



# Endline Evaluation

EnRoute Côte d'Ivoire

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# Executive Summary

## Context

In 2023, the ETG–Beyond Beans Foundation, in partnership with Oxfam Novib and KIT Institute, launched the **EnRoute programme** in two cocoa-growing regions of Côte d'Ivoire (Man and Daloa). The programme set out to test practical, scalable approaches to **closing the living income (LI) gap** and **reducing child labour (CL)** among 599 farming households.

To address these challenges, EnRoute offered, for two years, three intervention packages designed around the main drivers of household wellbeing: agricultural productivity, income diversification, labour availability, cost of living, and gender-equitable decision-making. The three packages were comprised of:

1. **Cash Only** – An unconditional cash transfer totalling EUR400 for the two years (equally split between spouses) paired with a two-month Empowering Better Decision-Making (EBDM) training.
2. **Services Only** – Farm-level and community-level support, including subsidised pruning, agroforestry, cocoaching, establishment of VSLAs, and GALS/financial management training.
3. **Cash & Services** – A combination of the previous two packages to test whether offering them together generates effects greater than the sum of the effects generated by the individual packages.

## Methodology

To assess the short-term impact of these interventions after two years, we developed a rigorous quasi-experimental design based on the random assignment of villages into the three packages (treatment group) and a comparison group to establish a counterfactual situation. This randomisation ensured that all groups were similar at the start of the programme in terms of key household and farm characteristics, such as any differences in outcomes can be attributed to the interventions rather than pre-existing differences. Yet, given the small number of villages/households within each group (approximately 200 households and four to six villages), the randomisation might not be sufficient to eliminate the risk of specific village-level characteristics impacting both the treatment status and outcomes of the interventions.

Our econometric analysis therefore uses a two-step strategy to tackle this potential bias. First, we estimate the likelihood of each household to belong to its assigned group using a set of observable household characteristics. These probabilities are then used to construct the necessary weights to correct the differences across groups and make them more comparable. In the second stage of the analysis, we include the same household-level characteristics used in the weighting procedure as control variables to further improve the precision of our estimates.

This endline evaluation is based on the quantitative data collected among 565 farming households divided across the four groups (three treatment and one comparison) in April 2025 and covering the mid-crop cocoa season of 2024 and the main cocoa season of

2024/2025. The quantitative estimates are complemented with qualitative insights gathered during 12 FGDs conducted in March 2025 in six communities in the Man region.

### Key Findings

All three intervention packages produced **measurable improvements in cocoa productivity, household income, and reductions in the LI gap**, though through different pathways:

- **Cash Only**
  - Achieved the **largest increase in cocoa production** (+265 kg) and **highest rise in total household income** (+US\$1,730).
  - Delivered the **greatest reduction in the LI gap** (–US\$1,882), pushing households slightly above the LI benchmark on average.
  - Strongly improved women’s empowerment and joint decision-making through very high uptake of EBDM training.
  - However, households became **more dependent on cocoa** as limited VSLA access constrained income diversification.
- **Services Only**
  - Significantly boosted **cocoa yields** (+110 kg/ha) and lowered production costs, improving cocoa profits by nearly US\$945.
  - VSLAs achieved very high uptake (94–98%), strengthening **savings, access to finance, and long-term financial planning**.
  - Reduced the LI gap by US\$1,533, leaving households just below the benchmark.
  - Liquidity constraints persisted, limiting the ability to scale income-generating activities, particularly for women.
- **Cash & Services**
  - Generated the **widest range of positive outcomes**, combining productivity gains (+120 kg/ha) and the strongest reductions in farm costs with notably high financial resilience.
  - Produced the **largest improvements in economic diversification**, with a 41-percentage-point increase in households operating small businesses—particularly women-led ventures enabled by VSLA loans and cash support.
  - Reduced the LI gap by US\$1,388. Although this was less than the Cash Only group, this package created the **most balanced and sustainable pathway** toward long-term resilience.

### Overall Insights

Across all packages, farmer training was decisive.

- **EBDM** had immediate behavioural impacts, strengthening spousal communication, women’s empowerment, and productive investment choices.
- **GALS and financial management training** built long-term capacities around planning, visioning, and financial discipline—supporting diversification in the combined package and financial inclusion in the services package.

The combined package demonstrated the **broadest systemic benefits**, showing strong potential for integrated approaches that pair liquidity support with structural service delivery. Yet, the individual packages also proved effective in addressing specific constraints: cash excelled at short-term liquidity and empowerment; services excelled at lowering production costs, strengthening financial inclusion, and improving farming practices.

## Conclusion

The EnRoute pilot demonstrates that targeted, cost-effective interventions can meaningfully improve farmer income and resilience in cocoa-growing communities. The three models offer distinct strengths:

- **Cash Only** maximises short-term income gains and empowerment.
- **Services Only** strengthens farm efficiency and financial inclusion.
- **Cash & Services** delivers the most comprehensive improvements, particularly in diversification and long-term resilience.

The optimal choice of package ultimately depends on programme priorities—whether rapid income increases, structural farm improvements, financial inclusion, gender outcomes, or long-term livelihood resilience are the central goal.

# Contents

<b>Executive Summary</b>	<b>3</b>
<b>1 Introduction</b>	<b>7</b>
<b>2 Methodology</b>	<b>9</b>
2.1.1 Econometrics	9
2.1.2 Focus Group Discussions (FGDs)	11
<b>3 Activities and household participation</b>	<b>12</b>
3.1 Interventions on the cocoa farm	12
3.1.1 Pruning Services	13
3.1.2 Agroforestry Activities	13
3.1.3 Cocoaching	14
3.2 Interventions within the community	15
3.2.1 Improved Cookstoves Distribution	15
3.2.2 Village Savings and Loans Associations (VSLA)	15
3.2.3 Financial Management Training	16
3.2.4 Gender Action Learning System (GALS) Training	17
3.2.5 Empowering Better Decision Making (EBDM) Training	17
3.3 Unconditional Cash Transfers	18
<b>4 Results of endline evaluation</b>	<b>20</b>
4.1 Descriptive statistics	20
4.1.1 Household characteristics	20
4.1.2 Cocoa farm characteristics	21
4.2 Programme's effect on cocoa farming practices	21
4.2.1 Hiring workers	21
4.2.2 Farming costs	23
4.3 Cocoa productivity and income	25
4.4 Non-cocoa income	27
4.5 Household total income and LI Gap	29
4.6 Other socio-economic indicators	31
4.6.1 Access to finance	31
4.6.2 Women's empowerment	34
4.7 School enrolment and CL risks	36
<b>5 Summary and conclusion</b>	<b>37</b>

# 1 Introduction

In 2023, the ETG-Beyond Beans Foundation, in collaboration with Oxfam Novib and KIT Institute, launched the EnRoute programme in two of its agricultural partner cooperatives (APM Man and APM Daloa) located in the regions of Man and Daloa in Côte d'Ivoire. This pilot programme aimed to test three innovative intervention strategies to close the living income (LI) gap and reduce child labour (CL) prevalence during a period of two years. A baseline study, conducted in September 2021 among members of the two selected cooperatives, revealed that income levels of farm households in the two regions of Daloa and Man in Côte d'Ivoire were low, resulting in large LI gaps (respectively, US\$4,312 and US\$4,082 per year on average). Simultaneously, on average, 52% of children in the interviewed households were involved in child labour (meaning they were performing hazardous tasks and/or had worked excessive working hours given their age).

The EnRoute programme offered a holistic package of interventions aimed at addressing the key drivers of households' LI gaps and the prevalence of CL. These drivers included agricultural productivity, market prices and supplementary payments, size of land, other sources of diversification, operational costs, and overall cost of living. Together, the interventions were designed not only to boost household income and reduce expenses, but also to tackle structural barriers regarding labour availability and discourage the use of child labour on farms. The programme was structured as a pilot to assess which set of interventions—or a combination of them—proved most effective in achieving these outcomes.

Over a two-year period, three distinct (packages of) interventions were implemented among 599 households located in randomly selected villages supplying APM Man (12 villages) and APM Daloa (13 villages). The programme focused on the entire household instead of only the registered farmer, recognising that decisions around labour, income use, investment in cash crops, diversification, and children's education are typically made collectively by both heads of households (See Figure 1 for the Theory of Change).

