

THE CASH LAB

The Cash Lab is a research collaboration between Unilever (Magnum), Cargill, the Sustainable Trade Initiative (IDH), the Royal Tropical Institute (KIT) and 100WEEKS. As low incomes continue to be a root cause of some of the most persistent problems in the cocoa value chain, **The Cash Lab** aims to research to what extent multifaceted cash transfer programmes as the one executed by 100WEEKS contribute to improving the livelihoods of cocoa farmers and their household income. **The Cash Lab** research was a 5-month research, which was financially supported by *The Sustainable Trade Initiative (IDH)*.

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KONFE HABIBOU

Cassava processor

Konfe Habibou has been a cassava processor and exporter for many years. As a mother of 7, and due to the illness of her husband, it was difficult to make ends meet with the 15 bags of cassava she was able to export to Burkina Faso every month. She struggled to eat and look after her children, leaving them to go to bed hungry at times.

Being part of the 100WEEKS program has given her the opportunity to increase her production of cassava, and consequently her export to Burkina Faso, to 40-50 bags per month. She has been able to do so based on the loan she took from the Village Savings and Loan Association (VSLA), which also offers her the financial security to be able to pay for the medical expenses of her husband when needed.

INTRODUCTION

Whereas the cocoa industry knows many sustainability challenges, much focus has recently been on ensuring a living income for households active in cocoa supply chains. The popularity of this debate acknowledges the fact that poverty is a root cause of many other sustainability issues in the industry as e.g., child labour and deforestation¹. This focus has found resonance in the industry, forming the basis for the development of living income benchmarks², the introduction of the Living Income Differential by Ghana and the Ivory Coast, the surge in literature on this topic and a range of interventions by chocolate companies focusing on increasing income levels of farmers. Among these interventions there is also an uptake of cash transfer programmes, due to their high success rates within other development contexts and their ability to achieve poverty alleviation and women's empowerment simultaneously³.

As the uptake of such cash transfer programmes within the cocoa and chocolate industry has only been relatively new, evidence is lacking on the actual impact of such programmes on poverty alleviation in the cocoa supply chain settings. The partners of **The Cash Lab** initiative find it of utmost importance that current programmes are therefore evaluated to enable future adoption and designs of effective and efficient cash transfer interventions. We should therefore adopt the mindset of *learning-by-doing* and combine the execution of programmes with simultaneous evaluations of its performance to related impact indicators.

Within this paper we aim to do just that; *learn-by-doing*. In the summer of 2022, a group of 200 beneficiaries graduated from a so-called multifaceted cash transfer programme during which they received a package of interventions: a cash transfer of €8 for a period of 100 weeks, membership of a Village Savings and Loan Association (VSLA) and weekly training sessions. This programme was executed by the organization 100WEEKS and initiated by its client Unilever. As this programme is one of its first within the cocoa supply chain, and an expansion of the programme is foreseen, it was in the interest of all parties to better understand the impact on living income. Therefore, **The Cash Lab** research was initiated, via which a funding proposal was submitted to the *Sustainable Trade Initiative (IDH)* with the following guiding research question:

"What is the impact of a cash transfer program on the multidimensional poverty and incomes of cocoa farming households?"

As becomes clear from the above, the concept of a living income goes beyond merely the absolute income of a household. Therefore, to reflect the multidimensional character of poverty within this research as well as acknowledged by the complexity of living income discussions, **The Cash Lab** research question goes beyond merely the impact of the cash transfer program on decreasing the living income gap. This complexity is captured by the wording 'multidimensional poverty' and is operationalized by including indicators on multidimensional poverty (Livelihoods & Health) to assess the impact of a cash transfer programme on cocoa households. Within this report, we will first highlight the discussed deliverables, dive into some background information on the executed program as well as explain the used research methodology that was used to answer the question above. Next to that, the results of the programme will be presented. The recommendations and conclusions section will be finalized after a stakeholder meeting with Unilever, Cargill and IDH planned on

¹ Fountain, Antonie C. (2022): 2022 Cocoa Barometer Living Income Compendium

² Living Income Community of Practice, <https://www.living-income.com/>.

³ e.g., Bonilla, J., Zarzur, R., Handa, S., Nowlin, C., Peterman, A., Ring, H., & Seidenfeld, D. (2017). Cash for Women's Empowerment? A Mixed-Methods Evaluation of the Government of Zambia's Child Grant Program. *World Development*, 95, 55-72. doi: 10.1016/j.worlddev.2017.02.017

the **9th of December 2022** where the implications of the findings for a scaling strategy will be deliberated.

THE CASH LAB

1. The Research

1.1. Deliverables

The Cash Lab is a research collaboration between Unilever (Magnum), Cargill, the Sustainable Trade Initiative (IDH), the Royal Tropical Institute (KIT) and 100WEEKS. As low incomes continue to be a root cause of some of the most persistent problems in the cocoa value chain, **The Cash Lab** aims to research to what extent multifaceted cash transfer programmes as the one executed by 100WEEKS contribute to improving the livelihoods of cocoa farmers and their households. **The Cash Lab** research was a 5-month program, which was financially supported by *The Sustainable Trade Initiative (IDH)*, and had the following deliverables:

- A. **Impact evaluation:** evaluate the impact on poverty and incomes of the 100WEEKS program on 200 beneficiaries in the COOPAPROMAN cooperative.
- B. **Baseline & endline data:** gather baseline and endline income data from 400 beneficiaries in the cooperative CANWORI and COOPAGREL.
- C. **Development of inhouse capabilities 100WEEKS to measure living income:** training of 20+ enumerators in the field on executing living income surveys, developing analytical capacities on analysing living income data and MoU in progress with the KIT on full-on access to the living income survey.
- D. **Stakeholder meeting:** organizing a follow-up stakeholder meeting on the 9th of December to discuss the results and formulate next steps.

Within the presented paper, we dive into the first findings of **The Cash Lab** and summarize how these findings can be used to upscale the existing programme to 5000 women. These findings will be used during The Cash Lab stakeholder meeting on the 9th of December during which the strategic upscaling of the 100WEEKS program will be discussed.

Multifaceted cash transfers

Within the literature, a distinction is made between unconditional, conditional, and multifaceted cash transfers⁴. Multifaceted cash transfers differentiate themselves from the other two categories, due to the fact that they complement the transfer with several other interventions as for instance the provision of business skills training, capacity building and personal coaching⁵. This is due to the fact that such multifaceted cash transfer programs do not merely focus on giving cash, in which positive correlations between other outcomes as e.g., financial resilience might be assumed to be a spillover effect, but actively intervene to reach such impact. Academics such as Abhijit Banerjee and Esther Duflo concluded that '[multi-faceted programs] can help the poor [to] establish sustainable self-employment activities and generate lasting improvements in their well-being'. This conclusion was built upon a multi-faceted cash transfer within six different countries, after which positive impact on all 10 indicators was found⁶.

⁴ "What Have We Learned about Cash Transfers?" World Bank Blogs, accessed November 11, 2022, <https://blogs.worldbank.org/impactevaluations/what-have-we-learned-about-cash-transfers>.

⁵ A. Banerjee et al., "A Multifaceted Program Causes Lasting Progress for the Very Poor: Evidence from Six Countries," *Science* 348, no. 6236 (2015): pp. 1260799-1260799, <https://doi.org/10.1126/science.1260799>.

