder farmers cannot break even. Prolonged periods of low prices can have a disastrous effect on farmers' livelihoods and the long-term sustainability of commodity supply. Poverty adversely affects human well-being and development, including productivity, and overcoming it remains a central focus of the global Sustainable Development Goals (United Nations 2020).

Table 1

Overview of the number of people earning revenue from commodity production and processing

<i>Sector</i>	<i>Number of people earning revenue from cultivation and processing</i>	<i>Total number of farming households</i>	<i>Share of smallholder farmers in total number of farming households</i>
Cocoa (Voora, Bermúdez et al. 2019a)	40-50 million	5 million	70% (3.5 million)*
Coffee (Voora, Bermúdez et al. 2019b)	125 million	12.5 million	67-80% (8.4-10 million)*
Cotton (Voora, Larrea et al. 2020)	1 billion	100 million	90% (90 million)*
Sugar (Voora, Bermúdez et al. 2020)	100 million		
Oil palm (Voora, Larrea et al. 2019)	About 6 million		3 million smallholders 9 million smallholders; 70% of global production comes from 8 million smallholder farmers in Asia and Africa
Tea (Voora, Bermúdez et al. 2019c)	Over 13 million		

* Authors' calculations based on Voora, Bermúdez et al. (2019a, 2019b, 2019c, 2020); Voora, Larrea et al. (2019, 2020).

To date, the success of interventions aimed at reducing poverty levels of smallholder commodity farmers has been limited

Many different types of interventions have been implemented in the commodity sector in the past two decades, by both the private and the public sectors, as well as by non-governmental organizations (NGOs). Most interventions have focused on improving productivity or enhancing local capacities or structures. Examples of such interventions are: training on agricultural practices, voluntary sustainability certification, provision of free or subsidized inputs such as seeds and fertilizer, support to farmer groups, community-level provision of infrastructure and access to finance. But such interventions generally have either not lifted smallholder farmers out of poverty or their effectiveness has not been documented, as most interventions that have been documented have had limited, mixed or no impact on household incomes (Alvarez and Von

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Hagen 2011; Dalberg and Wageningen University 2018; Ingram et al. 2018; Ingram et al. 2014; Oya et al. 2017; Waarts et al. 2015, 2016; Woodhill et al. 2020).

1.2 The living income concept and how it is used

The concept of living income embraces “a decent standard of living” for households

World Bank poverty lines are commonly used to assess poverty levels and compare countries, especially the extreme poverty line of US\$1.90 (2011 purchasing power parity [PPP]). But stakeholder groups are increasingly realizing that such poverty lines, in reality, indicate whether people have the possibility to survive. Instead, the aim should be to focus on empowering people to have a “decent standard of living” (Minos 2018). Due to growing interest from donors, NGOs, policymakers and other parties in achieving a decent standard of living rather than just survival, these poverty benchmarks are gradually being replaced with “living income” and “living wage” benchmarks in commodity sectors, to assess poverty levels and the impact of interventions on poverty. A living income is defined as “the net annual income¹ required for a household in a particular place to afford a decent standard of living for all members of that household” (Anker and Anker 2017) (figure 1). A “decent standard of living” includes: a nutritious low-cost diet based on nutritional requirements and local food preferences, housing that meets local norms and common international standards of decency, essential needs, including health care, clothing, education and transport, and a margin for unforeseen events (Anker and Anker 2017; Grillo 2018). The margin for unforeseen events anticipates and plans for resilient livelihoods. Whereas living wages focus more on wages from single sources (e.g. factory workers), the living income concept considers all sources of income for the entire household.

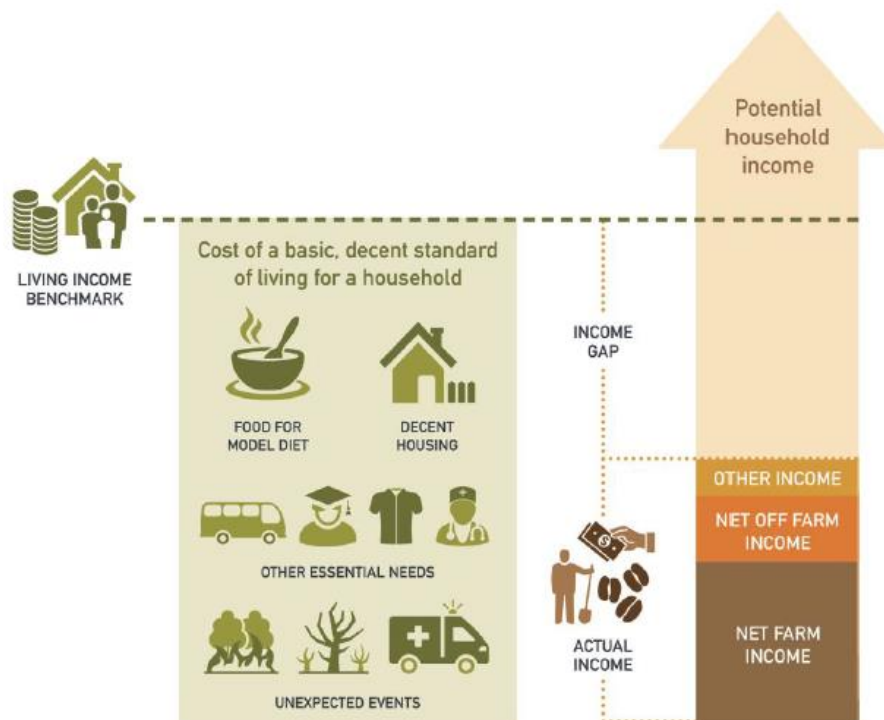


Figure 1: The living income concept

Source: Living Income Community of Practice (www.living-income.com).

¹ The net annual income includes cash income and non-cash income (e.g. food that is produced by family members for their own consumption, in-kind payment for labour, etc.) – minus the costs associated with the earning of that income

To assess the extent to which farmers earn a living income, information on actual total net household income levels is needed, and a living income benchmark needs to be established

To know what a living income is, a living income benchmark is established for a specific country or region within a country. The circumstances within a particular year or season, cost of living, price changes over time and inflation are taken into account. A living income benchmark thus indicates what a typical household minimally needs to have “a decent life,” on the basis of the cost of a basic, decent standard of living for that household. Such benchmarks are often linked to a specific sector and/or a certain location. To establish this benchmark, information is collected from national and regional statistics, and/or field research is conducted to obtain information (CIRES 2018; van de Ven et al. 2020). To calculate the gap between actual incomes and a living income, the actual net household income per household member per day is deducted from the living income benchmark per household member per day (COSA and KIT n.d.; Impact Institute n.d.).² The formula to calculate the gap between the living income benchmark and actual household income is shown in Formula 1.

$$\begin{aligned}
 LI: \text{ Living income benchmark per person per year} \\
 &= \frac{\text{Living income benchmark per month for a typical household} * 12}{\text{Number of typical household members}} \\
 \\
 AI: \text{ Actual total net household income per person per year} \\
 &= \frac{\text{Actual total net income per household per year}}{\text{Number of household members}} \\
 \\
 \text{Living income gap per person per day: } &\frac{LI - AI}{365}
 \end{aligned}$$

Formula 1: The formula for calculating the living income gap

1.3 Objective of this paper

A food systems approach to assess the potential of different types of interventions for smallholder commodity farmers to earn a living income

A food systems approach, defined as all the processes involved in achieving desired food system outcomes, including but not limited to food security for a specific population (figure 2), is the framing concept used to examine living incomes and poverty levels. This is due to the strong effect of household incomes on food security outcomes (Babatunde and Qaim 2010; Iram and Butt 2004; Kennedy and Peters 1992). Poverty status and the living income concept are then used as a lens to focus on smallholder commodity farmer household incomes as socio-economic food system outcomes.

We present a new assessment approach to support the design of interventions to influence farmer income

This assessment approach shows the type of data to collect and analyse to provide evidence that can support decisions on the types of interventions most effective in lifting different types of farmers out of poverty. The approach was developed based on evaluations and studies in the tea, cocoa, coffee, cotton, sugar and palm oil sectors. When used in conjunction with an assessment of the impacts of different interventions on incomes, this provides information on the ability of different interventions to achieve a living income. This provides evidence to enable policymakers and organizations to design more effective policies and programmes that contribute to achieve living incomes for smallholder commodity farmers.

² In the actual net income measurement, food produced by the household and used for home consumption is taken into account, as many smallholder farmers consume food that they produce.

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Figure 2: The food system, drivers and outcomes

Source: van Berkum et al. (2018).

2. Methodology for assessing how to close the gap between actual household incomes and a living income

2.1 Literature review

Review of systematic reviews, overviews and meta studies

We reviewed literature to find overview studies on the causes of poverty (guided by the food systems concept) and interventions to improve the (living) income of smallholder commodity (cocoa, coffee, cotton, palm oil, sugar and tea) farmers in lower- and middle-income countries. Literature was collected by asking colleagues about relevant systematic and review studies and searching Google Scholar, as not all relevant studies are published in academic journals. In total we reviewed 104 publications, including 5 systematic reviews and 56 other studies selected as relevant. These studies indicated that two major types of interventions were made: technical and policy interventions. Technical interventions included training, standards and certification, input supply, access to finance (credit/loans), contract farming and cash transfers. Policy interventions included land governance social assistance programmes, creating employment opportunities, pricing policies and supply management. Our focus of research is smallholder commodity production of cocoa, coffee, cotton, palm oil, sugar and tea. However, overview studies on interventions often combine information from different types of sectors, so they include a wider range of crops and do not present information solely on interventions covering specific commodity sectors. Therefore, the information presented in this paper cannot be connected to a specific sector. An overview of the results of the literature review is contained in appendix 1.

Very few studies compare actual income levels of smallholder commodity farmers with the World Bank poverty line and/or a living income benchmark, as most focus on increasing agricultural productivity

As the living income concept is relatively new, we did not find any studies that assessed the impact of interventions to close the gap between a living income and actual household incomes. Therefore, we searched for impact evaluations that used the World Bank extreme poverty line to report on (changes in) farmers' poverty status instead. However, we found that many studies did not focus on measuring a decrease in poverty levels, but rather focused on assessing the impact on productivity or income, or the

adoption of good agricultural practices. Systematic reviews did not always focus on the impact of interventions on poverty status either.

Disaggregation of the impact of interventions by gender or regions was not possible due to a scarcity of literature and/or a scarcity of high-quality evaluations

Even though data on the gender of participants in interventions were often collected, gender-disaggregated results on the effects of interventions were not included in the literature reviewed. The effects of interventions on women's roles and agency in commodity farming were not reported either. Along similar lines, no disaggregated data on interventions in different continents or regions were found, possibly as a result of the low number of high-quality evaluations (see also (Bernstein et al. 2019).

Most impact evaluations do not include results on poverty levels of households

Even though we are interested in interventions that deal with the alleviation of smallholder poverty through a food systems approach, studies that cover those were not found. Therefore, the interventions that were examined are based on evaluations of interventions that assess the impact on total household income. However, many studies focus on commodity income, rather than total household income. Where available, we summarized information from systematic reviews with data on total household income, as increases in commodity income may not translate into increases in total household income. This occurs because of changes in the division of household labour among various income-generating activities. The results presented on the effects on commodity income, therefore, have to be interpreted with caution, as they do not incorporate the effects on other sources of income of interventions that may require redistributions of household labour.