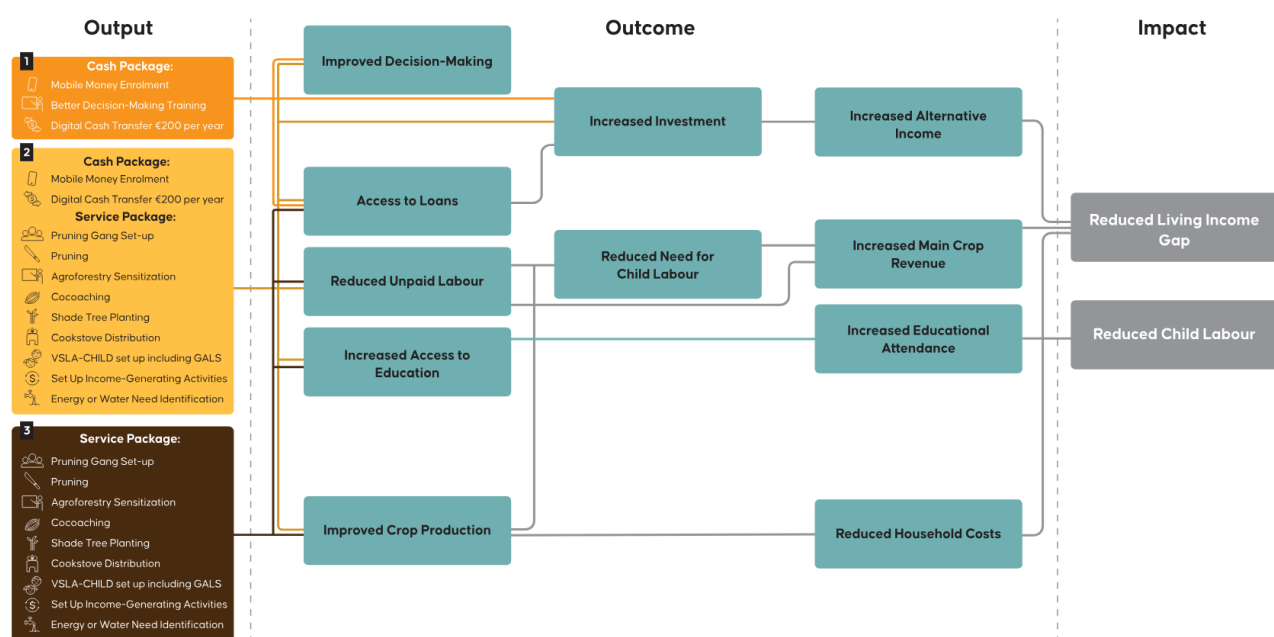
The first intervention package consisted of an unconditional cash transfer (UCT) of EUR400 (half to the registered farmer and half to their programme's partner, usually the spouse), and an intensive 2-month training on empowering better decision-making (EBDM) within the household.

The second intervention focused on improving cocoa productivity and reducing the households' labour burden and expenditures by providing a range of on-farm and within-community services and improving their access to finance. To support farm households with activities at the farm level, pruning, agroforestry, cocoaching services were offered. At the community level, VSLAs were established, serving as a vehicle to provide GALS-CHILD

and financial management training. This intervention package was valued at around EUR400.

The third intervention combined a UCT of EUR400 with a services package supporting households at both the farm and community levels. This strategy aimed to assess whether the effects of the individual packages are accelerated by offering them simultaneously, i.e., whether the change generated by the combined package is higher than the sum of individual changes generated by the separated cash and services packages.

Figure 1. EnRoute Theory of Change



These three interventions were selected for their potential to offer practical, scalable, and cost-effective ways to support farming households towards earning a LI while decreasing CL prevalence<sup>1</sup>. In addition to choosing a multi-commodity context (households cultivating cocoa and/or coffee and/or cashew), the EnRoute programme was also offered in communities with limited access to sustainability programmes<sup>2</sup> to better capture the potential impact generated by the three intervention packages. In the absence of other sources of change, the Enroute programme constitutes a unique opportunity to experiment with different approaches to better grasp how sustainability programmes can maximise their impact.

This endline report presents the programme’s short-term effects (i.e., 2 years of receiving cash transfers and/or service support) using a quasi-experimental design. In the

<sup>1</sup> For more details about the selection and design of interventions, see here: <https://www.kit.nl/institute/publication/enroute/>

<sup>2</sup> Interventions designed to support increased crop productivity, diversification of income sources, and/or reduction of CL prevalence for farming households.

evaluation, we compare each of the three intervention packages with a control group, which serves as a counterfactual to estimate what would have happened in the absence of the programme. The comparison group consists of households located in seven villages (three in Man and four in Daloa) where no intervention was implemented by Beyond Beans before the end of 2024, except for the mandatory CLMT activities.

The evaluation relies on a rigorous evaluation approach, based on the random allocation of the interventions across farming communities and households. At the start of the programme, villages were randomly assigned to one of the four treatment arms: cash only, services only, cash & services, and control. Random assignment ensures that all groups were similar at the start of the programme, so any differences in outcomes can be attributed to the interventions rather than pre-existing differences. Key household and farm characteristics—such as cocoa production, crop type, plot size, household composition, and wealth—had the same probability to appear in each of the groups. As long as there is no overlap between treatment and control areas, this design provides a reliable measure of the true impact of the EnRoute programme.

## 2 Methodology

### 2.1.1 Econometrics

This impact analysis draws on household survey data collected among 565 farming households, evenly divided across the four groups. Each group contains around 150 households. Before the start of the programme, the treatment levels, including the control group, were randomly assigned to villages<sup>3</sup>. This means that the programme was rolled out at the village level, and entire villages were assigned to one of the treatment variants or the control group. Figure 2 shows the survey locations by treatment level.

Although this village-level randomisation is a strong design feature, it also comes with a limitation. Because each group includes only a small number of villages (typically between four and six), specific village-level characteristics (e.g., soil quality, ethnicity, migration status, access to extension services, local leadership, etc.) might correlate with the treatment level of a village, but also with households farm outcomes, income levels, norms around children helping out around the farm. When the number of villages per group is small, these kinds of village traits can create confounding factors despite the randomisation process, potentially biasing our estimates of the programme's impact.

To address this, we estimate, for each household, the likelihood of belonging in each treatment group based on a set of observable household characteristics.<sup>4</sup> This is done

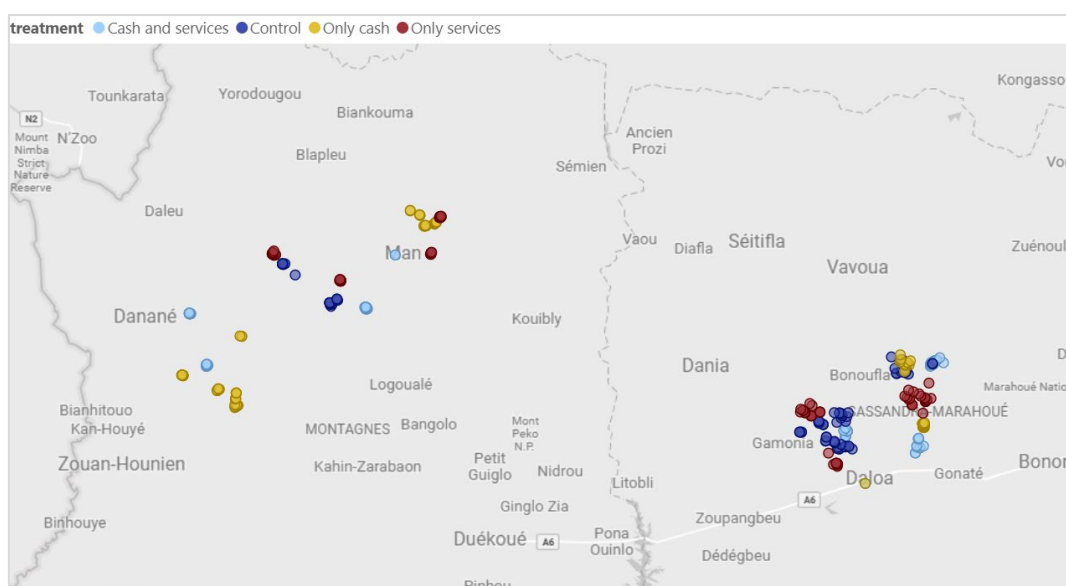
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<sup>3</sup> The villages surveyed during the baseline, although part of the same cooperatives, did not necessarily receive the interventions of the EnRoute programme due to some logistical challenges for the implementation (number of eligible households within the village, distance, etc.). Therefore, the households interviewed for the baseline could not be retraced, and their data could not be used in a standard difference-in-difference for impact evaluation.

<sup>4</sup> Included in our set of covariates are the age of the respondent, sex of the respondent, marital status of the respondent, years of formal education of the respondent, migration status, number of children and number of adults in the household, hectares of cocoa land owned, total fallow land, the distance to a paved road, the distance to a market, and latitude and longitude coordinates. To

using a multinomial logit model, which calculates for each household a probability (i.e., propensity score) of ending up in its observed group. These scores are then used to construct inverse probability weights (IPWs), which are later added to the analyses to adjust for differences across groups. They give more influence on households that look typical for their group and less to those that are unusual. This makes the groups more comparable, helping us estimate the effect of the programme as if each household had been equally likely to be in any group, based on their observable characteristics.