⁶ A. Banerjee et al., "A Multifaceted Program Causes Lasting Progress for the Very Poor: Evidence from Six Countries," *Science* 348, no. 6236 (2015): pp. 1260799-1260799, <https://doi.org/10.1126/science.1260799>.

1.2. Context

In the summer of 2020, Unilever (Magnum) kicked-off its collaboration with the Non-Governmental Organization (NGO) 100WEEKS by onboarding a group of 200 beneficiaries in a multifaceted cash transfer programme in the Mazanoué region, Côte D'Ivoire. To be able to facilitate the onboarding process of these beneficiaries, it was decided to base the selection on three existing Village Saving Loan Associations (VSLAs) that were created by CARE international between the winter of 2018 and the summer of 2020. Four VSLA's were set up by the cooperative itself. The selection criteria used at that time were the following:

- The members of the VSLA need to have an affiliation to the cooperative COOPAPROMAN (as a cocoa farmer or spouse of farmer).
- The member should be vulnerable (with almost no alternative income generating activities or low incomes that do not allow them to provide for their families).

7 VSLA groups with a total of 200 members, of whom **86% women**⁷, were selected and onboarded in the 100WEEKS program. After the onboarding process, the beneficiaries received the 100WEEKS program for a period of 100 consecutive weeks.

The 100WEEKS model®

The 100WEEKS Model® has been designed to address different main causes of poverty at the same time and is loosely based on the Graduation Model, which was first designed by BRAC⁸ and further developed and supported by the World Bank, CGAP⁹ and the UN. The objective of the 100WEEKS model is to approach poverty from a multidimensional perspective, and therefore consists out of three mutually reinforcing components:

- 1. Weekly cash transfer:** the beneficiaries receive around €8/week for a period of 100 weeks on their mobile phones.
- 2. Weekly training:** the beneficiaries receive training in basic financial literacy, basic entrepreneurial skills, and life skills. Topics that are covered include personal leadership, business incubation, parenting skills, family planning, reproductive health, nutrition, and water & sanitation.
- 3. Weekly VSLA meetings & coaching:** the beneficiaries come together each week in VSLA groups, guided by a coach. Next to participating in the VSLA activities, the presence of a coach offers the beneficiaries the opportunity to offer each other mutual support and advice. The VSLA together with a personal mobile money wallet are the first steps towards financial inclusion and resilience for these women.

The following indicators were included in the research: consumption, food security, productive and household assets, financial inclusion, time use, income and revenues, physical health, mental health, political involvement, and women's empowerment.

⁷ Usually, the 100WEEKS program focuses on women. However, due to the fact that three existing VSLA groups that had male members were forming the basis of the selection process it was decided to not exclude men. As a result, the onboarded groups were a mix of men and women.

⁸ Shuvra, "Creating Opportunities for People to Realise Potential," BRAC, <http://www.brac.net/>.

⁹ "The Graduation Approach: Perspectives from around the World," CGAP, <https://www.cgap.org/blog/series/graduation-approach-perspectives-around-world>.

1.3. *Multidimensional poverty & The Living Income*

The ways in which poverty should be defined, measured, and alleviated has always been a subject for debate. Over the past decades, some of these definitions have gained wide attention within the developing world, influencing the measurement tools and interventions that were designed to better grasp and tackle the complex reality of people living in poverty¹⁰. This means that when evaluating the success of an intervention, it is of great importance to understand which definition of poverty was taken as the foundation for how an intervention was designed. In this case, that means that the definition of poverty that was adopted by the implementing organization (100WEEKS) will be followed, which is a multidimensional definition of poverty which can be defined as follows:

“Multidimensional poverty encompasses the various deprivations experienced by poor people in their daily lives – such as poor health, lack of education, inadequate living standards, disempowerment, poor quality of work, the threat of violence, and living in areas that are environmentally hazardous, among others.”¹¹ - Oxford Poverty and Human Development Initiative (OPHI)

The importance of this definition is that it acknowledges the need to formulate, and therefore alleviate and measure, poverty in ways that are not merely focused on absolute or relative¹² income but in a more holistic way that incorporates the complexities of living in poverty. As a result, multifaceted cash transfer programs do not merely focus on giving cash but actively intervene to influence other dimensions of poverty as well. Therefore, to be able to assess the effect of the observed programme we will focus on the following indicators that within literature have widely been associated with multidimensional poverty as well have been actively targeted to be influenced by the 100WEEKS intervention: household income, livelihoods, and health.

The Living Income

The above is important to stress before diving into the topic of interest within this research paper, The Living Income, as the mainstreaming of the Living income concept and benchmark within the cocoa sector is influencing the way in which poverty can be defined, measured and alleviated.¹³ Within **The Cash Lab** report this concept will be used to measure the household income, and therefore be one of the ways in which we will assess the success of the 100WEEKS programme, but will not stand on its own. Below, some more in-depth information on the concept as well as the operationalization of the concept is given.

¹⁰Gerald Nyasulu, “REVISITING THE DEFINITION OF POVERTY” *Journal of Sustainable Development in Africa* 12, no. 7 (2010).

¹¹ Ophi, 2022, <https://ophi.org.uk/multidimensional-poverty-index/>.

¹² “Absolute poverty compares households based on a set income level. And this level varies from country to country depending on its overall economic conditions. Relative poverty is when households receive 50% less than average household incomes.”

¹³ “Living Income: A Story from Measurement to Impact,” ISEAL Alliance, <https://www.isealalliance.org/sustainability-news/living-income-story-measurement-impact>.

The Living Income Community of Practice¹⁴ defines a Living Income as follows:

“The net annual income required for a household in a particular place to afford a decent standard of living for all members of that household. Elements of a decent standard of living include: food, water, housing, education, health care, transport, clothing, and other essential needs including provision for unexpected events.” Living Income Community of Practice, 2018¹⁵

When thinking about income of households active in agricultural supply chains as cocoa, it is important to recognise that the income earned comes from multiple sources. In the case of smallholder farmers for example, income can be earned through off farm business and remittances as well as from crop sales (see figure 1). OXFAM NOVIB has defined a total of 7 major drivers of household income for cocoa households¹⁶:

- *Productivity and product quality*
- *Farmgate price (and top ups such as premiums etc)*
- *Production area or land size*
- *Income from other sources or diversification*
- *Cash transfer or supplementary payment*
- *Operational / production costs*
- *Costs of living*



Based on these seven drivers one can compute the actual income earned by a household, after which the gap to the defined Living Income benchmark (see figure 1) can be defined. This difference between the actual and the benchmark is called the Living Income Gap. For cocoa households in Côte D’Ivoire, this benchmark has been calculated on \$5225,90¹⁷ per year for a family of 6.

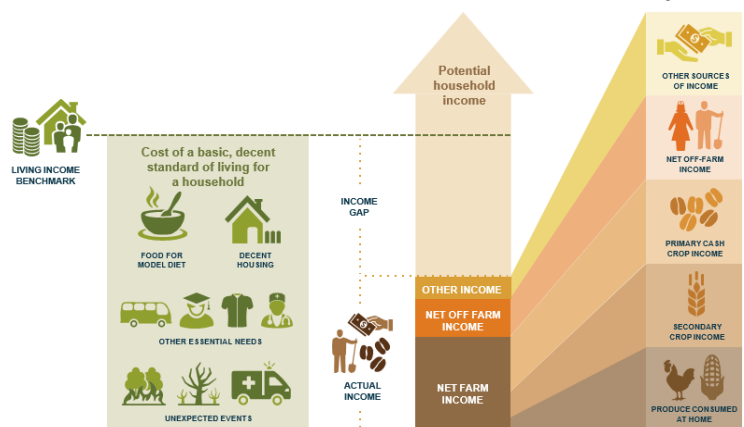


Figure 1: construction Living income

¹⁴ “Living Income: Living Income Community of Practice,” living income, <http://www.living-income.com/>.