2.2 Primary data analysis of household poverty status

Data analysis of farmers' income levels compared to living income benchmarks

We analysed primary data from three panel datasets generated to evaluate the impact of interventions on the income of smallholder commodity farmers in lower- and middle-income countries:

- 439 smallholder tea farmers from Kenya: data collected for an impact evaluation study financed and commissioned by KTDA, IDH and Unilever (Waarts et al. 2016). Data are presented for the year 2015.
- 311 smallholder cocoa farmers from Ghana: data collected for impact evaluation studies financed and commissioned by Solidaridad and UTZ Certified (Waarts et al. 2015). Data are presented for the year 2014.
- 362 smallholder cocoa farmers from Côte d'Ivoire: data collected for impact evaluation studies financed and commissioned by Solidaridad, UTZ Certified, Cargill, IDH and Nestlé (Ingram et al. 2018). Data are presented for the year 2017.

The farmers in these datasets were seen by programme staff as similar to typical farmers in the cocoa and tea value chain, but our data may have a small bias, as half of the sample are programme participants, and half are similar farmers to programme participants.

Calculating the percentage of farmers against the living income and extreme poverty lines

We used the data from these studies and information from living income and living wage assessments from these countries to calculate the income status with regard to the World Bank poverty line (to make the results comparable between countries) and living income benchmarks countries (Anker and Anker 2015; Smith and Sarpong 2018; Tyszler et al. 2018), as well as to show the predicted effects of several interventions (e.g. price increases) on farmers' poverty status. The methodology for the calculation of comparable poverty lines and living income benchmarks is shown in appendix 2. Farmers were analysed in three groups:

- Group 1: farmers who earn less than the World Bank poverty line of US\$1.90 per person per day. This excludes farmers who with a 10 per cent increase in total household income earn the same as or more than the World Bank poverty line of US\$1.90 per person per day.

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- Group 2: farmers who earn minimally as much as the World Bank poverty line of US\$1.90 per person per day, and maximally below the living income benchmark. This includes farmers normally placed in group 1 but who, with a 10 per cent increase in total household income, could earn the same as or more than the World Bank poverty line of US\$1.90 per person per day.
- Group 3: farmers who earn the same as or more than the living income benchmark per person per day.

Based on the data analysis, we then assessed the potential for the different groups of commodity farmers to earn a living income.

2.3 Analysis of the interventions of impacts and policy implications

Using the literature, we analyse the impacts of interventions on household or crop income and/or poverty status, and link this to the drivers of poverty as identified from the literature and our own data. We then qualitatively assess the potential for groups of commodity farmers to earn a living income and present an assessment approach that, when implemented, allows promising approaches for achieving living incomes for different groups to be identified.

2.4 Limitations

Limitations regarding analyses of environmental drivers and consumer characteristics

Few data were found on the environmental drivers of a food system connected to poverty outcomes, and none were found specifically related to the living income concept. We, therefore, could not conduct in-depth analyses of all environmental drivers impacting poverty and the potential for farmers to earn a living income. Nor did we assess the effects on the environment of increased income. Data paucity in the literature also meant that we did not present analyses on the effects of (changing) consumer characteristics on the potential for farmers to achieve a living income. As the literature scan provided information about the outcomes of interventions on different commodity sectors and countries, the information presented in this paper cannot be connected to one specific sector or geography.

3. Results

3.1 Food system outcome: poverty status of smallholder commodity farmers

The majority of smallholder commodity farmers earn less than the living income benchmark

Findings from the three impact evaluation studies revealed that about 82 per cent of cocoa farmers in Ghana and Côte d'Ivoire and tea farmers in Kenya earned less than a living income at the time of study, and more than half (51 per cent) earn less than the World Bank extreme poverty line.³ In Ghana and Côte d'Ivoire, farmers earn on average about 60 per cent of the living income benchmark. Tea farmers in Kenya earn on average 47 per cent of a living income. This situation of widespread poverty in commodity sectors is confirmed in the literature, irrespective of whether poverty is defined by the World Bank poverty line or the living income benchmark (Alvarez and Von Hagen 2011; Dalberg and Wageningen University 2018; Oya et al. 2017; Woodhill et al. 2020). The living income benchmarks for the three countries are: US\$1.32 per person per day for tea farmers in Kenya, US\$2.08 per person per day for cocoa farmers in Ghana, and US\$2.52 per person per day for cocoa farmers in Côte d'Ivoire.

³ The following benchmarks were used for the living income comparisons: Anker and Anker (2015), CIRES (2018) and Smith and Sarpong (2018).

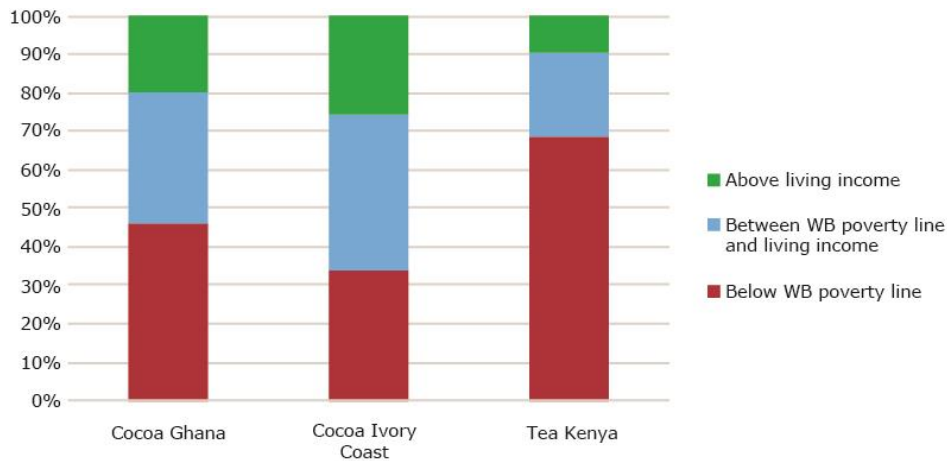


Figure 3: Percentage of smallholder cocoa and tea farmers earning more than and less than the US\$1.90 World Bank poverty line and living income benchmarks

Source: Ghana: Waarts et al. (2015) (N = 311) ; Côte d'Ivoire: Ingram et al. (2018) (N = 362); Kenya: Waarts et al. (2016) (N = 439).

3.2 Impact of interventions on household income and poverty levels

The effect of interventions on total household income is insufficient for many smallholder commodity farmers to earn a living income

As shown in figure 4, interventions implemented in commodity sectors have an effect of between 19 and 90 per cent on crop income, and a 15-32 per cent effect on household income. For interventions on productivity enhancement through training and input services, one study found effects of between 10 and 50 per cent (Dalberg and Wageningen University 2018), but this was not a systematic review. A systematic review on cash transfers to individuals or households reported that six out of nine studies found a significant impact on poverty measures (Bastagli et al. 2016), but also concludes that in many cases the impact is not big enough to have an effect on aggregate poverty levels, and that long-term effects are not clear.⁴ A recent review study shows that the total household income increases occurring because of different interventions are not enough for poor smallholder commodity farmers to earn a living income, as they may need income increases of 100-200 per cent to do so (Dalberg and Wageningen University 2018). Another recent meta evidence review reports that there is “insufficient evidence to determine trends” for the impact of extension and advisory services and agricultural input subsidies on poverty and that “despite evidence, the impact is in doubt” for improved access to financial products (Bernstein et al. 2019). For more information on the results from the studies reviewed, see appendix 1.

⁴ Findings for increases in total and food expenditure range from about 4 percentage points to 8 or 9 percentage points, depending on the measure of poverty.

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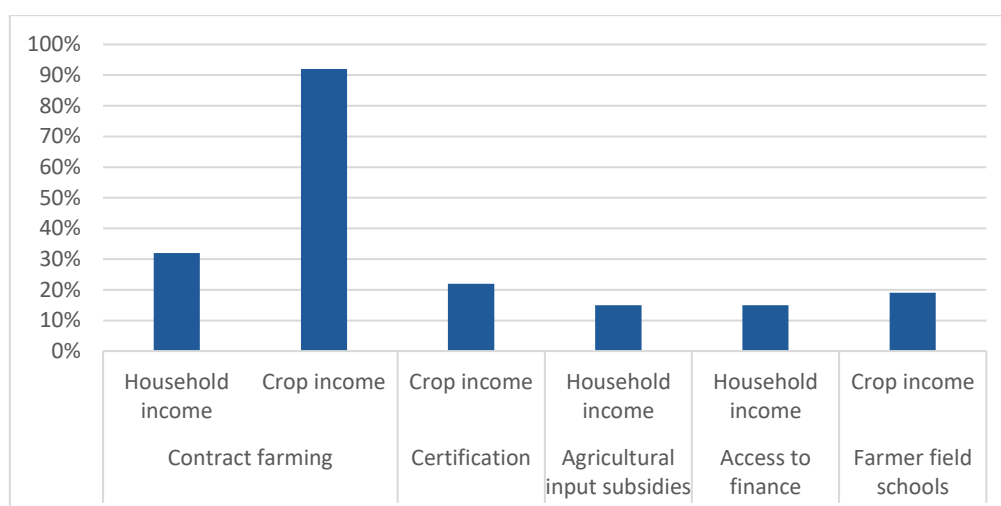


Figure 4: Average percentage increase in crop and/or household income of target group compared to comparison group for different types of interventions⁵

Source: Dalberg and Wageningen University (2018); Hemming et al. (2018); Oya et al. (2017); Ton et al. (2017); Waddington et al. (2014).

Positive impacts on income in studies to be interpreted with caution because of study and target group biases

Various biases in the literature (“survival bias,” “publication bias,” “selection bias” and the fact that not many peer-reviewed studies have been conducted) mean that the evidence in the literature reviewed most likely overestimates the impact of interventions on income. The reasons for this are that: (i) evidence of projects and programmes that stopped in their early years is generally not collected and/or published; (ii) farmers included in interventions are not necessarily representative of all farmers in the sector (e.g. the poorest farmers may not participate); (iii) farmers who have dropped out of an intervention are often not included in research after they leave the project; and (iv) if study outcomes are not significant, they are less likely to be published (Ton et al. 2017). Also, the number of academic peer-reviewed studies containing evidence on the topic is low.

Interventions by multi-stakeholder partnerships using a food systems perspective have a better chance of achieving impact than interventions addressing individual food system components

A study reporting on the impact of interventions on farm and household incomes identified the following four critical success factors for achieving long-term impact on incomes at scale (Dalberg and Wageningen University 2018):⁶

1. **Bundling:** Many of the most successful approaches were multidimensional in nature. They combined a range of elements (e.g. combining training with access to inputs, and linkages to buyers) which appears to enhance and expand the likelihood of positive impact.
2. **Customizing:** Many of the most successful approaches tailored their activities to meet the unique needs and capabilities of farmers, often using a segmentation approach to understand these needs (e.g. providing health services, extension services, or other services and facilities to those who have indicated a specific need).
3. **Connecting:** Many of the most successful approaches utilized a combination of tactics to form long-term relationships with farmers, aggregated farmers into groups, and “tightened” supply chains (e.g.

⁵ Certification changes in household income were found to be 13 per cent but were not significant, which is why we did not present this change in the figure.

⁶ This review study, compiling evidence on how to improve smallholder farmer income, is based on 16 income intervention quick scans conducted for the Farmer Income Lab. Each quick scan focuses on one intervention type. The quick scans are available at: [Find Research Outputs — Research@WUR](#).

strengthening farmer organizations, reducing middlemen and connecting farmers with local manufacturers).

4. Partnering: Many of the most successful approaches took into account the enabling environment and the roles of various stakeholders, forming relevant partnerships and alliances with governments, civil society and/or businesses.”