Figure 2. Survey locations



We limit our analyses to households with a reasonable probability of being in their own group, i.e., those with propensity scores between 0.15 and 1. This leads to the exclusion of 72 households that do not fall within the area of overlap, as excluding households with very low propensities is a common step in impact evaluation. Despite the removal of a substantial number of households from our sample, it is necessary to ensure we are comparing households that actually share similar characteristics and avoid the risk of drawing conclusions based on households that, realistically, never could have been in another group. Without this step, we might overstate or misinterpret the programme's effects due to a lack of common support. Figure 3 shows the distribution of the IPWs per group, limited to households that fall within the range of 0.15 to 1, and Table 1 shows the final number of observations per group. Reducing the number of observations is a downside of this approach as it lowers the statistical power of the analysis. However, we consider this a valid compromise, as we prioritise the integrity of the results over potentially misleading estimates.

Finally, we include the same household-level characteristics used in the weighting procedure as control variables in the outcome regression. This two-step strategy (first weighting, then controlling) is considered double robust and helps to further reduce potential bias. It also improves the precision of the estimates (i.e., programme effects) and

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create the best overlap between groups, different versions (linear and nonlinear) of the variables are used in both the matching procedure and as covariates in the outcome regression.

ensures that any remaining observed imbalances between groups are accounted for. Indeed, using IPWs and control variables means that we have higher standard errors and thus, we are more conservative with the probabilities associated with our estimates.

Figure 3. Inverse probability weights per treatment level

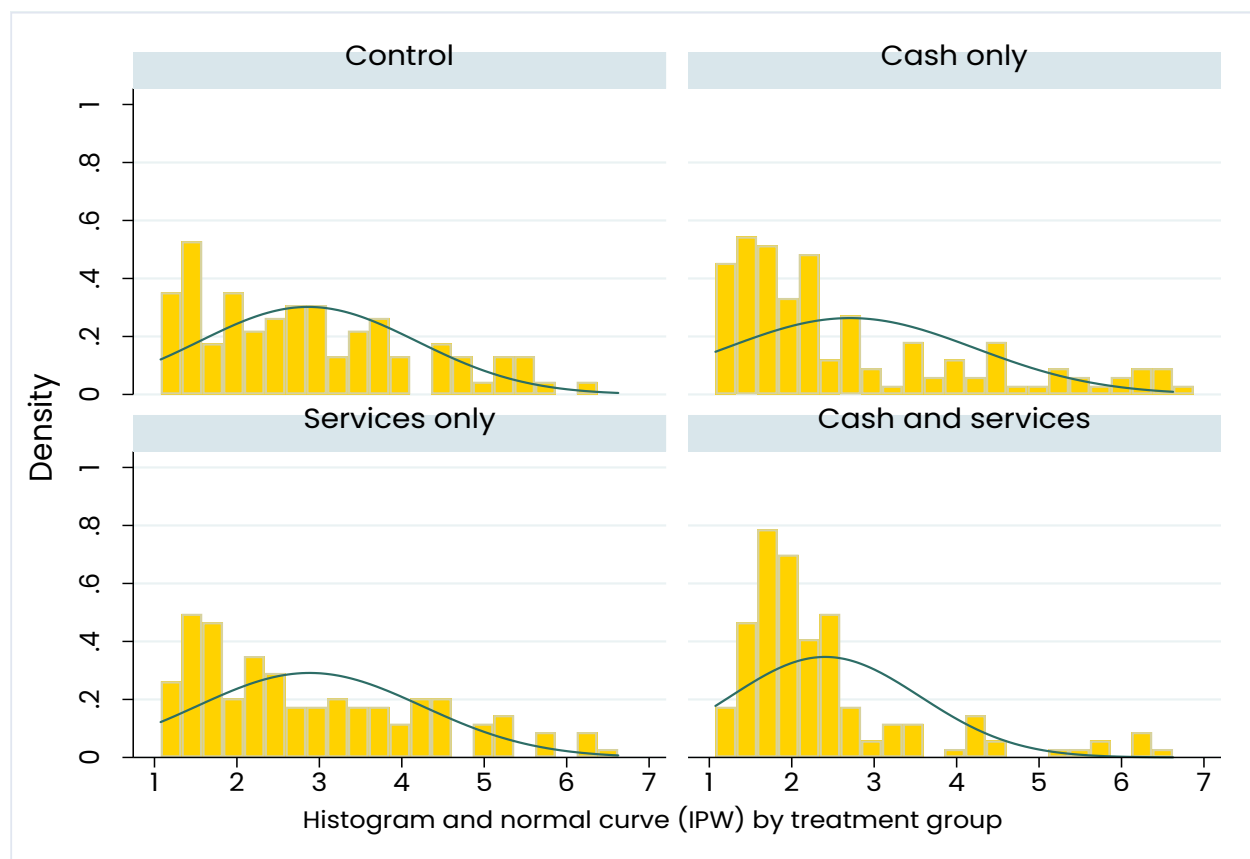


Table 1. Number of observations after the IPW procedure

Treatment group	Frequency
Control	90
Cash only	131
Services only	136
Cash and services	136
<b>Total</b>	<b>493</b>

### 2.1.2 Focus Group Discussions (FGDs)

In March 2025, just before commencing the household survey, a team of KIT Institute researchers visited six communities in the Man region. This visit was aimed at conducting 12 FGDs among programme participants to gather insights into their experiences with the programme, understand how the different intervention packages were received (i.e., the uptake of the programme), and investigate why certain activities were perceived as more successful than others. The FGDs also served as a verification of the randomisation, assessing to what extent different communities, including the control group, could have

been aware of the activities carried out elsewhere and whether some households had participated in activities not part of their intervention package (i.e., so-called spill-over effects).

The choice of the Man region was guided by the fact that APM Man lost its certification halfway through the programme and, therefore, halted all cooperative activities. This event can have affected the roll-out of the EnRoute programme as well as the possible impact of the interventions, especially compared to Daloa, where the cooperative continued its activity throughout the duration of the programme.

The selection of communities was conducted in collaboration with the Beyond Beans Foundation’s field and cooperative staff to balance geographical feasibility (given the large distances between communities) while covering all four treatment arms. In each community, gender separated FGDs were conducted to ensure that the perspectives of both spouses (as participants in the programme) were considered. Throughout the report, the insights derived from these FGDs will be presented in *“italic”* to provide some contextual information and include programme participants’ voices in the impact narrative.

Table 2. Communities and number of FGD participants

Community	Treatment group	Male participants	Female participants
Mlongouiné	Services Only	11	16
Voumgbe	Cash Only	20	20
Zagoué	Cash & Services	20	16
Gotemba	Cash Only	12	11
Gouagononpleu	Control	20	10
Blonleu	Cash & Services	24	27

### 3 Activities and household participation

This section outlines the activities carried out across the three intervention packages of the EnRoute programme. Given that almost all EnRoute households participated in the endline survey, we use the survey data to present (self-reported) programme participation rates for the different activities. Additionally, the qualitative feedback from the 12 FGDs provides insights into participants’ reception and appreciation of these activities.

#### 3.1 Interventions on the cocoa farm

The EnRoute programme offered a bundle of services aiming at increasing the productivity of the cocoa farm. Directed at the Services Only and the Cash & Services groups, these

interventions included providing participating households with pruning services performed by subsidised pruning groups, distribution of shade trees, and offering coaching sessions to farmers on good agricultural practices (GAPs) and to build a farm development plan (FDP).

### 3.1.1 Pruning Services

The programme trained groups of 9 to 15 members and equipped them with saws, machetes, and protective glasses to provide professional cocoa pruning services to programme participants. Participation rates are significantly different between the two packages offering this service. The Services Only package reached 77% of farmers and 76% of partners, while the Cash & Services package achieved much higher participation at 98% of farmers and 95% of partners.

During the FGDs, farmers indicated that the initial scepticism about pruning techniques quickly transformed into strong enthusiasm as they observed yield improvements on the pruned plots. For example, a farmer in Zagoué reported:

*"Before we started pruning, my one-and-a-half-hectare plot used to produce only two bags of 120 kilograms each season. Even with the rotten pods affecting many farms last year, I still managed to harvest four bags from the same area. This year looks even more promising, and if the weather cooperates and we can control the rotten pods, a well-pruned plot could potentially yield up to twelve bags of cocoa."*

Beyond the yield improvements, programme participants receiving pruning services also reported improved quality of their cocoa production. The pruning group members also praised the knowledge acquired through training, which could be applied to their own farms, even outside of the programme scope. Moreover, the payment received by the pruning group members plant the seed for a sustainable model for continued service provision, particularly *"since farmers outside the programme began adopting pruning practices and hiring pruning groups after observing results on neighbouring farms"*. This knowledge transfer is a positive spillover effect of the EnRoute programme that extends to non-programme households.

### 3.1.2 Agroforestry Activities

For agroforestry purposes, each participating household received annually 10 to 25 shade and fruit tree seedlings to plant on their cocoa farms. Typically, the distribution and planting took place in late August/early September, right before the dry season, to improve seedling survival rates. Households received training on proper planting techniques and were responsible for planting and maintaining the seedlings and trees themselves, creating ownership of the activity's success. Also here, participation rates vary across packages. The Services Only package reached 66% of farmers and 64% of partners, while the Cash & Services package achieved higher rates at 93% of farmers and 85% of partners.