¹⁵ “The Concept,” living income, <https://www.living-income.com/the-concept>.

¹⁶ Oxfam Novib, 2022

¹⁷ This is based on the update of March 2022

2. Methodology

2.1. Research design

This research focuses on analysing the impact of a multifaceted cash transfer program on 200 beneficiaries (treatment group), who graduated from the program in the summer of 2022. Due to the fact that no baseline data on household income was present for this specific group, it was decided to analyse the impact of the program by selecting 200 non-beneficiaries (control group) within the same area. For the selection of the control group, we decided to use the same selection criteria that were deployed during the selection of the treatment group as discussed under chapter 1.2.

The research design described above is referred to as quasi-experimental research¹⁸, via which we focus on estimating the causal relationship between an intervention on our treatment group without having the possibility for randomization. To be able to make an estimate of the impact, and control for the possible bias that is present in our research due to the non-random nature of the study, we deployed a statistical method which is called Propensity Score Matching (PSM).

The objective of the PSM technique is to predict the effect of being enrolled in the 100WEEKS programme (treatment) on our defined outcome variables (Y) by considering possible characteristics that might have influenced the outcome variables simultaneously with the executed intervention (X). This is illustrated by the below causal figure 2¹⁹:

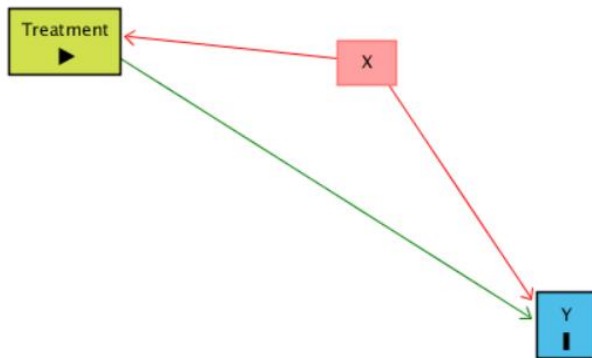


Figure 2: causal diagram PSM

There are multiple ways in which the matching can be executed, which affects the ability to match as well as the relative weights that units of observation receive. Within this research, we have decided on kernel matching with a conservative bandwidth of 0.025 (see chapter 2.5.4).

¹⁸ Whereas the preferred method for executing causality studies are randomized experiments, such experiments are often not feasible. Within quasi-experimental studies we do not rely on a fully randomized study but assign groups based on non-random criteria as e.g., their participation in Village Saving Loan Associations (VSLAs).

¹⁹ Causal inference animated plots, n.d., <https://nickchk.com/causalgraphs.html>.

2.2 Indicators

To be able to measure the effect of the 100WEEKS program on household income, livelihoods, and health (the outcome variables, referred to as Y in figure 2), two questionnaires were developed. First, a household income survey was conducted among both the treatment group as well as the control group wherein the head of the household (often not the beneficiary of the program) was interviewed. This questionnaire was developed by the Royal Tropical Institute (KIT) and is based upon the Anker & Anker methodology²⁰. The eventual outputs of this questionnaire are the income levels earned by the households within our sample as well as their gap towards the living income benchmark for their specific region.

However, whereas the outputs of such a questionnaire gives an idea of the total household income earned, it does not necessarily offer a further explanation of which specific income drivers were affected by the multifaceted cash transfer intervention as well as the possible broader impact of the programme. Therefore, an additional survey was conducted among the beneficiaries (treatment group) and spouses of the head of the households to gain more insights in the other dimensions.

The additional questions that were added within the analysis were based upon literature as well as the Theory of Change (ToC) of the implementing organization, 100WEEKS. In table 1, an overview of the questionnaires as well as their sources can be found.

²⁰ "Living Income," living income, <https://www.living-income.com/measurement-living-income>.

Dimension	Indicator	Description	Unit
Household income	Household net cocoa income	Net income from cocoa: revenue – production costs.	USD
	LI gap ²¹	Difference between actual household net total income and LI benchmark.	USD
	Income earned from AIGAs (July 2022)	Reported income earned from AIGAs in July 2022	USD
Livelihoods	Reported savings	Reported savings by beneficiaries in July 2022	USD
	Multidimensional Poverty Index (MPI) ²²	The MPI is an index based on 10 indicators and results in a Deprivation Headcount which shows the share of poor individuals within a certain population The higher the score, the more likely you are to be deprived.	% Index score
Health	Household Food Insecurity Access Scale ²³	The Household Food Insecurity Access Scale (HFIAS) is a standardized scale that consists of a set of nine questions with the objective to measure the extent to which a household can be observed to be food insecure. The higher the output, the more likely that a family is food insecure.	Scale
	Dietary Diversity Score (DDS) ²⁴	The Dietary Diversity Index (DDS) assesses the number of food groups consumed by the household and indicates the economic accessibility of a diverse diet. The DDS is a positive score, which indicates that the higher the score the better.	Index score
	General Health Questionnaire (GHQ) ²⁵	The General Health Questionnaire (GHQ) is a proven and validated questionnaire that assesses the mental health of individuals based on a set of 12 questions (GHQ-12). The GHQ is a positive scale, which indicates that the higher the score the better.	Index score

Table 1: indicators deployed

²¹ The survey deployed was developed by the Royal Tropical Institute (KIT) and based upon the Anker & Anker methodology

²²Ophi, 2022, <https://ophi.org.uk/multidimensional-poverty-index/>.

²³Food and Nutrition Technical Assistance III project (Fanta), <https://www.fantaproject.org/monitoring-and-evaluation/household-food-insecurity-access-scale-hfias>.

²⁴ "Household Dietary Diversity," Food and Agriculture Organization of the United Nations, <https://www.fao.org/nutrition/assessment/tools/household-dietary-diversity/en/>.

²⁵ Goldberg, D. (1972) *The Detection of Psychiatric Illness by Questionnaire*. Oxford University Press, London.

2.3 Data

Within this research, data was gathered in the Mazanoué region (Côte D'Ivoire) in August 2022. In total, 185 treatment households and 188 control households were interviewed. Whereas the plan was to interview a total of 200 per group, some attrition took place due to the fact that 2 households moved out of the program and a total of 13 treatment households and 12 control households were not available during data gathering. The selection criteria used for the control group were described in chapter 1.2. Map 1 shows the location of the treatment and control households. Below the descriptive data is shown (table 2), which is an overview of the demographics of the treatment and control group before matching.