3.3 Root causes of poverty levels

3.3.1 Socio-economic drivers and the enabling environment

Farm sizes are often too small to earn a living income and are likely to decrease due to inheritance structures

Small farm sizes can be a key driver of poverty. In Côte d'Ivoire and Kenya, the poorest farmers in the datasets have the smallest farm sizes, 3-4 hectares and about 0.2 hectares on average, respectively; this is also confirmed by another study on the cocoa sector in Ghana and Côte d'Ivoire (van Vliet et al. n.d.). Land fragmentation is also confirmed by the literature as a driver of poverty (Giller et al. n.d.). In studies, minimum farm sizes for “economically viable” farms are calculated, but we find that such farm sizes are not necessarily minimum farm sizes for earning a living income. One study presents that the minimum economic tea farm unit for smallholder farmers in Kenya is 0.1 ha (0.25 acres) (Kavoi et al. 2002). But looking at the datasets, households with such small farm sizes are extremely unlikely to earn a living income. In the dataset on cocoa farmers in Ghana, we do not find that poorer farmers generally have smaller farms, but find other important factors influencing poverty levels, which are presented below. Small farm size does not have to be an impediment to earning sufficient incomes in all sectors but remains an important factor to consider.

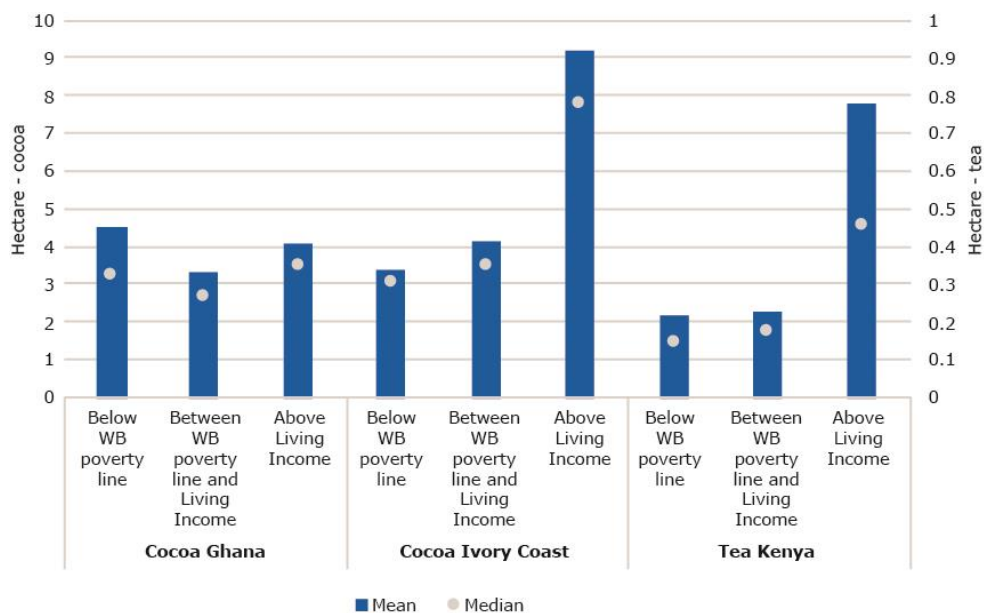


Figure 5: Mean farm sizes in hectare for different groups of cocoa farmers in Ghana and Côte d'Ivoire and tea farmers in Kenya

Farm sizes would need to at least double to enable the cocoa and tea farmers who currently earn less than the living income to earn a living income

For farmers to achieve a living income – when all other variables remain constant – farm sizes would need to increase significantly, ranging from an increase of four times in Côte d'Ivoire to almost eight times in Kenya (see figure 5). Interestingly, farm size in Ghana would need to increase more than in Côte d'Ivoire, while we saw earlier that farm size is less of a barrier to earning a living income in Ghana and in Côte

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d'Ivoire. Given that some of the main factors for land fragmentation globally are population growth and inheritance (Demetriou 2013), and the population of many lower- and middle-income countries is still growing rapidly,⁷ it is unlikely that such increases in farm size can be achieved easily.

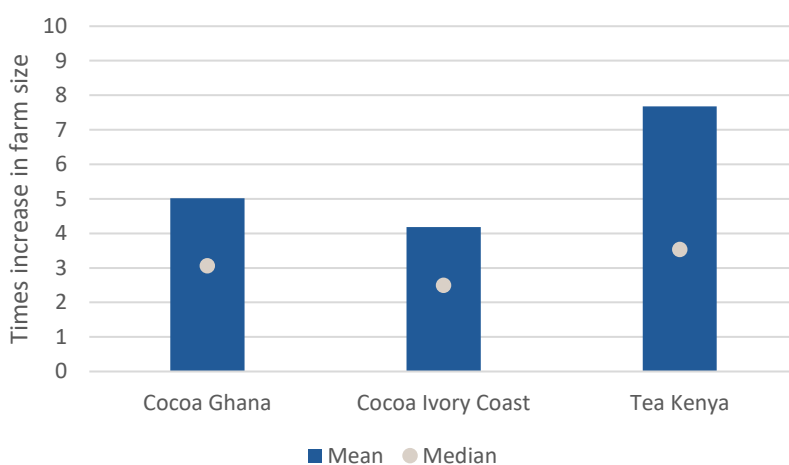


Figure 6: Increase in current farm sizes needed to close the living income gap for farmers who currently earn less than the living income benchmark

Possibilities for income diversification are limited; farmers are very dependent on cocoa or tea as their main source of income

Farmers are very dependent on cocoa and tea as their main source of income, as they earn most of their income from these commodity crops (figure 6). For example, cocoa farmers in Ghana who earn more than a living income (20 per cent of all farmers), earn about US\$5,000 per year, of which about US\$4,000 (79 per cent) comes from cocoa. Cocoa farmers in Ghana who earn less than the World Bank poverty line (46 per cent of all farmers) earn on average about US\$600 per year, of which about US\$500 (84 per cent) is from cocoa. Differences in dependency on the commodity crop are small between the groups. Income diversification is a challenge for these farmers, as opportunities are not available or are not rewarding enough compared to commodity production given the current circumstances, human resource assets, and their ability to access investment credit that have affordable (low) interest rates. Access to credit, market linkages and the availability of pro-poor options for conservation are what drive farmers' incentives and decisions (Shiferaw et al. 2009). At the same time, diversification is often considered as having promising results for increasing resilience, especially for the poorest farmers (Asfaw et al. 2019).

⁷ The population of sub-Saharan Africa, for example, is expected to double by 2050 (Suzuki 2019).

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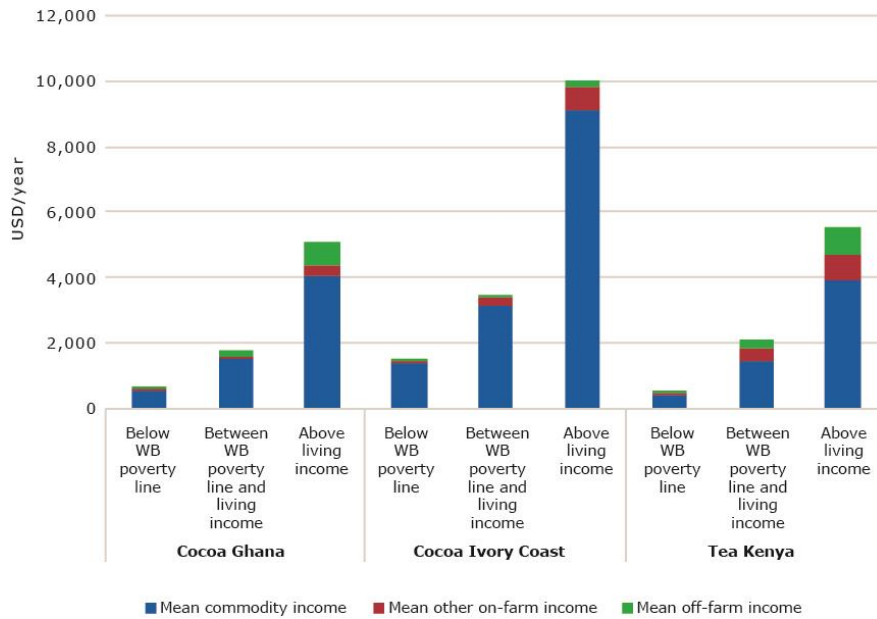


Figure 7: Income earned per household member per year (USD PPP)⁸

Significant price increases do not achieve living incomes for the poorest commodity farmers; relatively richer farmers benefit more because they produce larger volumes

Commodity market prices are generally volatile and cannot easily be set by producing countries. An example of where governments are influencing cocoa farm gate prices is the Living Income Differential established by the governments of Côte d'Ivoire and Ghana in 2019 (Angel et al. 2019; Vidzraku 2018), which amounts to US\$400/Mt cocoa, an increase of 16 per cent based on a market price of US\$2,501/Mt (ICCO 2020). A 16 per cent price increase would have resulted in about US\$13 additional income per household member per year for the Ghanaian cocoa farmers in our study who earn less than the World Bank poverty line (see appendix 3). The recently announced minimum Sustainability Differential of US\$70/Mt for cocoa as of July 2022, paid through the Rainforest Alliance 2020 certification programme (Rainforest Alliance n.d., 2020), would have increased incomes by about US\$2.5 per household member per year (see appendix 3), and benefit only Rainforest Alliance-certified farmers. Even when every additional dollar earned is important, benefits of price increases are limited in terms of poverty reduction at scale, as the poorest farmers benefit the least, as they produce the lowest volumes. This is also confirmed by another study using more recent data on cocoa farmers in Ghana and Côte d'Ivoire (van Vliet et al. n.d.). With a 50 per cent increase in income, 30 per cent of cocoa farmers in Ghana earn above a living income, compared to 20 per cent without the price increase (figure 8).

⁸ For comparison, the monthly living income line per family was converted to a daily living income per household member.

How can different types of smallholder commodity farmers be supported to achieve a living income?

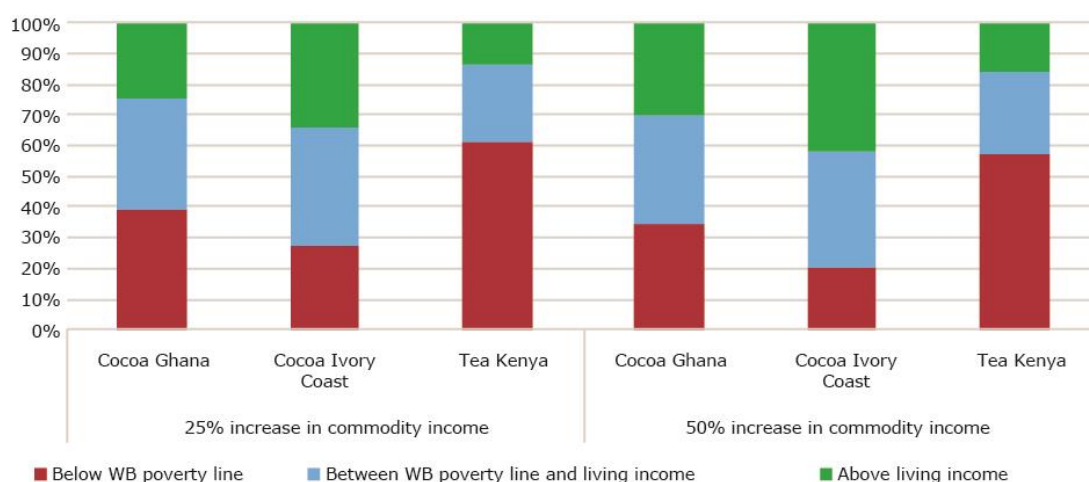


Figure 8: Scenarios for the impact of price increases on the percentage of smallholder cocoa and tea farmers above and below the US\$1.90 World Bank poverty line and living income benchmarks (a 50 per cent price increase is assumed to lead to 50 per cent income increase)

As price increases may induce oversupply, changed sourcing strategies and indirect negative effects on the environment, they should be combined with other measures if implemented at scale

Price increases generally influence farmers to invest in commodity production, leading to increased production and supply, putting a downward pressure on prices again in the long run if demand for commodities does not increase at the same pace (Waarts et al. 2019). Demand could also decrease if buyers decide to buy their produce elsewhere because of lower prices. Incentives that increase cocoa production can enhance deforestation when commodities have elastic demand in the short term (i.e. the price does not decrease when supply increases), as in the case of many commodities (Abbott et al. 2005; Tothmihaly 2017). Additional measures are thus required if prices are increased to achieve living incomes, to ensure no negative effects materialize.