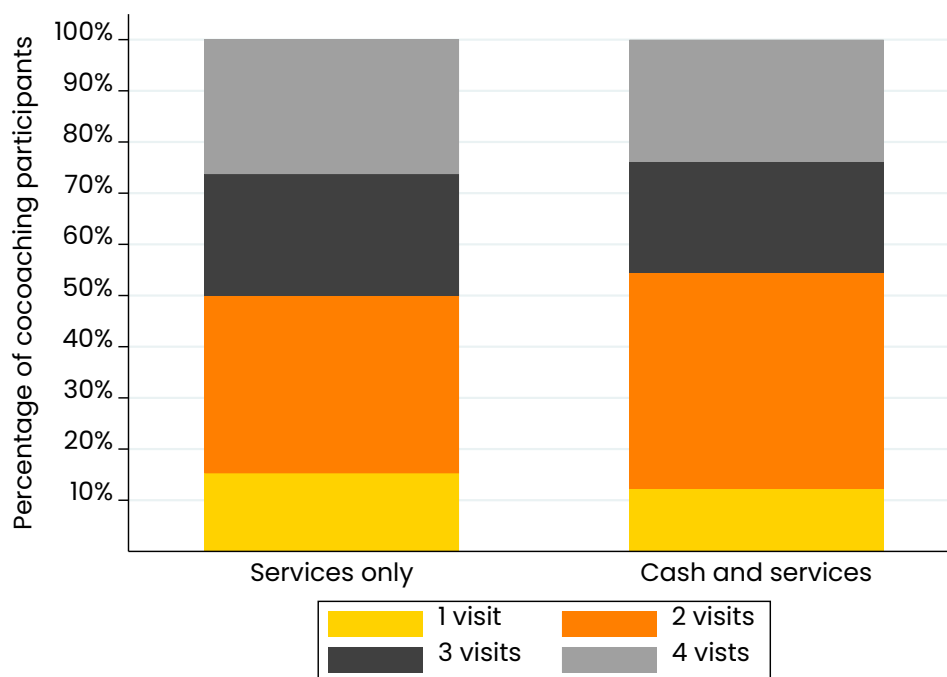
If agroforestry activities were generally well-received, FGD participants expressed *"less enthusiasm compared to other activities, such as pruning, which provided more immediate benefits"*. Participants appreciated receiving free seedlings but reported challenges with maintenance, leading to a certain level of tree mortality (from the endline survey data, respondents reported a survival rate of approximately 70% in the second year).

They expressed interest in additional training on seedling care techniques to improve survival.

### 3.1.3 Cocoaching

Coaching sessions included on-farm training on GAPs, focusing on cocoa production techniques and farm management (Beyond Beans called these sessions Cocoaching). Most training took place on demo plots near the communities involved and 67% of farmers in the Services only group and 71% in the Cash & services one reported to have attended these trainings. Individual farm visits to provide more intensive support also took place as 23% of farmers in the Services only group and 21% in the Cash & services one reported having received such support. Coaching sessions covered topics like disease management, proper spacing of seedlings/trees, and input application. Similar to the uptake of the other services, the Cash & Services group exhibited higher attendance rates (97% of farmers and 83% of partners) than the Services Only group (79% of farmers and 59% of partners).

Figure 4. Number of sessions attended (on farm or at demo plot)



During the FGDs, participants reported moderately positive feedback on these cocoaching sessions. Overall, if participants valued the practical nature of the training provided by the live demonstrations of the coaches, they expressed their preference for more individualised farm visits rather than group sessions on demo plots. For example, in Mlongouiné, households indicated that:

*"The cocoaching took place on some individual farms, but most of the training was carried out on demo plots near the village, requiring us to travel a certain distance to follow up the sessions. Also, the timing of the training did not match with what was required at that particular time of the cocoa season, which meant*

*we have to wait a year to apply the learnings, and therefore risk forgetting some of the recommendations".*

## 3.2 Interventions within the community

Beyond cocoa farming, the EnRoute programme provided participating households with various enabling interventions, either to increase their level of financial inclusion or improve the relationships between spouses and develop a joint vision for household activities. In addition, women received improved cookstoves to reduce both the cost and time spent on food preparation. While the Services Only and Cash & Services groups received all these activities, the Cash Only group participated in a different training, focussed on improved decision-making process and relationships within the household (spouses, children).

### 3.2.1 Improved Cookstoves Distribution

This activity consisted of providing a set of improved wood / charcoal cookstoves at a subsidised price of FCFA 5,000. Two rounds of distribution were conducted, with the second round featuring larger stoves based on user feedback that the initial stoves were too small for the typical cooking needs of larger households. Participation data were not systematically tracked in the endline survey, as the activity involved voluntary purchase rather than service delivery. However, qualitative feedback indicated strong demand across eligible households, with supply consistently falling short of the demand for the subsidised stoves. Women during the FGD in Mlongouiné, explained this success as follows:

*"The cookstoves improve the cooking conditions as they don't necessitate a dedicated kitchen space, and they produce less smoke. But more importantly, they significantly decrease the cooking time and the quantity of cooking fuel needed. Those who got the stoves no longer need to fetch big wooden branches from their fields as the cookstoves need 60 to 70% less wood than our usual cooking pits."*

### 3.2.2 Village Savings and Loans Associations (VSLA)

These groups typically included 25 to 30 male and female members, who met weekly to save small amounts ranging from FCFA1,000 to FCFA5,000, depending on their financial capacity. In addition to the savings, after three months of participation, VSLA members could also request loans at a favourable ten percent interest rate for a period of three months. This flexible scheme provided participants with accessible credit for farm maintenance, children's school fees, and small business development, while maintaining strong repayment discipline across communities. Participation rates demonstrate strong uptake across both packages. In the Services Only package, 94% of farmers and 98% of partners participated in VSLAs, while the Cash & Services package achieved even higher rates with 99% of farmers and partners joining the VSLAs. The consistently high participation among partners (most of them female) reflects the appeal of VSLAs to women in the participating communities.

VSLAs have become central meeting points for community engagement and financial education across intervention villages. Consequently, this intervention received the highest positive feedback across all programme activities, with participants consistently

highlighting the improved access to credit and the collaborative approach to financial planning between spouses. In Zagoué, women reported that:

*"The benefits of VSLA membership support in hiring workers for the cocoa field and paying for children's schooling fees. Before joining a VSLA, we struggled to access loans in case of need."*

In addition, men in Gotemba indicated that:

*"The share distribution of the VSLAs coincided with school enrolment periods, addressing one of households' most pressing annual financial challenges".*

The mixed-gender composition of VSLAs, with the women retaining control of the VSLA management, was noted as beneficial for supporting household decision-making.

Table 3. VSLA membership across intervention packages<sup>5</sup>

	Cash only		Services only		Cash and services	
	Farmer	Partner	Farmer	Partner	Farmer	Partner
VSLA savings and/or Loans	40%	38%	75%	62%	90%	81%
Membership duration (months)	21	22	25	26	26	25
Average savings (FCFA)	133,000	104,324	95,131	97,786	97,645	87,335
VSLA members' loan request	62%	56%	73%	68%	74%	60%
Average loan obtained (FCFA)	79,868	56,252	59,630	53,968	104,951	45,392

### 3.2.3 Financial Management Training

To support the improved financial inclusion provided by the VSLAs, financial management training sessions focused on practical household budgeting, expenditure tracking, and savings planning skills. Sessions typically lasted four full days and were delivered primarily to women, though many men could also participate if interested. The curriculum emphasised listing expenditures, identifying savings opportunities, and planning investments in future goals such as house construction or business development. In the Services Only package, the participation rates for this activity were 76% of farmers and partners. The Cash & Services package achieved higher participation rates with 93% of farmers and 92% of partners following these trainings.

The financial management training was well-received by participants, particularly in the Cash & Services package. Participants appreciated the concrete tools they could immediately apply to their daily financial decisions, rather than abstract concepts that were difficult to grasp. Moreover, the participation of both spouses allowed them to coordinate the household finances better as a couple. For example, in Mlonguiné, women indicated that:

*"The financial management training helped us reduce our daily expenses by tracking our income and expenditures systematically".*

<sup>5</sup>The table shows self-reported data from the endline survey. VSLAs are also present in the Cash Only communities, but they are likely established by initiatives outside the EnRoute programme. Additionally, the difference in membership rates in the Services only and Cash & services packages between the table and text results from using two different indicators. The first indicator measures whether a VSLA exists in the community, while the second one reflects actual membership through savings and/or loans.