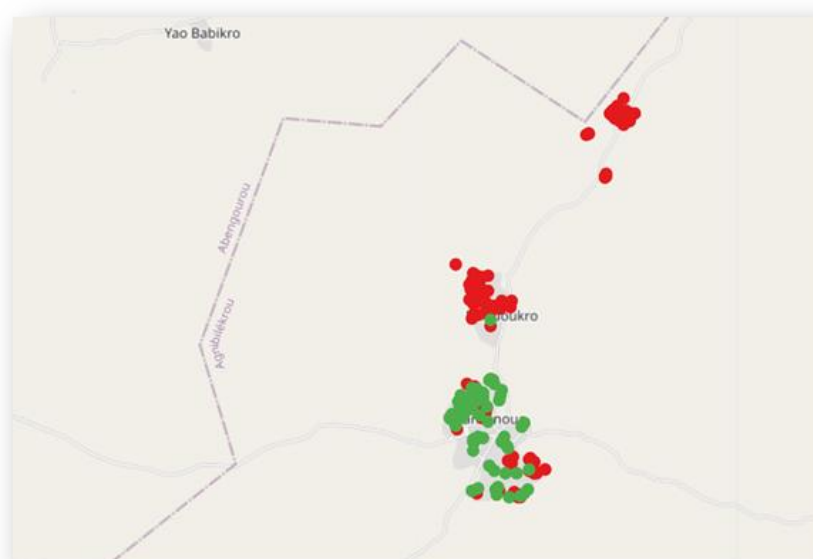
Indicator	Control Mean	Treatment Mean	Observed difference Mean
Age	36.84	43.66	-6.83***
Gender (female)	84%	82%	2%
No formal education	75%	58%	17%***
Attended primary school	16%	29%	-12%***
Husband/partner lives at home	79%	68%	-11%***
Husband/partner does not live at home	4%	6%	-2%
Widowed	17%	26%	-9%**
Total household members	7.19	7.09	0.1
Gender household head (male)	84%	75%	-9%**
School aged children	1.86	1.91	-0.05
Household sources cocoa	84%	96%	-12%***
Total cocoa gross income (USD)	\$1122.78	\$1678.97	-\$556.18***
Cocoa land owned by household (ha)	2.72	3.60	-0.88*

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Independent t-test used to test for differences in continuous variables between control and treatment groups. An independent test of proportions used for categorical variables.

Table 2: Descriptive data

What becomes clear from the descriptive statistics is that there are significant differences between the control and treatment group. Therefore, the matching technique needs to be utilized to decrease these differences so that the control and treatment group become more comparable.

Map 1: the RED dots are the control households, and the GREEN dots are the treatment households.



2.4 Kernel matching & matching results

To be able to reduce the differences between the treatment and control group we need to select variables that will be used for the matching. These variables need to be connected to our outcome variables but should not be affected by the programme. Based on these criteria we have decided to include the variable *age* as this is negatively correlated with the overall household income²⁶, *gender* as we want to compare respondents with the same sex, *the level of education* as attending school potentially influences income levels as well as livelihoods and health, *the partner status* as this influences both the income as well as income activities, *Sex head of the household* as this is related to both income levels as the type of income generating activities, *the household size* which is related to income levels, *being active in cocoa* which is highly correlated with overall income just as *owning land*. Next to that, we have added variables related to distance to amenities, as this influences the probability that someone e.g., is active in farming, went to school or is able to be active in Alternative Income Generating Activities (AIGAs). Therefore, the following variables were included: the distance from home to farm, the distance from home to school, the distance from home to the nearest market.

Based on these characteristics (also called covariates) we can verify the performance of the PSM in eliminating differences in observables between the treatment and control group. The aim of this assessment is to observe if the applied method reduces bias, variance, and model dependency. As shown in the descriptive data in table 2, there were significant differences between the treatment and control group before matching. After matching, however, no differences between the included variables were observed as matching reduced bias between the treatment and control group as indicated by the column % reduction in bias in table 3. There is an exception for gender, husband/partner who does not live at home and distance to nearest primary school. However, the differences were rather small before matching (see table 2).

	Unmatched (raw data)		Matched		%reduct bias
	<i>Untreated</i>	<i>Treated</i>	<i>Untreated</i>	<i>Treated</i>	
Age	36.84	43.66	41.48	42.63	83.1
Gender (male)	16%	18%	13%	18%	-177.9
No formal education	75%	58%	59%	59%	98.6
Attended primary school	16%	29%	27%	27%	95.5
Husband/partner lives at home	79%	68%	60%	70%	9.4
Husband/partner who does not live at home	4%	6%	12%	5%	-216
Widowed	17%	26%	27%	25%	72.7
Distance from home to farm <30 min	68%	72%	71%	70%	76.1
Nearest primary school <30 min	9%	8%	0%	1%	-35.5
Distance to market < 30 min	52%	16%	18%	17%	97.7
Distance to input supplier <30 min	52%	16%	18%	17%	97.7
Distance to clinic <30 min	58%	47%	38%	44%	38.1
Respondent is the house head	30%	40%	40%	39%	86.5
Total adult in the Household	2.81	3.15	3.13	3.13	98.8
Total children in the household	3.32	3.10	3.06	3.18	46.7
Household engage in cocoa production last cycle	83%	96%	98%	97%	91.6

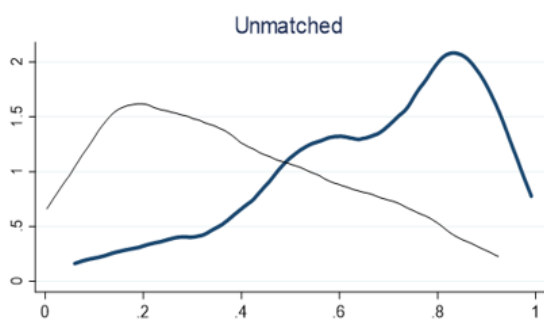
²⁶ "Demystifying the Cocoa Sector in Ghana and Côte d'Ivoire," n.d., <https://www.kit.nl/wp-content/uploads/2020/05/Demystifying-complete-file.pdf>.

Do not own their own plot	16%	10%	4%	8%	24.6
Owns their own plot	48%	66%	78%	66%	19.5
Owns more than one plot	36%	24%	16%	24%	16.8

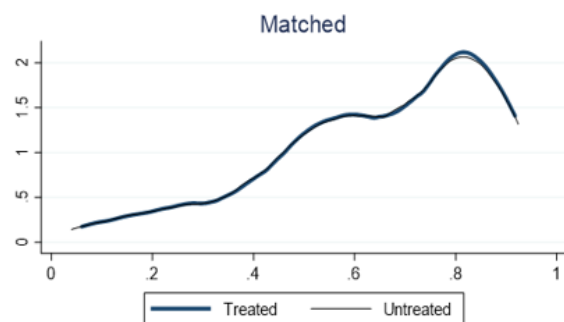
Table 3: Balancing test for matched sample

The above indicates that the matching model is suitable. This conclusion is supported by graph 1 and graph 2 below (also see appendix A), which show the improved overlap after matching. We can conclude that the employed PSM managed to generate counterfactual samples of control units that are statistically similar to the beneficiaries. Therefore, this model can be deployed in the next chapter to predict the effect of the 100WEEKS program on the defined outcome variables. This effect will be referred to as the Average Treatment Effect on the Treated (ATT).

Graph 1: Balance before matching



Graph 2: Balance after matching



Finally, it is important to be aware of the fact that when utilizing PSM, the n-sample is reduced as the algorithm searches for an equivalent of the treatment group. As a result, not all observations (1) can either be matched or (2) can serve as an equivalent control. This means that not all observations can be used. In the footnotes of chapter 3.2 the n utilized for matching will be mentioned.