3.3.2 Food supply system, business services and environmental drivers

Various factors lead to low adoption rates of good agricultural practices and thus lower incomes

Farmers often decide not to adopt new technologies and change their farm management practices and are seen to dis-adopt after initially adopting new practices or technologies because contextual and personal factors impede them from changing practices and continuing changed practices (Bulte et al. 2014; Conley and Udry 2010; Greiner et al. 2009; Prokopy et al. 2008; Waarts et al. 2019). Low adoption levels or farming in unfavourable circumstances regarding agroecological conditions lead to low yield levels and thus to incomes that are lower than what would be feasible. This is also experienced by cocoa farmers in Ghana and Côte d'Ivoire. Farmers underinvest in implementing farm management practices, which leads to a “low input-low output” system (figure 9). Low yields are attributed to low input use, inadequate weeding and farm maintenance, insufficient pest and disease control, poor shade management, low rates of fertilizer use, and the old age of some cocoa farms (Bymolt et al. 2018; Wessel and Quist-Wessel 2015).

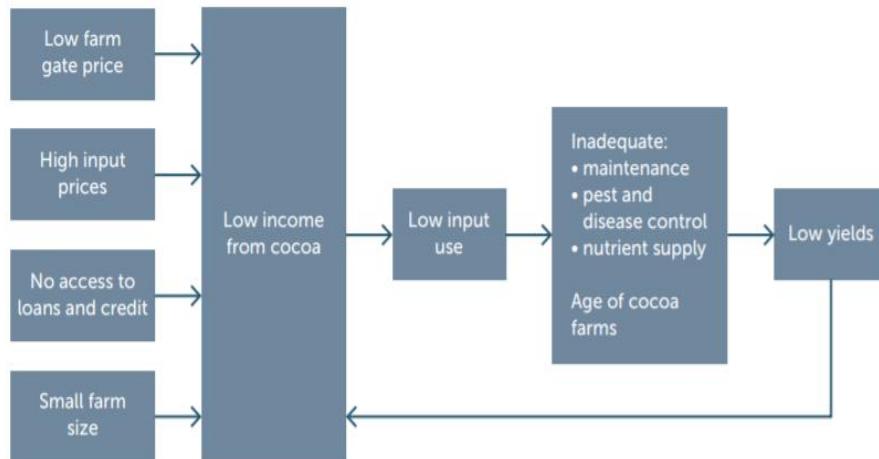


Figure 9: Causes of low yield in cocoa production in West Africa

Key reasons for low adoption rates

The key reasons for low adoption rates can be divided into four different categories:

- Failing markets – for example, the availability, cost and quality of farm inputs
- Interventions are often not tailored to aspirations, needs and opportunities.
- Farmers cannot afford to invest time and money, including buying fertilizer and hiring labour, because they do not have the funds and/or access to affordable credit.
- Investment benefits are not guaranteed, leading to financial risk.

Farmers' large yield gaps can be decreased by addressing underlying reasons for low adoption rates of good agricultural practices

Productivity levels for cocoa and tea farmers are low compared to what is possible in the study region (figure 10). But these productivity levels are especially low for the poorest farmers. A yield gap cannot be easily and quickly closed; there is a good reason why it exists: adoption of new practices can only lead to improved agricultural productivity when conditions and circumstances are right. Farmers are limited by the environmental drivers in the food system (e.g. low soil quality and unpredictable and heavy rains). Mitigating the effects on livelihoods of these environmental drivers requires the adoption of good agricultural practices, which in turn requires addressing the key reasons for low adoption rates as listed above.

How can different types of smallholder commodity farmers be supported to achieve a living income?

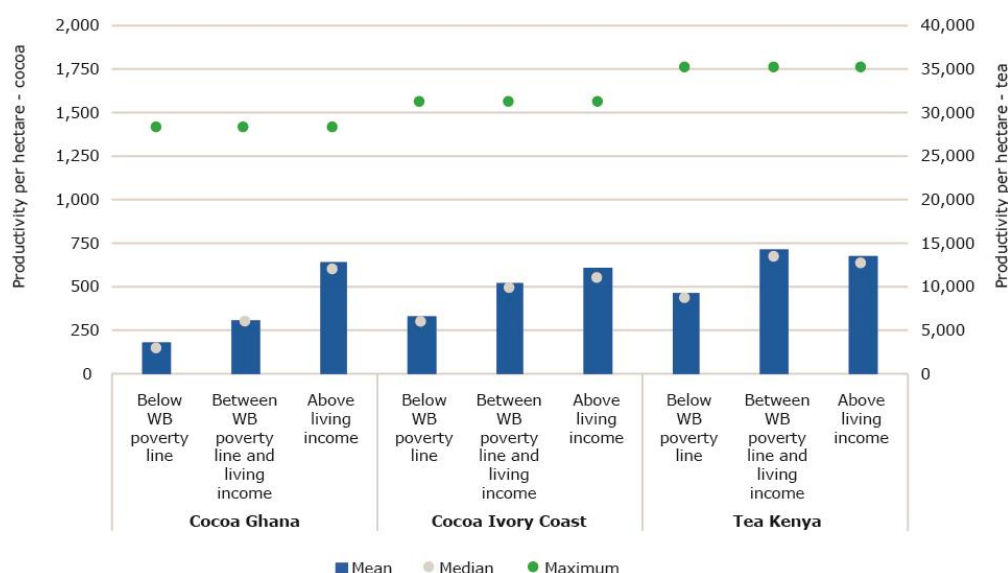


Figure 10: Productivity per hectare per farmer group and the maximum yield level in the research area confirmed by experts

3.4 New assessment approach to design and tailor policy interventions

3.4.1 Introducing a new assessment approach to design and tailor interventions

A new assessment approach to assess the potential of current farmers to earn a living income, to design short- and medium-term interventions that address drivers of poverty

A first step in intervention design is to assess which farmers have the potential to earn a living income based on their current conditions, which do not, and why this is the case. This can be a complex task because various factors influence the potential of farmers to earn a living income. To support such a design process, we present an assessment approach which can be used for short- and medium-term intervention design. This approach was developed based on our empirical research work in commodity sectors, as well as the literature, and was inspired by a recent report on “pathways to prosperity” (Shakhovskoy et al. 2019). It presents the key determinants that influence the ability of farmers to earn a living income, and can be used for all smallholder commodity contexts. It does not provide detailed thresholds for each factor per sector and/or context, but it is a tool to be used by policymakers to become informed about the farmers they work with. The assessment approach is shown with examples of two groups of farmers in figures 11a and 11b. These examples are elaborated on in the text below the figure.

Six factors are important to assess, to decide on intervention design focus

From our empirical studies, we found six key factors to assess to support intervention design focus:

- Commodity profitability per hectare, which includes production volumes, yield per hectare, prices received and cost of production
- Farmers’ willingness and possibility to invest, including whether there is affordable credit available
- Farm size
- Possibility for on-farm diversification
- Environmental or climate risk
- The number of household members.

To assess the potential of farmers to improve their income, the first five of these factors are assessed. We consider the number of household members outside the scope of action, but it remains an important factor in how a living income is calculated. After obtaining information on all factors, a decision can be made (preferably with the farmers involved) on which interventions would work best, based on the recommended intervention focus in the approach.

Because smallholder commodity farmers are generally very dependent on income from the commodity, and productivity per hectare and profitability are often low, cocoa profitability is the starting point

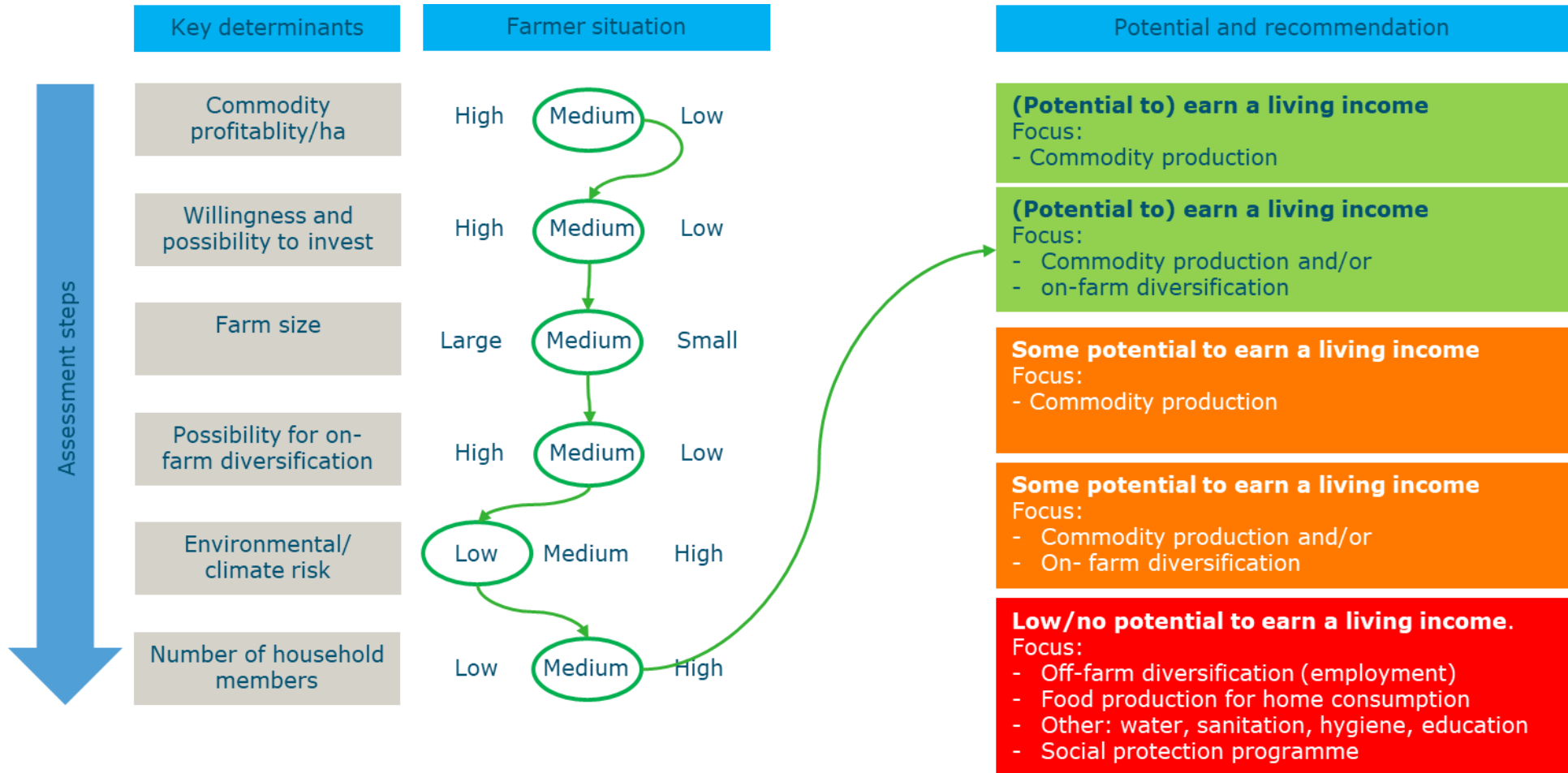
Commodity production is also generally a first point of entry for many interventions, as they focus for a large part on improving productivity. But without the possibility of investing in improving profitability, commodity income cannot increase. Therefore, a second factor to be assessed is the willingness and possibility to make financial investments in farming or other activities. If farmers do not have the means to invest money (through cash, savings or credit) or are not willing to do so because they need/choose to spend their money elsewhere (e.g. funerals, education), it will be hard to increase incomes greatly. Such “willingness” also includes various contextual and personal factors influencing decision-making (see section 4.3).