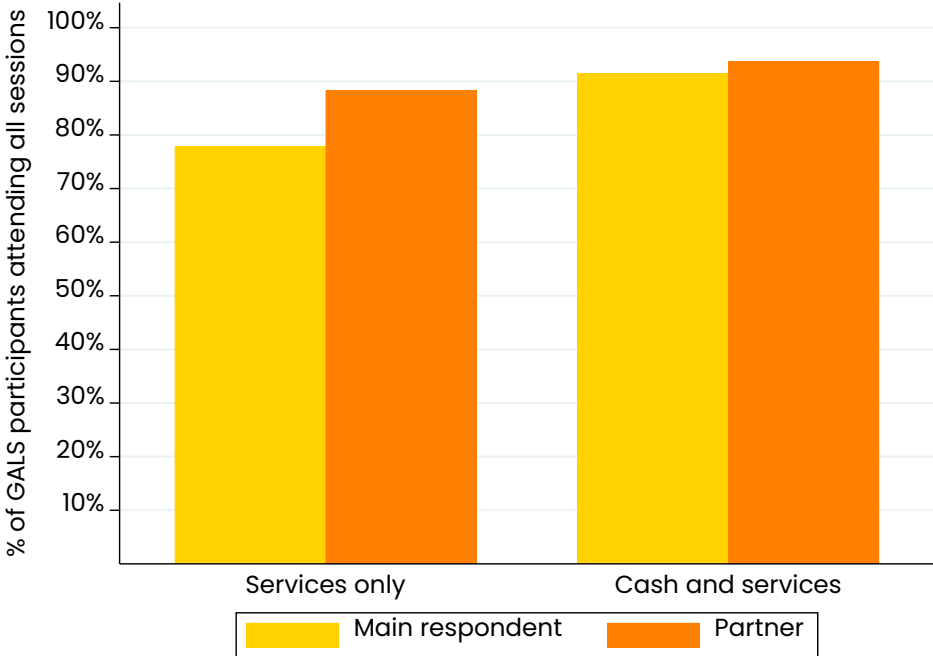
**3.2.4 Gender Action Learning System (GALS) Training**

In addition to the financial literacy training, the Services Only and Cash & Services groups also received GALS training. Delivered as part of the VSLA activities, and to VSLA members, this training was aimed at supporting participants (ideally, both spouses) to set goals and plan the necessary actions towards achieving them. Often referred to as “household vision journey”, these exercises help spouses to develop shared goals and coordinate their efforts. As a women empowerment tool, they were reported to have positively impacted gender relationships, as testified by a female participant during the FGD in Zagoué:

*"GALS training changed the dynamics between spouses; men are more supportive of their women and also participate more in household chores like caring for children and fetching water."*

Participation rates confirmed the genuine interest of women in this tool, particularly in the Services group, where 81% of partners (mostly women) participated in the GALS training, compared to 76% of farmers (mostly men). In the Cash & Services group, 93% of farmers and partners attended, most likely because this group had a larger proportion of participants as VSLA members, but also as more training sessions were conducted by a Beyond Beans Foundation coach (75 to 82% of all sessions compared to 63–70% in the Services only group) instead of a local leader chosen within the community. The percentage of participants attending all training sessions was also higher in the Cash & Services group, as shown by Figure 5 below.

Figure 5. Proportion of participants attending all GALS training sessions



**3.2.5 Empowering Better Decision Making (EBDM) Training**

This training was offered to the Cash Only group as an intensive two to three months programme directed at both spouses, emphasising collaborative decision-making.

Through weekly two-hour sessions, the curriculum addressed multiple dimensions of household well-being, including budgeting, spousal communication, child welfare, and agricultural planning. Using methodologies such as the "Household Equilibrium Tree" or the "Couple Dialogue", this training helped couples visualise shared responsibilities between spouses, including the care of their children.

The enthusiasm for this EBDM training is reflected in high attendance rates. 92% of farmers and 91% of partners in the Cash Only group followed the training, and 94% of farmers and partners attended all training sessions. The intensive nature of the training, its duration, and the involvement of Beyond Beans Foundation coaches who delivered 84% of the sessions appeared crucial for achieving key behavioural changes. All FGD participants provided positive feedback regarding improvements in household relations. In particular, improved communication between spouses, more equitable distribution of household tasks, and better coordination in financial decision-making were mentioned. A male farmer in Gotemba explained:

*"The training helped us see household chores differently. We learned that when men help their wives, it brings more happiness to the whole family. The training also taught us how to spend money wisely - paying for children's school fees instead of spending it at the bar - and how to save money for unexpected situations."*

Women also reported reduced domestic conflict and increased support from their husbands in both agricultural and domestic activities.

### 3.3 Unconditional Cash Transfers

In the Cash Only and Cash & Services groups, the EnRoute programme involved delivering digital cash transfers twice per year through mobile money platforms. Each household received EUR200 annually, with the amount split equally between the farmer and partner (EUR100 each). The programme scheduled transfers for June-July and December, deliberately coinciding with cash-strapped periods, which is, according to FGD participants, "when households faced their greatest financial constraints for making agricultural investment or sending children back to school after the holidays".

While all participants in the Cash Only group indicated that they had received their cash transfers, approximately two percent of the farmers and three percent of partners in the Cash & Services group indicated to not have received at least one payment. This small difference is more likely linked to technical challenges as reported by men during the FGD in Voumbe:

*"The network coverage is not optimal outside the village; those living in the camps have trouble receiving the transfer. They don't use their SIM card, and as a result, the account gets deactivated."*

The programme addressed these challenges by working with mobile network operators to improve coverage and develop alternative payment mechanisms to compensate for these delayed or missed transfers. Overall, participants had a strong positive attitude towards

the cash transfers and how they were carried out, particularly regarding the timing and accessibility of digital payments.

Before discussing the impact of the EnRoute programme on a series of key indicators, Table 4 below summarises the different activities offered per intervention package as well as the participation rates among the farmers and their partners. The information is based on the self-reported data collected during the endline survey.

*Table 4. Participation in EnRoute programme activities, by treatment arm<sup>6</sup>*

Intervention	Cash only		Services only		Cash and services	
	Farmer	Partner	Farmer	Partner	Farmer	Partner
Pruning	-	-	77%	76%	98%	95%
Agroforestry	-	-	66%	64%	93%	85%
Cocoaching	-	-	79%	59%	97%	83%
VSLA	-	-	94%	98%	99%	99%
GALS	-	-	76%	81%	93%	93%
Financial management	7%	8%	76%	76%	93%	92%
Empowering better decisions	92%	91%	3%	2%	25%	26%
Cash transfer	98%	99%	1%	2%	98%	96%

<sup>6</sup> In the Cash Only group, 7% of farmers and 8% of partners interviewed reported to have benefitted from the financial management training, a service that was not offered in this package. Similarly, some respondents in the Services Only and Cash & Services group selected the EBDM training instead of the GALS and/or the financial management trainings. Therefore, it appears that some respondents could have mixed up a few interventions. Yet, we cannot completely rule out the possibility of a cross-contamination across groups whereby some trainings could have been offered in villages not belonging to the right intervention package (particularly for the high percentage of Cash & Services respondents indicating to have received the EBDM training).

## 4 Results of endline evaluation

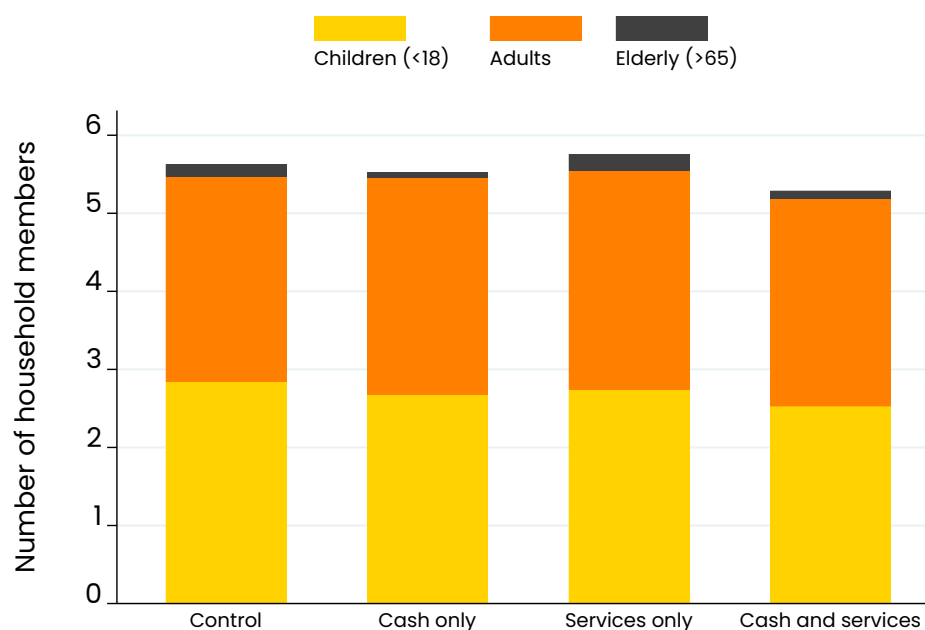
In this section, we first present descriptive statistics covering the main characteristics of the households interviewed during the endline, using the data collected on the whole sample (565 households). For the subsequent subsections, we present the results of the impact evaluation, using the subsample retained through the IPW procedure (493 households).