3. The findings: a multidimensional approach

Within this chapter we will dive into the findings of **The Cash Lab** research. First of all, an overview of the observed differences will be given after which the ATT's after matching on the defined dimensions will be presented.

3.1 Observed differences (no causality claim)

Here, an overview is given of the observed differences on some of the outcome variables of our interest. The reason for adding this chapter is to offer some additional explanation to the effects that will be presented under chapter 3.2, in which only matched results will be shown.

Household income

In Côte D'Ivoire, the Living Income benchmark is set at **\$5225,90** per year. This benchmark is also referred to as the raw benchmark and is based on a household size of 6. Throughout the analysis, the benchmark is corrected for each family based on their actual household size. In figure 3, an overview is given of the mean living income benchmark and the observed gap for the control and treatment group before matching. The given table shows that the mean living income benchmark for the control group was **\$6482**, with an average LI gap of **\$5014**. Whereas for the treatment group the mean LI benchmark was set on **\$6630**, with an average LI gap of **\$4105**.

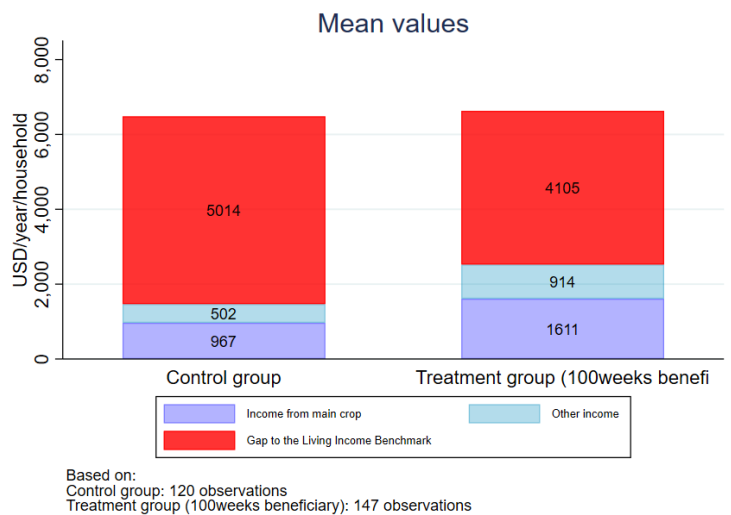
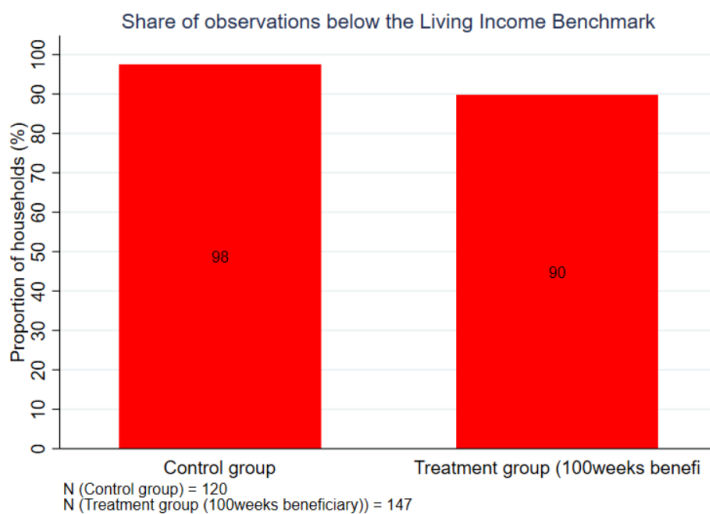


Figure 3: Mean living income benchmark



Next to this, we observe in figure 4 that the % of households living below the Living Income benchmark is lower for the treatment group than for the control group, with **98%** of the control group and **90%** of the treatment group living below the Living Income benchmark.

Figure 4: % of households living below the Living Income benchmark

Next to that, we want to check some of the assumptions that were made when selecting the covariates in chapter 2.4. Here, it was assumed that e.g., age and household size are affecting the household income, and therefore possibly the living income gap of the participating households. In figure 5 and 6 we observe that within our sample size these assumptions appear to be true, therefore it is good that we have included these variables in our matching model.

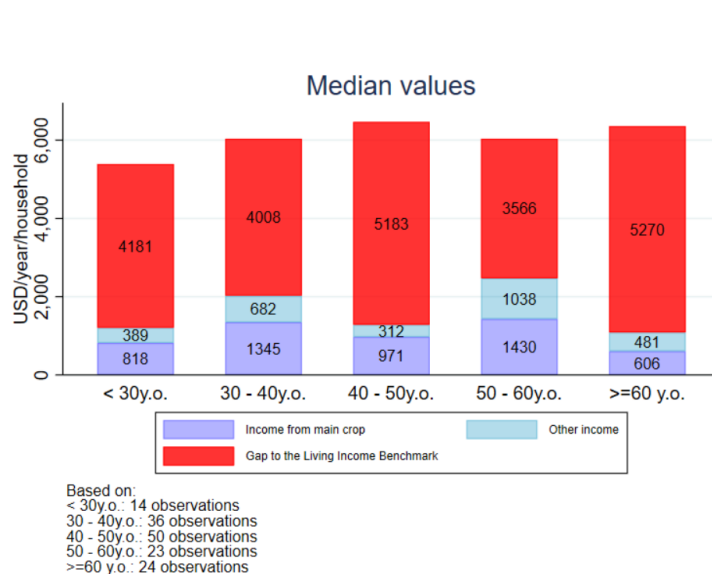


Figure 5: Living Income Benchmark per age category size

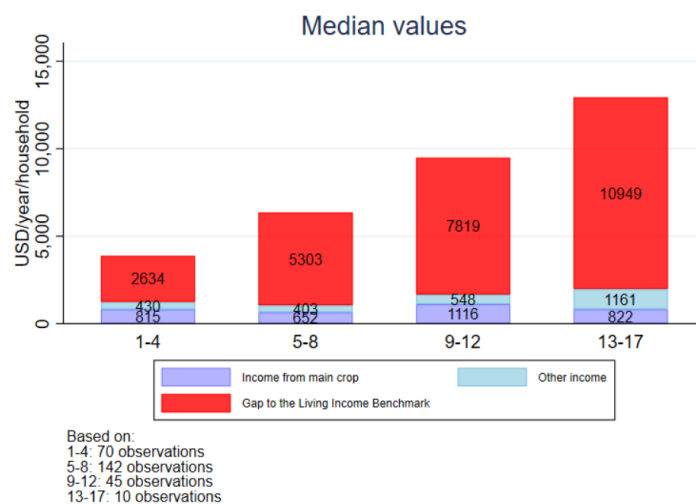


Figure 6: Living Income Benchmark per household size

Finally, with figure 7 we attempt to check the possible relationship between the total land for cocoa owned by the households as there was a significant difference in income from cocoa earned between the control and treatment group. One of the reasons for this could be the difference in cocoa hectares owned. Figure 7 shows that there is indeed an observed difference in income as well as the observed LI-gap between households with more cocoa ha-owned. This covariate was not included into the matching model, as the programme might have led to the purchase of land. This must be considered when interpreting the results in chapter 3.2.