After assessing farm size and whether and how it limits income, the possibility of on-farm diversification for the generation of cash income is assessed

When enough land is available and the farmer is willing and able to invest, but there is no market demand for alternative crops or supply chains do not function, it will be a challenge to diversify (this also includes relevant contextual factors enabling diversification; see section 4.3). Finally, it is important to take future expectations regarding agroecological and climatic conditions into account to decide how to invest time and money.

How can different types of smallholder commodity farmers be supported to achieve a living income?

Figure 11a: Assessment approach for deciding on the focus of short/medium-term interventions for different groups of commodity farmers and their households. This assessment approach includes an example of households *with the potential for earning a living income*, based on their current situation



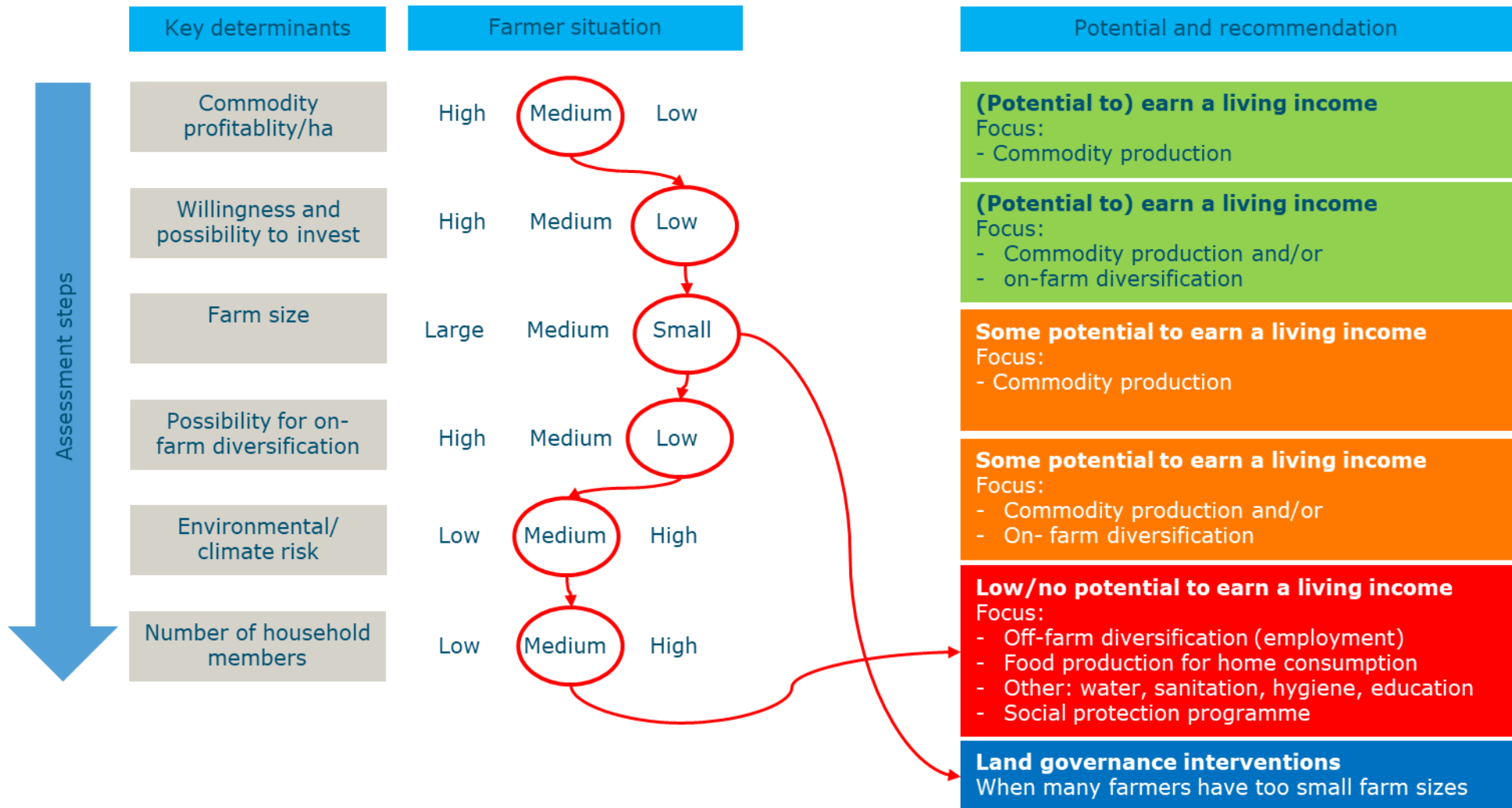


Figure 11b: Assessment approach for deciding on the focus of short/medium-term interventions for different groups of commodity farmers and their households. This assessment approach includes an example of households *without the potential for earning a living income*, based on their current situation

3.4.2 Results from the assessment approach based on empirical data presented earlier

Fewer farmers have the potential to earn a living income than is usually assumed. Farmers who do have the potential can be supported in improving commodity profitability and/or on-farm diversification

Interventions aimed at improving commodity profitability are suitable for farmers who have the potential to earn a living income based on their current conditions – for instance, because their profitability can be improved, they have a medium to high level of willingness and possibility to invest, they have enough land, and environmental/climate risk is low. In a situation where such farmers also have the possibility to earn additional income through diversification, they can also be supported in on-farm diversification, depending on their aspirations and the expected benefits of both options. For more information on how to implement such support activities for these farmers, see sections 4.3 and 4.4. In Ghana, Côte d'Ivoire and Kenya, 20 per cent, 26 per cent and 10 per cent, respectively, of the farmers in our data earn a living income. We cannot calculate the exact proportion of farmers who have the potential to earn a living income, but based on our data, the literature and experience, we conclude that fewer farmers have the potential to earn a living income in the medium term than what is generally assumed by private sector companies and NGOs we have worked with.

A large proportion of households in our data are estimated to have a low potential to earn a living income. Support in the short/medium term should focus on income through employment and on improving resilience

Many farmers have low potential to earn a living income because of low willingness and possibility to invest, small farm sizes and/or low possibility for on-farm diversification. Also, future agroecological and climatic conditions could hamper productivity improvement or diversification plans. These farmers should be offered different types of support than focusing on farm-level production improvement in the short and medium term. Examples include finding alternative employment opportunities for household members, supporting households in food production for home consumption, and other resilience measures such as cash transfers, health-related measures (water, sanitation and hygiene) and education. While resilience measures may be important for all farmers, such measures would be the starting point in intervention design for farmers without the potential to improve their income.

When large numbers of households do not have the potential to earn a living income, policies around land governance, employment creation and/or cash transfers/social welfare payments are needed

When the economic situation of large numbers of farmers and their households cannot be improved within their current circumstances (available land, willingness and possibility to invest, possibility for yield improvement and diversification), national, regional or landscape-level policies are required that address the structural factors underlying poverty levels such as land fragmentation, employment opportunities and price volatility. For more information on such policies, see section 4.2.

4. Policy implications for interventions to achieve a living income

4.1 Using the food systems framework to present interventions that may contribute to achieving living incomes

Using a food systems framework to design interventions that contribute to achieving living incomes implies considering the factors influencing whether farmers have the potential or not to earn a living income presented in the assessment approach (figures 11a and 11b).⁹ We cannot recommend which intervention

⁹ We do not include analyses on how to address the number of household members, as we see that as beyond the scope of action. However, it remains an important factor to take into account, as the number of household members has a significant influence on the capability of a household to earn a living income. The reason for this is that to earn a living income, the living

would be best suited and which interventions should be prioritized, as the contexts in which smallholder commodity farmers operate differ widely between and within countries. Therefore, based on the results of an assessment using the presented assessment approach, policymakers and organizations making interventions should consider the following factors in the design of interventions: land fragmentation, alternative employment opportunities, social protection programmes and cash transfers, pricing policies and supply management, contextual and personal factors, market and supply chain contexts, and current and future agroecological and climatic conditions. This chapter presents information from the literature on such interventions.

4.2 Interventions addressing socio-economic drivers and the enabling environment

4.2.1 Addressing land fragmentation: policies aimed at formalization and privatization of land tenure

Policies regarding land governance and job creation enable people to improve their situation and/or move out of self-employed farming. If some farmers “move out,” it may enable the remaining farmers to earn a living income

Land fragmentation is a challenge in sub-Saharan Africa, with “a vast majority of farms far less than 1 hectare” and expectations that farm sizes will further decrease due to the increasing population in connection with inheritance structures (Giller et al. n.d.). To prevent increases in poverty due to land fragmentation, policies are needed regarding land governance and employment creation that support people to improve their situation with farming or move out of self-employed farming into other activities. People finding employment elsewhere may offer the remaining farmers the opportunity to work on a profitable farm and enable them to earn a living income. Such a process should be properly implemented and not lead to human rights violations. To achieve shifts of labour to other sectors, it is important that the enabling environment is correctly set up. Policies to be analysed for improvement are: tenure and land-use planning (e.g. farm ownership and minimum farm size), and inheritance structures and policies.

Different land tenure systems determine how access to and control over land is governed and are, therefore, of key importance for land-use planning

Land tenure systems in sub-Saharan Africa can generally be divided into three main categories: private land, public (state-owned) land and community land (customary tenure).¹⁰ Both private land and public land are governed by statutory law, as opposed to customary law, where land is often held communally and transferred by a “traditional” law of succession rather than a formal transfer of title (Atwood 1990).¹¹ Different tenure systems often coexist and, in some cases, overlap. Many countries, including Kenya, Ghana and Côte d’Ivoire, have a plural tenure system, including forms of private, public and customary land tenure (Putzel et al. 2015).¹²

In response to drastic political and socio-economic changes that have impacted land use, and increasing pressure on land in sub-Saharan Africa, many countries have initiated land reforms in the past 20 years

Policy discussions since the 1990s have reflected conflicting interests and different visions of legal reform around land. These can broadly be divided into three categories: (i) the agenda centred on formalization, registration and promotion of private property rights; (ii) efforts to institutionalize smallholder user rights; and

income benchmark needs to be met regarding household income per household member per day. With large households, a high income needs to be earned to meet the living income benchmark (see also section 1.2).

¹⁰ In addition, there are cases of common land or open access tenure where there is no control on access to resources.

¹¹ It is dangerous to generalize about African land tenure systems, as they are diverse, dynamic and shaped by laws, policies and contexts (Atwood 1990).

¹² This is reflective of the prevalence of dual legal systems: as statutory land laws were introduced by colonial authorities, local communities often continued to hold land under “traditional” customary systems. However, even in countries that were not formally colonized or occupied, land formalization took place well before the Second World War (Putzel et al. 2015).

(iii) reinforcing community land rights (Boone 2019). In line with the first agenda, also advocated by the World Bank, many African countries have adopted land law reforms that aim at individual registration and land titling, which brings farmers who were previously operating under customary law under a private/modern tenure system. Examples include Kenya's land reform in 2012 and Côte d'Ivoire in 1998 and 2015. The objective of privatizing farmland has been to integrate smallholders into the market economy and to create opportunities for investment, modernization and upscaling.