### 4.1 Descriptive statistics

#### 4.1.1 Household characteristics

The average household comprises 5.5 members, of which 2.8 are adults, and 2.7 are children. Only minor deviations from this average are observed in the different treatment groups, as shown by Figure 6 below. Households in the Cash & Services group are the smallest, with an average size of 5.2 members, while those in the Services Only group are the largest, with an average of 5.7 members. In addition, households in the Daloa region appear to have more members than those in the Man region (5.8 and 5.2 members, respectively).

Figure 6. Household composition, by treatment level



The typical household head is a male (93%), aged 47 years old, married (in 82% of cases), and with 3.5 years of formal education. On average, 65% of household heads did not attend any formal school, 24% completed only primary level, and 10% lower secondary school.

The female household heads are mostly single or widowed (only 29% of them are married), which leads to a statistically significant difference in their household size (5.6 members in male-headed households compared to 4.9 members in female-headed ones). Female household heads are also older (51 years on average) and less educated. Only 26% of them

are literate, and they completed less than 2 years of formal education. Finally, the proportion of female-headed households is higher in the Man region (10%) than in the Daloa region (4%). Similarly, this share varies across treatment arms: from 11% in the Cash and services group to 9% in the Service Only group, 4% in the Control group, and 2% in the Cash Only group. These differences are corrected for in the econometric analysis with the matching process explained earlier.

#### 4.1.2 Cocoa farm characteristics

On average, households cultivate cocoa on 2.7 hectares, of which 2.4 are productive. In 98% of the cases, households own the land on which they cultivate cocoa, and for 77% of them, they have maintained the same area during the last three years. Cocoa land was increased by only 13% of the households, and for the rest of the sample, the cultivated area decreased compared to three years ago<sup>7</sup>. These variations are important to understand possible changes in the patterns of cocoa yield, revenues, and production costs. Similarly, it is important to note that in the Cash Only group, cocoa farms are on average 15% larger than in the other treatment arms, and households in the Daloa region have 0.2 ha more productive land compared to those in Man.

The endline data collection conducted in April 2025 covered the main cocoa harvest from September/October 2024 to March 2025 and the preceding lean season from April to July/August 2024. During this period, the average cocoa yield was 577 kg/ha, but female-headed households, who have access to slightly smaller cocoa plots (0.4 ha difference compared to male-headed households), also exhibit lower yield levels (477 kg/ha vs 584 kg/ha). In addition, cocoa farming households in the Daloa region registered higher yield levels than those in the Man region (609 kg/ha vs 539 kg/ha). There is no statistical difference between yield levels when comparing across all treatment arms.

In terms of production costs, households invest on average 121 US\$/ha in their cocoa farm. Material costs make up the largest share of this investment (72 US\$/ha) while labour costs are on average 49 US\$/ha. While production costs don't show any statistically significant difference by the household head's gender, it appears that the cocoa farming households in the Man region invest more in their cocoa farm than those in the Daloa region (average of 143 US\$/ha and 102 US\$/ha, respectively). This difference could reflect regional differences, such as the remoteness of the communities in the Man area, which is located further up country than the Daloa region.

## 4.2 Programme's effect on cocoa farming practices

### 4.2.1 Hiring workers

All treatment arms have an impact on households' likelihood to engage sharecroppers on their farms, with the strongest effect observed in the Cash & Services group (see Figure 7 below). The qualitative insights from the FGDs in Blonleu and Mlongouiné confirmed that *"it is quite frequent to hire sharecroppers to take care of the cocoa and coffee plots of older farmers or widows"*.

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<sup>7</sup> The main reason for increasing cocoa land was to produce more, while the decrease was triggered by poor climatic conditions and pests, and diseases. To expand the cocoa land, households either created new plots or converted cultivated land into a cocoa farm. For those who reduced their cocoa farm, the land was either used for other crops or left fallow.

In addition to these year-round sharecropping arrangements, cocoa farming households also resort to temporary workers for specific tasks such as weeding. Our results show that the Services Only package seems to have particularly enhanced households' ability to access hired labour. Compared to the control group, households in the Services Only group were 9 percentage points more likely to hire temporary workers (see Figure 8). While the magnitude of the effect is similar for the Cash & Services group (8 percentage points), the estimated effect is not statistically significant. Finally, for the Cash Only group, the reception of the transfers did not affect the likelihood of hiring temporary workers.

One possible explanation for these results could be that services like pruning groups and GAP training raise expectations of higher yields, motivating households to invest in hired labour to maximise the benefits of improved practices. Meanwhile, Cash Only recipients may focus on immediate needs or non-farm priorities—such as education or healthcare—rather than farm labour, especially if they do not expect increased returns from cocoa production. However, according to a 2017 multi-country evaluation of cash transfer programmes in Sub-Saharan Africa led by FAO<sup>8</sup>, cash transfers are expected to increase agricultural investment and use of hired labour, not just consumption. Therefore, our results could also be driven by more contextual factors, such as a shortage in the local labour market.

In line with this, FGD participants in Gotemba reported that *“hiring daily workers for weeding costs FCFA 35,000 to FCFA 40,000 per hectare for cocoa. However, these workers are often unreliable, either not finishing the work or doing it poorly”*. For the Cash & Services group in Blonleu and Zagoué, the issue is in *“a difficult recruitment process because daily workers are busy with their own farms and think that the pay of FCFA2,000 to FCFA3,000 per person per day offered is too low.”* It also appears that the received cash transfers were mainly used for paying children's school fees, investing in small business activities, covering household expenses (food, repairs, etc.), and purchasing inputs for the farm.

Meanwhile, in Mlongouiné (Services Only village), participants indicated that *“they could hire various groups for different tasks: youngsters for cocoa weeding (35,000 FCFA/ha), women for coffee harvest (1,500 FCFA/person/day), men for setting new rice plots (35–40,000 FCFA/ha including food)”*. They could also leverage *“VSLAs loans to make the necessary investments”*.

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<sup>8</sup> See: <https://openknowledge.fao.org/server/api/core/bitstreams/25c6b6cb-c88a-4443-b378-f7e6ed9c918/content>

Figure 7. Engagement of sharecroppers on the farm

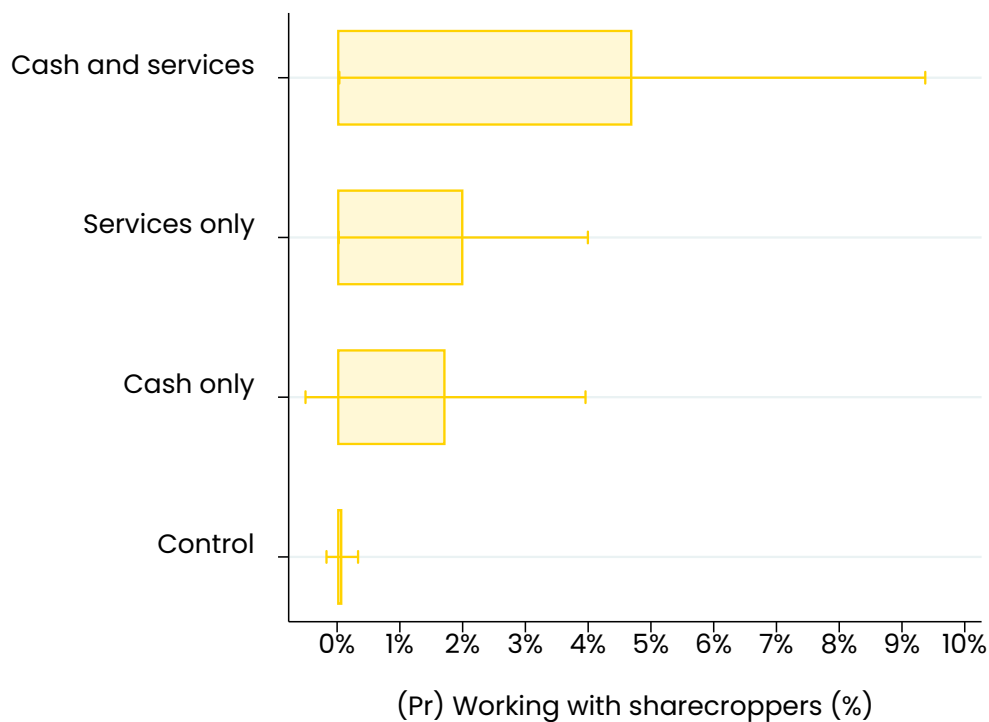
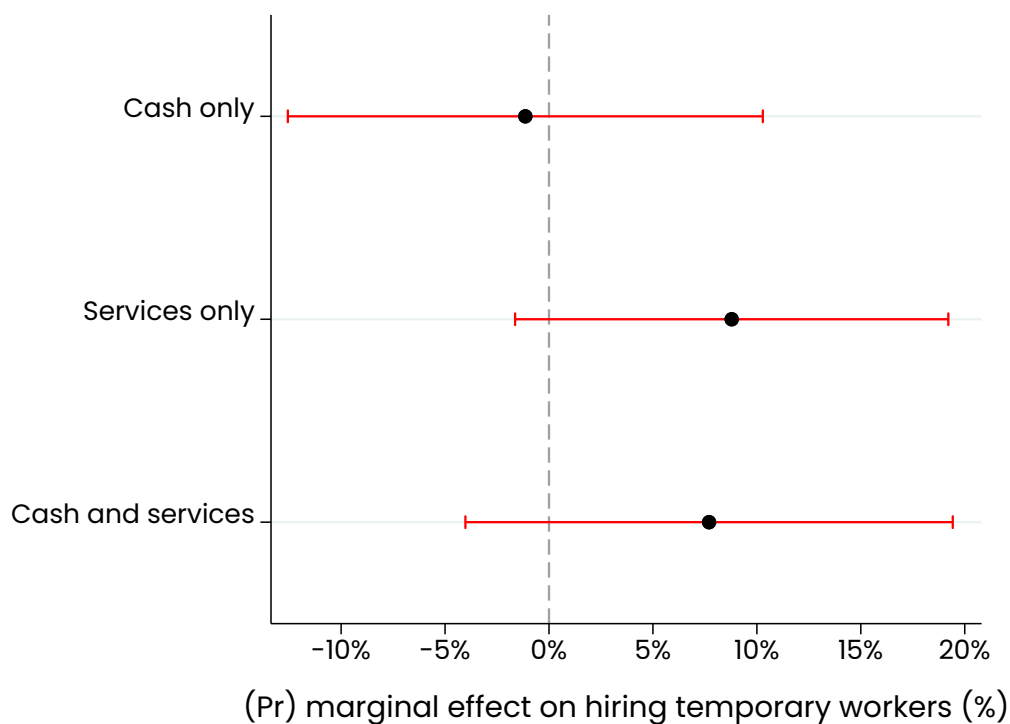