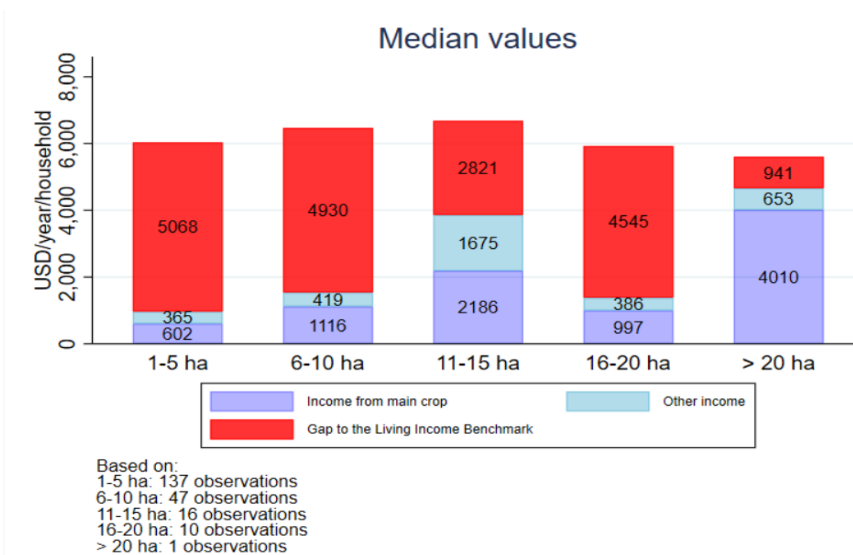
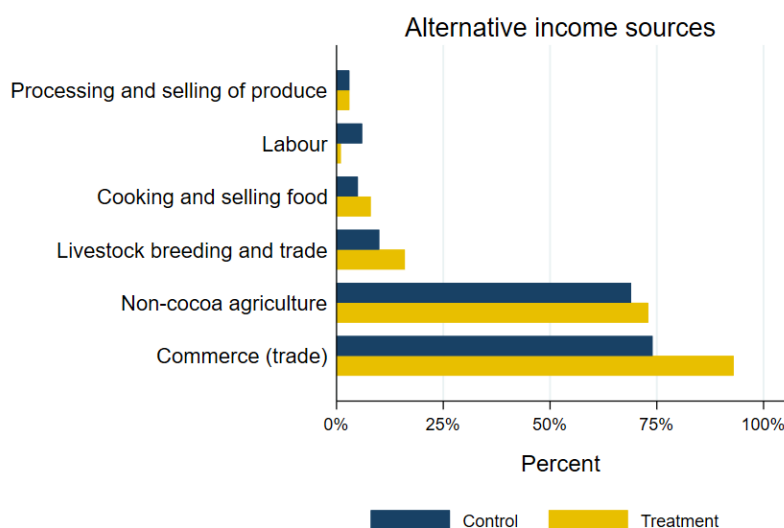


Figure 7: Living Income Benchmark per total land for cocoa owned

Alternative Income Generating Activities (AIGAs)

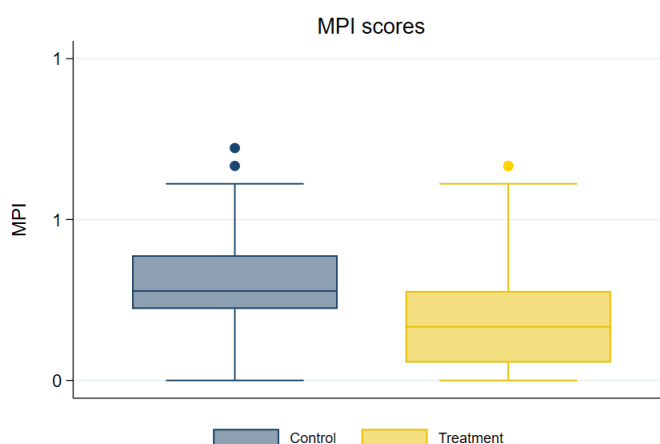
However, as the household income survey has been conducted among the heads of the households, of whom 80% were men, we included additional questions on the income earned by the spouses of these household heads. First, we looked at the number of women participating in an alternative income generating activity. Based on the data, we observed that **76%** of the control group and **86%** of the treatment group reported having an alternative income generating activity next to the sales of their main crop. We observe therefore that **+10%** of the beneficiaries report on having an alternative income generating activity, compared to the treatment group. Next to that, of the beneficiaries **60%** decided to expand their business in the last year whereas of the non-beneficiaries this was **36%**. In bar graph 3 an overview is given of the type of activities in which the treatment and control group are active.



Graph 3: Types of AIGA's

Livelihoods

To measure the effect on Livelihoods, we have looked at reported savings and the Multidimensional Poverty Index (MPI). The MPI is a poverty index that was developed by the United Nations Development Programme (UNDP) to measure acute multidimensional poverty²⁷, and is based on 10 indicators. The output of the MPI index is a score based on which the Deprivation Headcount can be assessed, which shows the share of poor individuals within a certain population. The higher the score on the MPI, the more likely a household is to be vulnerable. First, graph 4 shows that the control group has a higher score than the treatment group, which indicates that the control group is more likely to be deprived than the control group.



Graph 4: MPI scores control and treatment

These findings are consistent with table 4 which shows that **29.4%** of the control group appears to be deprived according to the MPI, with only **16.7%** of the treatment group. The observed difference therefore appears to be positive,

	Control	Treatment	Total
% MPI deprived	29.4%	16.7%	23.2%

Table 4: % of households deprived according to MPI²⁸

The above serves as context, to get a better idea on the concepts that are included within this report. In the next section the causal claims that can be made based on the data will be presented.

²⁷ Ophi, 2022, <https://ophi.org.uk/multidimensional-poverty-index/>

²⁸ The used cut-off point was 0.334

3.2 Results after matching

Within this chapter we will present the results of the executed research. As discussed under the methodology, the objective of the analysis is to observe the Average Treatment effect on the Treated (ATT). This ATT is presented in table 5, and the direction of the effect will be highlighted as follows. All the affiliated outputs can be found in appendix C.

GREEN	Positive and significant ²⁹ effect on the defined outcome
ORANGE	Ambiguous effect on the defined outcome (e.g., due to no significant results)
RED	Negative and no significant effect on the defined outcome

Dimension	Indicator	ATT
Household income	Household net cocoa income (USD) ³⁰	\$551.79*
	LI gap (USD) ³¹	-\$838.50*
	Income earned from AIGAs (July 2022) ³²	\$36.5**
Livelihoods	Reported savings ³³	\$348.98***
	MPI (score) ³⁴	-0.0439*
Health	Household Food Insecurity Access Scale (HFIAS) ³⁵	-4.55***
	Dietary Diversity Score (DDS) ³⁶	-0.479**
	General Health Questionnaire (GHQ) ³⁷	+0.273**

Notes: * p<0.10, ** p<0.05, *** p<.01

Table 5: Average Treatment effect on the Treated (ATT)

²⁹ Given the small sample size in this pilot study, we find that p<0.10 is suggestive of a significant effect. It also warrants further study during the upscaling.