The formalization of land rights may negatively affect vulnerable groups

Land registration is often advocated as a pro-poor empowerment strategy, and "some see registration and titling as a way to protect smallholders' rights of access to land" (Boone 2019). However, the formalization of land rights can generate a number of tensions and trade-offs. For example, it can expose poor and vulnerable groups to adverse market effects. Markets potentially expose poor farmers and vulnerable groups to high risks of dispossession, as the process of individualization and formalization of land titling does not recognize all existing forms of land use and land ownership (Chang 2007). Formalization often materializes as top-down restructuring and involves risks, including elite capture (Putzel et al. 2015). The process of formalization may actually solidify practices that negatively affect vulnerable groups, including women, youth, ethnic minorities or land-users who do not own land (AFD Land Tenure and Development Technical Committee 2015; Notess et al. 2020). In addition, changes that erode communal structures enhance the economic autonomy of individuals vis-à-vis extended families, community leaders or the community at large, which creates individual opportunities but might also have larger socially disruptive effects (Boone 2019).

4.2.2 Addressing land fragmentation: land rights protection and communal approaches to land use and agricultural production

As a response to the market-led dispossession of smallholder African farmers and pastoralists, another option is to secure the user rights of smallholder farmers...

Advocates of this approach argue that securing user rights would protect poor people from arbitrary dispossession by the government, powerful elites and other so-called "land-grabbers" (Stein and Cunningham 2017). Programmes have focused on reducing disruptive land conflicts and strengthening the position of women. Registration scenarios that aim to secure smallholder user rights often envision local-level land administration and governance institutions that could empower rural communities and their members to govern their own assets locally. The question remains how these regimes would be sustained over time in the face of changes such as the growth of extended families, ongoing socio-economic differentiation or adverse shifts in national and international regulatory contexts for smallholder agriculture (Boone 2019). The importance of tenure security for smallholder farmers and other vulnerable groups of land users is now widely acknowledged by scholars, policymakers and practitioners.

...or to strengthen communal land rights

Rather than individual titling, this would mean the legal recognition of local communities' collective right to own their customary land, with guaranteed full legal protection as private landowners. Potential tension or trade-offs of such schemes are the extent to which they compromise (national) democratic institutions and solidify the power of local elites. In addition, formalizing community ownership has the potential effect of "hardening" group identities and artificially creating group boundaries by formalizing who belongs or does not belong to a particular group or community (Boone 2019; Putzel et al. 2015). In a recent example, six communities in Lofa County, Liberia, were officially certified as landowning communities by the Liberia Land Authority in 2020 (FPA 2020). This means the communities can now govern and manage their land collectively, according to their own by-laws administered by a representative local body. It will be interesting to learn whether the expected benefits of this process – namely, the protection of forests and the improvement of livelihoods (IDH n.d.) – will indeed materialize.

Alternative land-use governance mechanisms such as “block farming” are strategies that could lead to better incomes, though there is a lack of evidence on their impact on commodity farmer incomes

A governance mechanism that may increase farmer incomes through efficient labour division and cost-effective service delivery is “block farming,” which has been implemented in commodity sectors in the past two decades. Collaboration between farmers and with the first buyer can create economies of scale in both production and service delivery. Various forms of block farming exist. In the first model, the processor owns or has full control of the land (e.g. titles), farm management is done collectively, and farmers are paid for what they produce (Ugwu 2020) or are paid wages while also sharing in the enterprise’s risks and rewards as part-owners (PEF 2016). A second model is one where a group of farmers owns the land title and works together to optimize costs (Kimbugwe 2020). A third model is one in which individual farmers own land titles and manage their farms individually while collaborating with other farmers (Pantoja et al. 2019). Even though we find positive information on such mechanisms’ impact on income, we do not find evidence based on academic research standards that (all participating) farmer incomes improved or whether they improved enough for most farmers to be lifted out of poverty (Department of Agrarian Reform 2019; IFPRI Ghana n.d.; Matenga 2017; Nicavera 2018; Pantoja et al. 2019).

Potential unintended negative effects of “block farming”

Block farming is often described as a mutually beneficial relationship between processing companies and smallholder farmers, but there are some trade-offs, such as a possible refiguring of social relations (Matenga 2017) and gender imbalances. There can also be longer-term risks or tensions associated with the loss of control/ownership over land. A well-implemented block farming model programme has the potential to provide a sustainable supply of raw materials to the processor while at the same time improving income and livelihoods for smallholders. For block farming models to work, land titling is seen as crucial, but defining the bounds of tenure and individual/communal ownership can be a challenge (Kimbugwe 2020).

There is no “one size fits all” solution: each approach to land governance has potential tensions and trade-offs

What is an appropriate sustainable and rights-based solution to land fragmentation is a highly contextual question. It requires attention to the existing land-use and land ownership practices, power asymmetries and inequalities based on gender, lineage, age and group membership that are already embedded in existing land ownership/inheritance structures and (informal) land-use practices. As well as the social undesirability of the selling of or leasing out of inherited land, the expected impacts of such solutions should also be assessed. It is equally important to recognize the dynamic aspirations of all the people in a certain area, including the poorest, the diversity among them, and different options for livelihood diversification, as presented in figure 9. In addition, climate change forecasts and demographic trends such as urbanization, and forest and biodiversity protection targets should be integrated into the creation of new land-use plans.

4.2.3 Alternative employment opportunities

Alternative employment opportunities need to provide better options than self-employed farming for people to decide to earn an income elsewhere. But a living wage is generally not guaranteed in many sectors

If alternative employment opportunities are not considered better than self-employed farming, people might not be willing to switch, even when switching to other activities may allow them to obtain additional income from renting out their land. There is no guarantee that switching to other activities will lead to earning a living income. Living wage benchmarks are generally much higher than minimum wages and prevailing wages (Global Living Wage Coalition 2020). For instance, the living wage benchmark for the banana sector in Ghana finds that, on average, workers are paid 74 per cent of the living wage estimate (Smith and Sarpong 2018), whereas households engaged in self-employed farming in the cocoa sector on average only earn 48 per cent of the living income benchmark (Smith et al. 2017). This indicates that in Ghana, cocoa farmers might be better off financially if they switch to wage labour in the banana sector. However, it also suggests that such a switch does not guarantee that they will earn a decent income.

Creating new and decent employment opportunities has proven difficult

Regardless of the relatively high economic growth that has been experienced by African countries, growth in decent employment has been very low (Yaïche 2019). This is partly a result of the lack of success of structural transformation, characterized by the limited contribution of the manufacturing sector to economic growth (ibid.). Many projects with the aim of creating new job opportunities have focused on small firms. Although small firms may grow faster than large firms after surviving the first couple of years, when taking survival rates into account (about half of the firms no longer exist after 3 years), expected job growth for large and small firms does not differ significantly. Additionally, wages are much higher in larger firms (Page and Söderbom 2015). An example from the tea sector in Malawi shows that collaboration since 2015 between plantations, unions, tea buyers and the government has decreased the gap to a living wage. Nevertheless, living wages have not been achieved yet because of inflation eroding the value of wage increases, the exchange rate between the United States Dollar and the Malawi Kwacha, and other factors (Chiwaula et al. 2020).

Improving education and infrastructure would benefit both the creation of off-farm employment opportunities and agricultural production

To stimulate labour transfers out of self-employed farming, policymakers may wish to consider relevant enablers and barriers. Investments in employment creation should not focus solely on supporting small firms but should: (i) focus on removing the constraints for firms to grow; (ii) identify firms with a high potential to survive; and (iii) support firms not only in terms of finance but also capacities (Page and Söderbom 2015). Firms of all sizes report that infrastructure deficiencies (electricity and transportation) are the most important barriers to growth (ibid.), which would also be key leverage points for the adoption of better agricultural practices and increasing agricultural productivity (Page and Shimeles 2015). Certain public and private assets (including education) are generally advocated as enablers to increase the non-farm activities of rural households (mainly through self-employment), whereas being credit-constrained or experiencing poor infrastructure or poor locations may hinder non-farm self-employment (Dedehouanou et al. 2018). A focus on private sector development in agro-processing, manufacturing and tradeable services, with emphasis on the export sector, is needed to create more and better jobs (Page and Shimeles 2015).

4.2.4 Social protection programmes and cash transfers for increased incomes and resilience

Cash transfers and basic income interventions are tested and proposed to decrease poverty

Currently, social protection systems are weak in sub-Saharan Africa. Where they exist, they “tend to benefit mostly formal workers” (Molina and Ortiz-Juarez 2020) and thus generally do not benefit smallholder farmers and their households. Social protection systems – and specifically social assistance programmes including cash transfers – could improve the income of those poor smallholder commodity farmers in the region who do not have the potential to improve their income. Social assistance systems are currently specifically called for because the Covid-19 outbreak has created “devastating costs for the livelihoods of less advantaged people” (ibid.). Cash transfers can be unconditional or can contain behavioural conditions for receiving the payment, but they are often implemented for a short duration. More recently, Universal basic income schemes have been started or prepared, and a universal ultra basic income has been proposed (Banerjee and Duflo 2019; Molina and Ortiz-Juarez 2020). The payment of temporary basic income is proposed as a response to the effects of Covid-19. There can be differences between the interventions in: who is targeted (all or only poor households? Only certain age groups?), who in a household receives the income (each individual or one person for the entire household?), and the size of the payments.

There are different ways to calculate the size of payments

The International Labour Organization indicates that the benefit level of the universal basic income should at least ensure a basic standard of living¹³ for those who do not have another source of income: “If benefit levels remain far below the poverty line, the expected effects of a UBI on the reduction of poverty and inequality, empowerment and economic freedom remain an unfulfilled promise” (Ortiz et al. 2018).

¹³ It assumes that the national poverty line ensures a basic standard of living.

However, in the universal basic income proposals and experiments presented in a 2018 report, many benefit levels are below the national poverty line (ibid.). For the temporary basic income, three methods to decide on the payments are presented: “top-ups on existing average incomes in each country up to a vulnerability threshold; lump-sum transfers that are sensitive to cross-country differences in the median standard of living; lump-sum transfers that are uniform regardless of the country where people live” (Molina and Ortiz-Juarez 2020). The cost of implementing the temporary basic income is based on people minimally earning the national poverty line. The universal ultra basic income is proposed to be a “regular cash transfer that amounts to enough for basic survival” (Banerjee and Duflo 2019; Duflo and Banerjee 2020).

Cash transfers increase the incomes and resilience of poor and vulnerable households. The amounts paid may not guarantee a basic or decent standard of living, but large multiplier effects may occur

There is sufficient available evidence on cash transfers to conclude a beneficial impact on poverty reduction (Bernstein et al. 2019), but also that there is great variation in the impacts found (Banerjee et al. 2019; Bastagli et al. 2016). It also appears that in many cases the impact is not big enough to have a direct effect on aggregate poverty levels (Bastagli et al. 2016). Furthermore, with large-scale implementation of money transfers for a longer period of time, the welfare gains depend on where the money comes from to fund the mechanism (Banerjee et al. 2019; Bastagli et al. 2016). One study estimates a large multiplier effect of a long-term cash transfer programme in Kenya (Egger et al. 2019).

Possible unintended effects and trade-offs of cash transfers and basic income need to be taken into account

There are various unintended negative effects that could materialize when cash transfers or basic income measures are implemented. Such payments should not replace existing social security systems without covering “life-cycle contingencies” that are generally covered by such systems (Ortiz et al. 2018). Otherwise, the beneficiaries may be worse off in the long run. Additional income may furthermore result in increased prices of perishable/protein-rich food, which would be a challenge for the poorest households, as they spend a large proportion of their income on food (Molina and Ortiz-Juarez 2020). Such price increases could thus result in food insecurity (Kandpal 2019), but price inflation may also be minimal (Egger et al. 2019). It also matters to whom the payments are made within a household. If payments are made to individuals regardless of household composition, this avoids “within-household discrimination that could be particularly harmful for women’s empowerment and control of economic resources” (Molina and Ortiz-Juarez 2020).