Figure 8. Marginal effects of treatment levels on hiring labourers



#### 4.2.2 Farming costs

Despite the increase in labour use in the villages accessing the Service packages, Table 5 shows that none of the treatment groups experienced a statistically significant change in

labour costs compared to the control group. Farmers in Mlongouiné and Blonleu explained that “the use of subsidised pruning groups and self-application of learnings from the cocoaching helped us save on costs of hired workers”. In addition, respondents in Zagoué indicated that “pruning has reduced the prevalence of black pod disease, reducing the need to spray the trees to avoid rotten pods”. This reduction in material costs is captured in our estimates for the Cash & Services (significant - US\$39 per hectare) and Service Only (not significant - US\$24 per hectare) groups.

These patterns suggest that households receiving on-farm services are experiencing reduced cocoa farming costs due to the subsidised labour services and applying learnings acquired during training or observation/participation in pruning groups and cocoaching. Furthermore, the positive effects of adopting GAPs<sup>9</sup> on the farm’s health lowers input costs, pushing down even more the total costs of cocoa farming (significant US\$43 per hectare in the Cash & Services groups and non-significant US\$30 per hectare in the Services Only group).

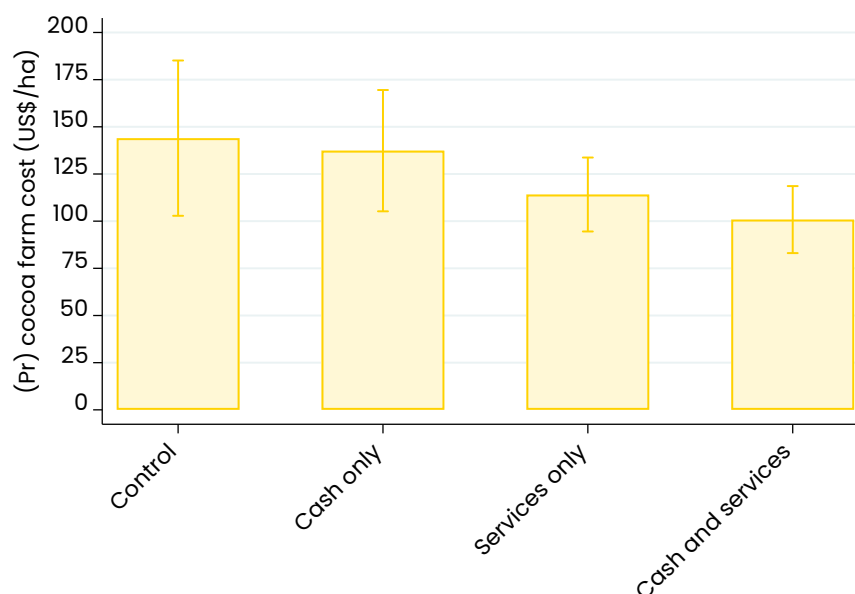
Table 5. Cocoa production costs (US\$/ha)

	Material cost (US\$/ha)	Labour cost (US\$/ha)	Total farm cost (US\$/ha)
Control	Ref (.)	Ref (.)	Ref (.)
Cash Only	-10.003 (21.388)	11.079 (11.114)	-6.628 (27.262)
Services Only	-24.367 (17.755)	2.715 (9.521)	-29.868 (20.989)
Cash and services	-38.597** (18.636)	8.365 (10.556)	-43.157* (22.395)
Observations	486	486	480

Notes. Regression results with IPWs and covariates. \* p<0.10, \*\* p<0.05, \*\*\* p<.01. Marginal effects of material cost and labour cost might not fully add up to total farm cost, due to the nature of the analysis (regression) and missing values.

<sup>9</sup> We consider as GAPs: planting shade trees, rejuvenating the cocoa trees, applying phyto-sanitary products (fertilizer, pesticide, fungicide), weeding, and pruning. In reference to the control group, the Services Only group applies 0.43 more GAPs, and the Cash & Services group 0.93 more GAPs. The estimated effect of 0.22 for the Cash Only group is not statistically significant, confirming that the GAP adoption is mostly driven by the interventions on the cocoa farm rather than the cash transfer.

Figure 9. Cocoa farm cost (US\$/ha) by treatment level



### 4.3 Cocoa productivity and income

Table 6 presents regression results capturing the impact of each of the treatment arms on cocoa productivity and profit, compared to the control group. The estimates show that all treatment arms have a positive impact on cocoa production levels, yield level, and net profit from cocoa sales. Yet, the magnitude of these effects differs per treatment arm.

The Cash Only group exhibits the highest effect on production (265 kg) and profit (945 USD<sup>10</sup>) but not yield (101 kg/ha). As this group had larger cocoa plots compared to the other groups (average of 3.12 ha), the production increase is split across more hectares, leading to a lower yield effect than the other groups. Yet, this larger production results in higher income from cocoa sales, given the increasing prices over the considered period (1,500 FCFA/kg for the lean season of 2024 and 1,800 FCFA/kg for the 2024-2025 main season).

For the other two groups, the increased adoption of GAPs, as well as the smaller cocoa land compared to the Cash Only group, led to a higher programme's impact on yield levels (110 kg/ha for the Services Only group and 120 kg/ha for the Cash & Services group). But these comparable yield effects across the two groups somehow don't lead to the same effect in terms of absolute production levels and income derived from cocoa sales.

One possible explanation is that the Cash & Services group has the highest proportion of households that modified their cultivated cocoa land over the previous three years. While 81% of all the other groups declare the same cocoa area, only 67% of the Cash & Services group report the same. Furthermore, 19% of this group indicate having increased their cocoa land compared to 9% of the Services only group. That portion with young trees (less than 5 years), considered as non-productive, is thus not included in the computation of

<sup>10</sup> We use the conversion rate of CFA 1 = US\$0.00172926 USD from April 14<sup>th</sup>, 2025, when the endline data collection started.

yields. As a result, the mature section of the farm in the Cash & Services group shows higher yield levels, partly because smaller cultivated areas tend to receive more targeted inputs and labour, which boosts productivity. In addition, overall production in this group is expected to increase further in the coming years as the currently expanding farm areas mature.

In summary, these results suggest that all three packages, especially when provided in combination, are associated with meaningful increases in both cocoa production and productivity, potentially through a more efficient use of land and/or inputs.

Table 6. Cocoa production (kg), yield (kg/ha), and profit (US\$)

	Cocoa production (kg)	Cocoa yield (kg/ha)	Cocoa profit (US\$)
Control	Ref (.)	Ref (.)	Ref (.)
Cash Only	264.627** (128.810)	100.640** (47.754)	947.877*** (350.707)
Services Only	245.093** (110.834)	110.194** (46.689)	944.969*** (317.239)
Cash and services	109.254 (118.962)	119.675** (52.296)	590.900* (324.458)
Observations	484	452	453

Notes. Regression results with IPWs and covariates. \* p<0.10, \*\* p<0.05, \*\*\* p<.01.