³⁰ n treatment = 130 / n control = 97

³¹ n treatment = 130 / n control = 97

³² n treatment = 166 / n control = 145

³³ n treatment = 166 / n control = 145

³⁴ n treatment = 166 / n control = 145

³⁵ n treatment = 166 / n control = 145

³⁶ n treatment = 166 / n control = 145

³⁷ n treatment = 166 / n control = 145

Household income

After matching, the 100WEEKS intervention shows to have a positive effect on most of the defined outcome variables. With regards to the **household income**, as we report that the actual difference between the living income gap for treatment households compared to control households is **-\$838.50**³⁸. This means that the households who participated in the 100WEEKS program have a Living Income gap that is on average **\$838.50** lower than the observed living income gap of the non-beneficiary households. It has to be mentioned that this difference does not include the 100WEEKS cash transfers, this was explicitly made clear when asking the questions.

As discussed in chapter 1.3. there are multiple cost and income drivers that impact the eventual Living Income Gap. From this research, it appears that the decrease in the Living Income Gap can first be explained by an increase in the income households earned from cocoa as we report a **\$551.79**³⁹ increase. These findings are in line with communications we have received from the field in which it was reported that the women invest in the land of their husbands and/or save for purchasing land. However, as shortly touched upon above, there is a possibility that our model has not been able to match on crucial cocoa characteristics due to possible endogeneity, therefore these results could be an overestimation of the actual effect. Further research is needed to better understand if this difference has been caused by an increase in productivity, purchase of land and/or more efficient usage of inputs.

Next to that, the 100WEEKS program has impacted the income from other sources and income diversification as beneficiaries reported to earn **\$36.50**⁴⁰ more per month (July 2022) from their Alternative Income Generating Activities (AIGAs) than the control group, reflecting earlier findings of academics such as Abhijit Banerjee and Esther Duflo who concluded that "[multi-faceted programs] can help the poor [to] establish sustainable self-employment activities and generate lasting improvements in their well-being".

Livelihoods & Health

The latter is also confirmed by our findings on **livelihoods** and **health**. First, the beneficiaries reported **\$348.98**⁴¹ more in savings than the non-beneficiaries (see Appendix B). Resulting in the fact that households can better cope with unexpected events (see chapter 1.3.). Next to that, a positive impact on the MPI was reported. This means that the households participating in the 100WEEKS program are less frequently multidimensional poor. With regards to **health**, a positive impact has been observed on the food security of families as well as the mental wellbeing of beneficiaries. Negative results were reported on the diversity of the diet, which could potentially be explained by the fact the beneficiaries preferred eating more often over a more diverse diet. This needs to be further researched.

³⁸ Living Income Gap (after matching): Treatment \$4197.57 / control \$5036.08

³⁹ Net income cocoa (after matching): Treatment \$1626.69 / control \$1074.89

⁴⁰ Earnings AIGA (after matching): Treatment \$52.95 / control \$16.50

⁴¹ Savings (after matching): Treatment \$460.60 / control \$111.35

Conclusion

Based on the Cash Lab research it shows that the 100WEEKS program has a positive impact on both reducing the Living Income gap as well as Livelihoods and Health indicators. Making a strong case for the disbursement of multifaceted cash transfers to women in the cocoa supply chain to decrease the living income gap.

It has to be acknowledged that this research paper knows its limitations. Due to the limited sample size (n=375), the demographics (few male respondents) and the research design (quasi-experimental) many critical questions might still be unanswered. Therefore, this research paper should serve to build on what we know and sharpen research questions on the unknowns. In that way, **The Cash Lab** can keep on adapting a learning-by-doing mentality in the upscaling of the program.

Having said that, we can conclude the following:

Household level

- The Living Income Gap of cocoa households decreases when participating in the 100WEEKS program. Within this program the LI-gap was almost **20%** lower for the treatment households as for the control households.
- The net income from AIGAs was **320%** higher for beneficiary households than for non-beneficiary households.
- Cocoa households participating in the 100WEEKS program are less food insecure.

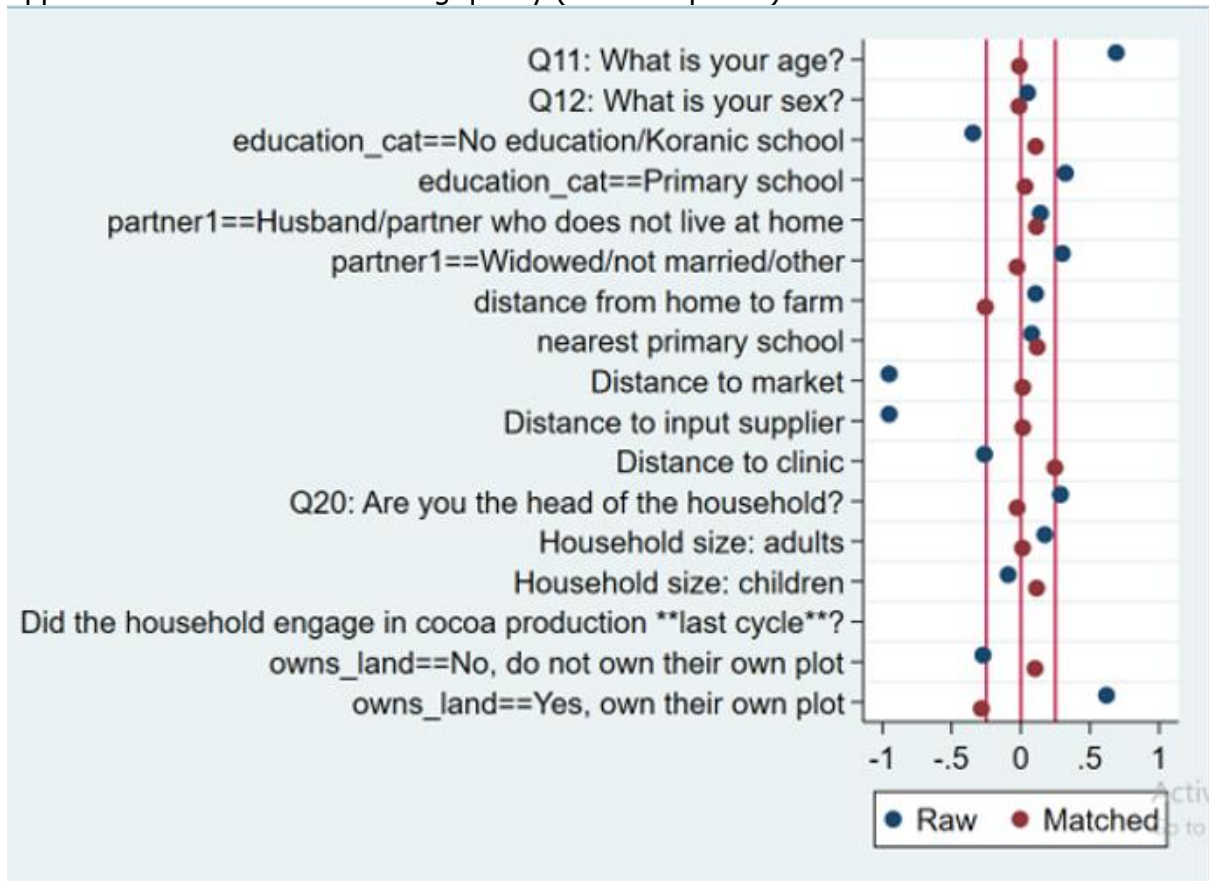
Beneficiary level

- The income of Alternative Income Generating Activities (AIGAs) is higher for women who participate in the 100WEEKS program. The reported income was higher for the beneficiaries than for the non-beneficiaries.
- The savings of beneficiaries increase when participating in the 100WEEKS program, reporting **4x** more savings than the control group.
- The mental wellbeing of beneficiaries participating in the 100WEEKS program is stronger than the mental wellbeing of non-beneficiaries.