4.2.5 Pricing policies and the need for supply management to achieve stable and remunerative prices in the long run

Supply management should be considered to address market failure leading to price volatility, a tendency for oversupply and to mitigate negative impacts on the environment because of higher prices

Stable and remunerative commodity prices are vital to catalyse productivity growth to raise farmer incomes and let the agricultural sector play its role as an engine of economic development. Commodity price increases can work for niche segments but cannot improve profits at sector level without putting measures in place to match production with demand. One of the solutions for increasing commodity prices without inducing negative effects would be to establish a system of international supply management to match production with market demand. Production and trade would be managed through buffer stocks, national quotas, and measures to limit production to national quotas and discourage free-riding by countries. The international commodity agreements for coffee, cocoa and sugar are examples of such supply management measures, but they collapsed in the 1980s because of opposition from companies and organizations in consuming countries (Koning and Jongeneel 2008). The International Coffee Agreement (1962-1989) retained export quotas and successfully moderated the price of coffee until 1989 (Akiyama and Varangis 1990). In response to the recent fall in the price of cocoa, such a system is explicitly mentioned in the declaration of the 2018 conference of the International Cocoa Organization (ICCO 2018). Prerequisites for such a system to work are: relatively few producing countries; leadership lies with producing countries; the

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involvement of farmers and their organizations; the inclusion of production controls in a fair and efficient way; and measures to prevent countries from free-riding (Koning and Jongeneel 2008).

4.3 Interventions addressing food supply system activities, including business services

4.3.1 Address contextual and personal factors

To facilitate farmers' behaviour change, interventions need to address contextual and personal factors influencing farmers' decision-making and behaviour

Personal and contextual factors, as shown in figures 12 and 13, can strongly differ between farmers and geographies. Opportunities for increasing income from either agricultural production or off-farm activities are heavily dependent on these factors, which include infrastructure, access to finance, and the characteristics of the farm and the community. Therefore, what works best in one place might not work in another. Some of the key recurring barriers to behaviour change are: (i) farmers might not be able to afford the financial investments that are required for technological innovations, or might decide to invest in something else; (ii) the future benefits of investments are not guaranteed; (iii) failing markets lead to adoption constraints (i.e. shortage of inputs when needed); and (iv) interventions may not be tailored enough to farmers' specific needs and possibilities (Waarts et al. 2019). Interventions that address these barriers are, therefore, more likely to lead to behaviour change in farmers and thus positively impact incomes.

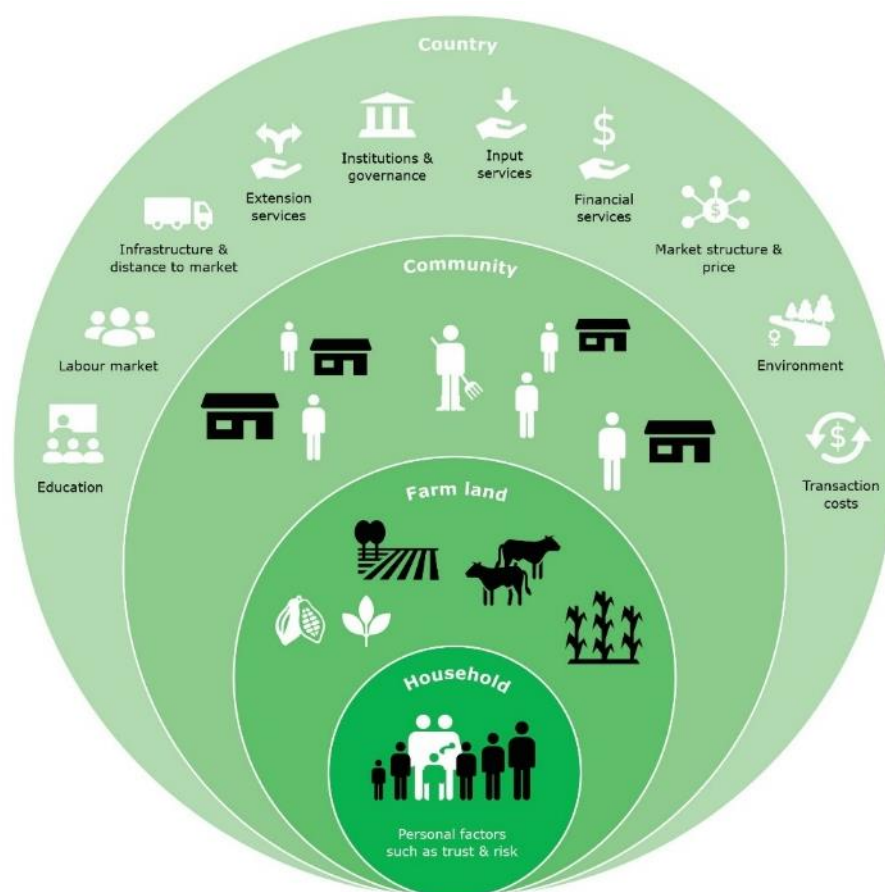


Figure 12: Key contextual factors in the design of living income interventions

Source: Waarts et al. (2019).

Address farmers' and households' personal factors to increase the effectiveness of interventions

Frequently, interventions have been implemented from a technocratic perspective, which does not consider personal factors, shown in figure 13, that studies have shown influence farmer and household decision-making processes. Besides socio-economic characteristics and farmers' aspirations, the effects of poverty on decision-making should be included, as well as the cultural environment. There might be cultural factors preventing the uptake of certain interventions, for example. On the other hand, some personal factors, such as peer effects, are already taken into account in interventions, where assumptions are made on the spread of the intervention to neighbours who did not participate in the intervention. It is important for interventions to have a realistic approach to such assumptions. From farmer field schools, for example, such diffusion of knowledge has been proven not to take place (Waddington et al. 2014).



Figure 13: Key personal factors in the design of living income interventions

Source: Waarts et al. (2019).

4.3.2 Conduct context and market analyses to increase the cost-effectiveness of interventions

Interventions should include context and market analyses to ensure sufficient interest and demand

The likelihood of achieving impact at scale increases if projects start with context and market analyses (Nutz 2017; UNHCR 2015). A context analysis includes a socio-economic analysis, providing information on the existing socio-economic situation of the target group and the community they live in. This should include information on their interests, aspirations, risk aversion, financial capabilities, and other aspects that may affect their decision-making (Nutz 2017; UNHCR 2015). A market and value chain analysis is also necessary to assess the demand for services or products that may be generated through interventions focusing on diversification and supply chain logistics. For interventions focusing on productivity

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enhancement to work, the supply of inputs and access to input markets need to be guaranteed at the right time with regard to the crop calendar. When the intervention focuses on service delivery, the demand for these services needs to be carefully assessed. For all interventions, it is, therefore, important to consider the synergy between supply and demand, as shown in figure 14.

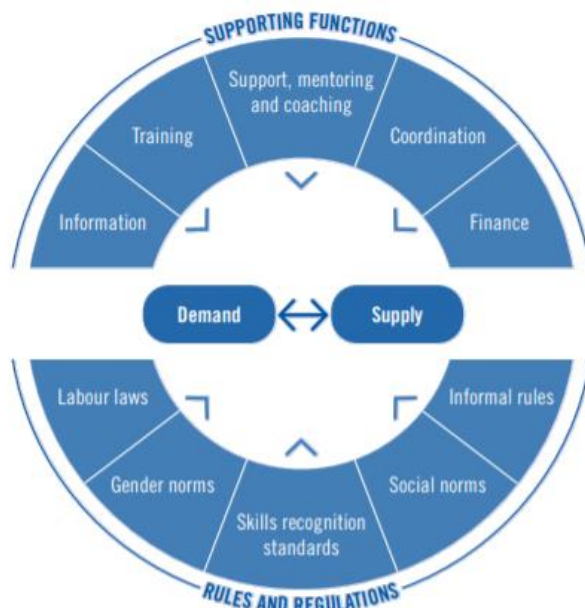


Figure 14: A market systems framework for interventions

Source: Nutz (2017).

4.4 Interventions addressing environmental drivers

4.4.1 Agroecological and climatic conditions should be favourable for farmers to achieve a living income

Environmental drivers are key for thriving food systems, but long- and short-term interests are conflicting

Many commodity producers in lower- and middle-income countries are expected to experience the impacts of changes in climate (Centro Internacional de Agricultura Tropical 2011; Läderach et al. 2013; Masters et al. 2010; Ovalle-Rivera et al. 2015). To achieve sustainable changes in farmer incomes, a long-term perspective is needed. If climatic predictions assert that it will no longer be possible to produce key commodities in a certain region in the future, these farmers must be guided to shift their production to other activities or to earn income from off-farm sources. There are also other trade-offs between short- and long-term interests. An important example concerns deforestation. In cocoa farming, for example, much forested land has been converted to cocoa plantations in the past. The traditional shade management has been gradually replaced by full-sun monoculture (Franzen and Mulder 2007). Such full-sun, monocrop cocoa systems enhance yields in the short term, but these yields may not be maintained in the long run. Farmers who are unaware of this and farmers with a short time horizon can be inclined to opt for such a farming system, which leads to severe long-term soil nutrient degradation, leading to very low levels of productivity in the long run, as the pressure on the land is too great to leave it fallow after 20-30 years of intensive use (Ruf 2001).

5. Conclusions and recommendations

We conclude on how different types of smallholder commodity farmers could be supported to achieve a living income with recommendations for policymakers and organizations designing and implementing interventions to achieve this goal.

There is no silver bullet to lift smallholder commodity farmers out of poverty. Structural factors underlying poverty cannot be addressed by the private sector and NGOs

Despite huge investments in improving the livelihoods of smallholder commodity farmers in the past decades, there is still widespread poverty among cotton, coffee, cocoa, tea, cotton, sugar and tea producers. The impact of interventions, if any, has not been sufficient for farmers to be lifted out of poverty at scale, nor have they resulted in large groups of farmers earning a living income. Interventions that only address a single food system component (e.g. productivity or price increases) have not lifted the majority of farmers above the extreme poverty benchmark. A shift towards more system-oriented strategies in multi-stakeholder settings appears more likely to benefit the scale and sustainability of their impact. The reason for the lack of success is that, in many cases, interventions fail to address the underlying drivers of poverty, such as land fragmentation, price volatility, buying prices that do not cover all costs, farmers' lack of capacity to invest, and difficulties for farmers to diversify on-farm and off-farm (employment) income sources. Interventions by the private sector and NGOs alone cannot achieve living incomes for the most vulnerable farmers, as many of these factors are beyond their sphere of influence. Governments have an important role to play in addressing such structural factors.

The living income concept embraces a “decent income,” which goes beyond generally used poverty benchmarks, allowing for better-targeted interventions

To date, policies have often focused on farmers reaching extreme poverty benchmarks or national income thresholds. The living income concept calculates how much a household minimally requires to earn to represent a decent income. Achieving living incomes for farmers is an important route towards achieving food security, as the living income concept includes the costs of a model diet, as well as resilience – by incorporating margins for unforeseen events, to ensure the sustainability of such diets even in periods of scarcity. The calculations to assess living income benchmarks and to assess whether there is a gap between actual household incomes and such benchmarks can be used to better design interventions and target those most in need of support.