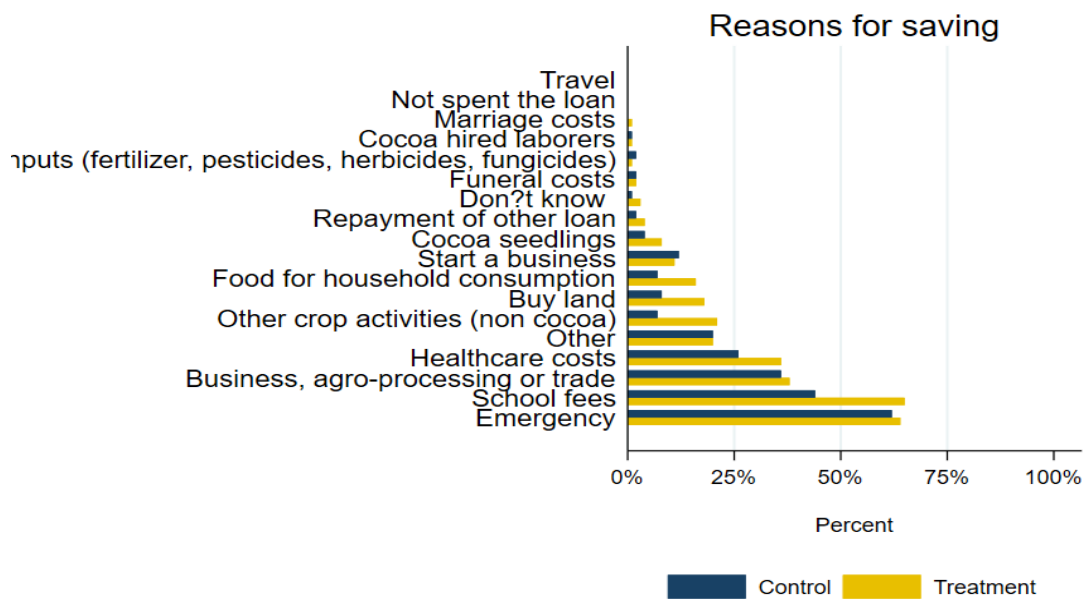
Based on the above, we can conclude that the 100WEEKS program has successfully influenced some of the income drivers as defined in chapter 1.3. as income diversification and income from other sources, as well as increasing the ability of participating households to deal with unexpected events. Next to that, the observational data (see chapter 3.1.) hints on the fact that participating households might have invested in land and possibly inputs (confirmed by reasons for saving appendix B). However, further research is needed to better understand the attribution of the cash transfer programme in the increase in productivity as well as the differences in which men and women utilizes such transfers.

Appendices

Appendix A: overview of matching quality (variable specific)



Appendix B: overview of reasons for saving



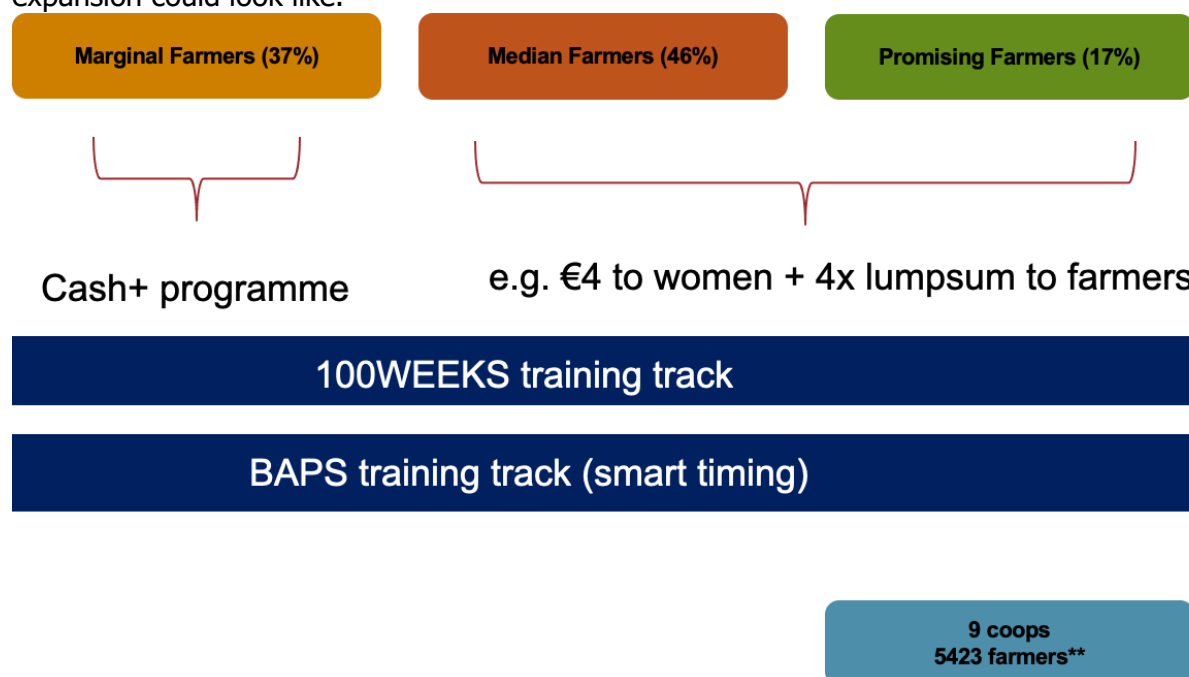
Appendix C: outputs of the outcome variables

<i>Outcome variable</i>	<i>Average Treatment effect on the Treated (ATT)</i>	<i>Bootstrap std. err.</i>	<i>z</i>	<i>P>z</i>	<i>Normal -based [95% conf.interval]</i>	
Total cocoa net income (USD)	\$551.79	307.53	1.79	0.073*	-50.969	1154.563
Household Living income gap (USD)	\$838.50	495.07	-1.69	0.09*	-1808.36	131.820
Income earned out of the AIGA (XOF ⁴²)	23221.9	9836.93	2.36	0.018**	3941.87	42501.93
Reported savings (XOF ⁴³)	222030.4	36488	6.08	0.000***	150514.2	293546.5
MPI	-0.043	0.026	-1.68	0.092*	-0.095	0.007
HFIAS	-4.55	1.56	-2.91	0.004***	-7.627	-1.488
DDS	-0.479	0.227	-2.1	0.036**	-0.926	-0.032
GHQ	0.273	0.132	2.06	0.040**	0.0126	0.533

Notes: * p<0.10, ** p<0.05, *** p<0.01

Appendix D: expansion 100WEEKS program

As an addition to the existing 100WEEKS programme, it could be suggested to Unilever to expand the programme to smallholder farmers as well. The below shows what such an expansion could look like.



⁴² Within the data set, this is reported in XOF. For readability of the document, this has been converted into USD in the report.

⁴³ Within the data set, this is reported in XOF. For readability of the document, this has been converted into USD in the report.

This proposition is based upon several academic articles, which have proven the effectiveness of lumpsum cash transfers on farmer productivity. μk