A large proportion of smallholder cocoa and tea households do not have the potential to earn a living income in the short/medium term. We expect this is similar for other smallholder commodity farmers

We present a new assessment approach to support decision-making about interventions for farmers with and without the potential of achieving a living income based on their current conditions. This assessment approach can be applied in different contexts by assessing which drivers of poverty are relevant in a specific country/region/value chain. Based on the datasets, analyses and expertise, we conclude that a large proportion of the cocoa and tea farmers on whom we have collected data do not have the potential to earn a living income. Because their profitability levels are not high, often it is a challenge for them to invest; farm sizes are often small; and it is not easy to earn additional income through on- and off-farm diversification. By implementing the assessment approach, it becomes clear who needs support the most and what type of interventions are best suited, hopefully allowing for more targeted effort to improve the livelihoods of the most vulnerable smallholder commodity farmers and achieving equitable livelihoods.

A starting point for short- to medium-term interventions for households without the potential to earn a living income should be to improve their resilience

While improving resilience may also be important for farmers who can invest to improve commodity income, for the farmers who do not have the possibility to improve their income, the support focus would be food security and health, finding off-farm employment and social assistance programmes. For those farmers it often does not make sense to focus efforts on commodity production. Therefore, depending on their circumstances, they can best be supported to find employment and improve their resilience by improving food production for home consumption, water, sanitation and hygiene, and educational opportunities. Social assistance programmes such as cash transfers or basic income schemes should also be considered. This protects them against the likelihood of falling back into poverty if unexpected circumstances occur.

Landscape-level land governance policies should be considered to address land fragmentation in the long term, taking into account anticipated climate change effects and forest and biodiversity protection, as well as the creation of employment opportunities

If small farm sizes prevent many farmers from earning a decent income, rights-based land governance policies should be developed with participation from the communities involved. Such policies should take into account expected climate change effects, as in several commodity sectors it is expected that climatic conditions in the current production zones will become challenging in the future. Also, such land policies should take into account forest and biodiversity protection. Together with enabling household members to earn an income through employment (in agriculture or other sectors), this could create opportunities for some farmers to increase their farm size and improve incomes, and for others to move out of self-employed agriculture. This is obviously not easily achieved, as different stakeholders often have different priorities, and employment opportunities are also not easily created. The assessment approach presented will be used to clarify which drivers of poverty are most important to address to inspire the design of interventions.

Income from employment or social assistance programmes does not guarantee that people earn a living wage or a living income per se. First evidence shows that cash transfers may spark positive indirect welfare effects

Being employed does not guarantee earning a living wage, because minimum and prevailing wages are generally lower than a living wage. In addition, cash transfers and a universal basic income are expected to increase incomes but do not guarantee earning a living income. For instance, in the design of a universal basic income, the amounts paid are generally lower than national poverty lines. However, one methodologically sound study of a long-term cash transfer programme in Kenya found large multiplier effects. Therefore, through such indirect effects, incomes could increase more than through the direct amount received. The direct and indirect effects and possible unintended negative effects of basic income programmes should be further investigated to assess their potential to contribute to achieving a living income.

Achieving living incomes requires talking to farmers and their household members, the coordination between all stakeholders involved, and the sharing of lessons learned and data

The assessment of the potential for households to earn a living income should focus on whether farmers can reasonably be expected to achieve a decent standard of living. It is important to talk to the farmers about their needs, wants and aspirations, and take contextual and personal factors into account in designing interventions. The effective implementation of diversified interventions requires coordination between all stakeholders active in a certain region. Each stakeholder has its own strengths to contribute: buying companies can support farmers with agronomic advice and input services and work alongside other stakeholders to improve the situation of their supplying households. Improving land governance, education, water and sanitation is considered more the role of governments. Also, they can implement social assistance programmes. In implementation programmes, lessons learned on how best to influence behaviour change need to be shared, as this is one of the barriers to effective implementation. To assess whether households have or do not have a potential for earning a living income, there is a need for sufficient data and the sharing of data to limit the burden on farmers being visited multiple times to ask the same questions. There is also a need for data disaggregated by gender and age, to close the data gap.

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Appendix 1: Information from the literature review on the impact of interventions on crop and household income

Contract farming

The systematic review finds that the effects are positive (RR = 1.32 on household income – 8 studies, RR = 1.65 on farming income – 6 studies, RR = 1.92 on contracted crop income – 12 studies). However, there seems to be a very large selection and survivor bias, with a high likelihood of an overestimation of effects. Nevertheless, the authors note that it is likely that the effects will be significant regardless, as smallholders would not give up their farming autonomy (or maintain doing so over the years) if they were not (Ton et al. 2017).

Standards and certification

The systematic review finds that the effects on the total household income of farmers are unclear (coffee (3), cocoa, banana, horticulture, black pepper, other; 8 studies in total). While household incomes of farmers engaged in certified production were 6 per cent higher than those of households not engaged in certified production, the overall effect is not statistically significant (SMD = 0.13). The effect size estimated for individual studies ranges from negative to positive, though all statistically significant studies provided positive estimates. Effects on crop income (coffee (4), horticulture (2), cocoa (2), tea, other) were positive and statistically significant (SMD = 0.22). Incomes from the sale of produce were 11 per cent higher if the produce was certified (Oya et al. 2017). The Farmer Income Lab (three sources assessed in detail) identifies this as medium income impact (10-50 per cent income increases) with demonstrated limited impact on income enabling factors (high scale, medium durability) (Dalberg and Wageningen University 2018).

Cash transfers

The systematic review examined nine studies with impacts on poverty measures (poverty headcount, poverty gap), of which over two thirds find a significant impact. While cash transfers were shown to lead to an increase in total and food expenditure for most programmes, it appears that in many cases this impact is not big enough to have an effect on aggregate poverty levels. Findings range from about 4 to 8 or 9 percentage points, depending on the measure of poverty. However, the long-term effects are not clear yet (Bastagli et al. 2016).

Agricultural input subsidies

The systematic review finds that the effect of receiving fertilizer and seed subsidies on income and household expenditures is 0.15 on average (significant). All studies included (three sources in total) report a positive impact, but there is a high degree of between-study variability, which is most likely caused by the different outcome variables between the studies. The effect sizes for income and expenditures are smaller than those for revenue. Two studies on seed inputs for maize crops measured the effects on poverty. One found an 11 per cent decrease in the number of farmers living beneath the US\$1.25 poverty line, and a 7 per cent decrease in those living beneath the US\$2.00 poverty line, whereas the other found no significant effect on the severity of farm household poverty (the degree of inequality below the poverty line). The meta-regressions also show small, negative relationships between subsidy size and yield, as well as between subsidy size and income. However, these relationships are not statistically significant. Consequently, the meta-regression analysis provides no evidence of an association (positive or negative) between subsidy size and agricultural outcomes (Hemming et al. 2018). The Farmer Income Lab identifies input subsidies (24 sources assessed in detail) as an intervention that did not show significant income increases (<10 per cent). The scale was identified as high, and the durability as low (Dalberg and Wageningen University 2018).

Access to finance

The Farmer Income Lab (Dalberg and Wageningen University 2018) (13 sources assessed in detail) identified this as medium income impact at scale with demonstrated impact on income enabling factors. Interventions demonstrated income increases of 15 per cent on average and the ability to reach between

2,100 and 400,000 clients. These programmes are effective because they: (i) segmented farmers; (ii) tailored solutions to farmers; (iii) leveraged farmer aggregation; and (iv) bundled services.

Productivity enhancement through training and input services

Many projects have a primary focus on increasing farmer productivity, as it is thought to benefit both the buying companies and the farmers. The assumption behind such projects is that farmer productivity leads to increases in farmer profits and/or household incomes; however, the effect of such projects on household income is not always as clear as expected. The adoption of good agricultural practices, including sustainable agricultural practices, is frequently associated with increases in (household) income (see, for example, Ali and Abdulai (2010); Amare et al. (2012); Asfaw et al. (2016, 2019); Kassie et al. (2018); Noltze et al. (2013); Pray and Huang (2003); Teklewold et al. (2013)). However, the question remains whether training and/or input services lead to actual changes in the adoption of practices and, if so, for how long. Moreover, the adoption of good agricultural practices is also often associated with increases in costs of production, which also yields some studies that find no changes in household income (Takahashi and Barrett 2014) or profits (Takahashi et al. 2019) due to these increased costs, or even negative effects on income (Daniel et al. 2010). Moreover, if all farmers would have increases in yields, the prices might decrease in the long run, eliminating any income effects for farmers. The Farmer Income Lab classifies productivity enhancement as mixed evidence of impact, demonstrating income improvements of between 10 and 50 per cent, with medium reach and durability (Dalberg and Wageningen University 2018).

Farmer field schools

The most common strategies for productivity enhancement are providing training in agricultural practices and providing input services, which are also frequently combined in projects. The approaches to reaching farmers can differ. Many projects provide their services directly via cooperatives, while others use a more bottom-up approach and use farmer field schools (FFSs) to disseminate knowledge. A systematic review on FFSs found that a significant increase in agricultural yields was found, by 13 per cent over comparison farmers (RR = 1.13, 11 studies). They also found a significant increase in profits (net revenues) by 19 per cent among FFS participants over comparison farmers (RR = 1.19, 2 studies). They mention that the increase in profits was higher for FFS projects which also included complementary interventions involving input or marketing support (RR = 2.51, 2 studies) (Waddington et al. 2014). It is important to note here that commodity profits do not directly translate into significant increases in total household income, which is not something that was included in the studies reviewed. The Farmer Income Lab identifies FFSs as an intervention with mixed evidence of impact, as it demonstrates income improvements of between 10 and 50 per cent, with high reach but low durability (Dalberg and Wageningen University 2018).

Appendix 2: Calculating comparable poverty lines and living income benchmarks

Living income benchmark calculations

For each country, household incomes were converted to match the living income benchmark:

- Ghana: Smith and Sarpong (2018)
- Cocoa Côte d'Ivoire: Tyszler et al. (2018)
- Kenya: Anker and Anker (2015).

The monthly living income benchmarks were converted to the year of each dataset using the changes over time in the consumer price index. The living income benchmark is based on a country-specific average family size (6 in Côte d'Ivoire, 5 in Ghana, 5.5 in Kenya). Therefore, yearly household income from each of the datasets was adjusted only for the period: it was divided by 12 to change the data from yearly to monthly income. For comparison with the World Bank poverty line, the monthly living income line per family was converted to a daily living income per household member. By doing so, we treated adults and children in the households in the same way, not correcting for male or female full-time equivalent values.

Poverty line benchmark calculations

For each country, household incomes were converted to match the poverty line of US\$1.90 per person per day. This poverty line was set in 2011, and was adjusted to the year of the data using the difference in time using the consumer price index. The yearly household-level income data were converted to daily income by dividing by 365, and then divided by the number of household members.

Appendix 3: Calculations on the effect of price increases on income

The ICCO daily price was US\$2,501/tonne on 18 September 2020 (ICCO 2020). The Living Income Differential by the governments of Côte d'Ivoire and Ghana in 2019 translates to US\$400/tonne on all 2020/21 season cocoa contracts, on top of the market price (Angel et al. 2019; Vidzraku 2018). This is a 16 per cent increase compared to a market price of US\$2,501/Mt. The mean income of farmers living under the World Bank poverty line in Ghana is US\$0.27 per person per day, of which 84 per cent stems from cocoa farming (Waarts et al. 2015). A 16 per cent increase on 84 per cent of US\$0.27 generates a new income of US\$0.307 per person per day, which is an increase of US\$13.3 per person per year compared to a situation without the Living Income Differential.

The minimum Sustainability Differential, as announced by Rainforest Alliance, is US\$70/Mt (Rainforest Alliance n.d., 2020), which is a 3 per cent increase compared to a market price of US\$2,501/Mt. A 3 per cent increase on 84 per cent of US\$0.27 generates a new income of US\$0.277 per person per day, which is an increase of US\$2.5 per person per year compared to a situation without the Living Income Differential.

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