Figure 10. Cocoa yield, by treatment level

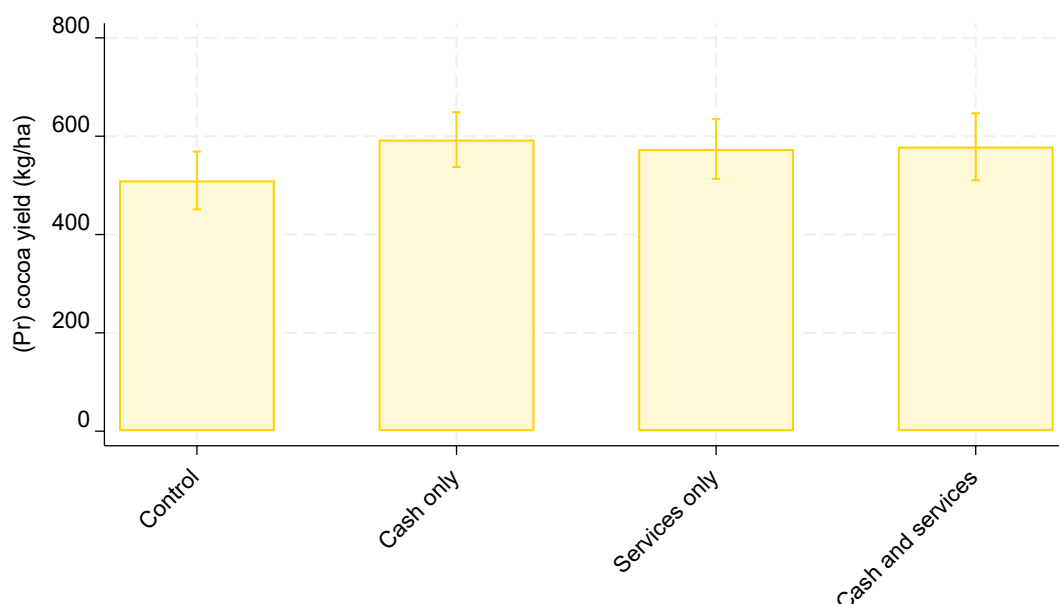
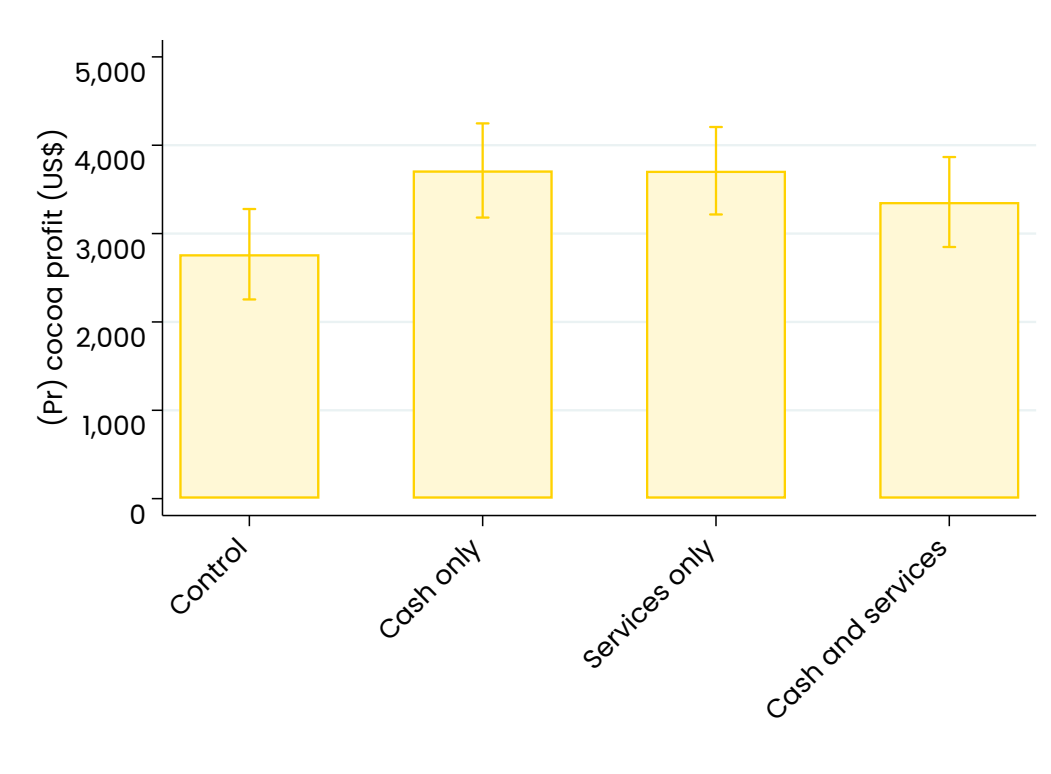


Figure 11. Cocoa profit by treatment level



#### 4.4 Non-cocoa income

The EnRoute programme focused on sustainably increasing cocoa production and reducing child labour risks. While not actively promoting income diversification outside of cocoa sales, the programme could still affect some household labour dynamics via the services offered through VSLAs and the different training (EBDM, GALS, financial management, etc.).

Table 7 below shows that the Cash Only group derives a significantly higher share of income from cocoa sales (12%) because of the increased cocoa production and profit highlighted in the previous section. In the absence of any significant change in the number of income sources, the only reason to observe a change in the cocoa share of the total household income is the increase in the cocoa profit. While the other groups don't exhibit a similar change, it is important to notice the underlying trend in the number of income sources, particularly in the Cash & Services group (+0.13 activities compared to the control group).

Households in the Cash & Services group are 41% more likely than those in the control group to run a small trade business. During the FGDs in Zagoué and Blonleu, female participants explained that:

*“VSLA loans allowed us to support our daily IGAs. In combination with the received cash transfers, we could pool the resources to buy a freezer and start selling fresh and smoked fish”.*

This result suggests that the combination of cash transfers, VSLA loans with training and labour-reducing services may create the right conditions—by easing time constraints and improving liquidity—for households to invest in and sustain small trade businesses.

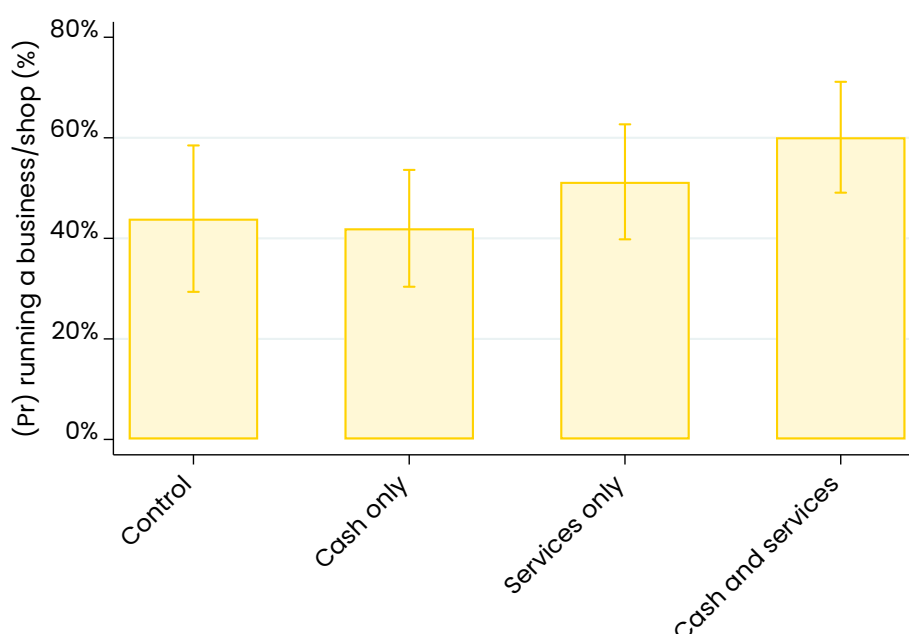
To a lesser extent, this trend is also observed in the Services Only group, where women indicated selling dried fish and starting to buy a freezer for juice sales using VSLA loans. But in the absence of cash transfers to further enhance the investment capacity, our estimated effect of 18% more households running a business in this group is not statistically significant.

Table 7. Diversification of income sources

	Cocoa sales as proportion of income (%)	Number of income sources (incl. cocoa)	Running business/shop (%)
Control	Ref (.)	Ref (.)	Ref (.)
Cash only	12.186*** (2.409)	-0.012 (0.114)	-0.049 (0.221)
Services only	3.956 (2.532)	0.008 (0.124)	0.184 (0.224)
Cash and services	1.487 (2.657)	0.127 (0.129)	0.409* (0.235)
Observations	493	493	493

Notes. Regression results with IPWs and covariates. \* p<0.10, \*\* p<0.05, \*\*\* p<.01.

Figure 12. Proportion of households running a business or shop by treatment level



## 4.5 Household total income and LI Gap

According to Table 8 and Figure 13 below, the EnRoute programme has had a positive effect on households' total annual incomes across all three treatment arms. In comparison to the control group, all the participating households exhibit significantly higher income levels. The Cash Only group experienced the biggest change with an average increase of US\$1,729, in line with the previous results, where this group registered the highest increase in their average cocoa profits.

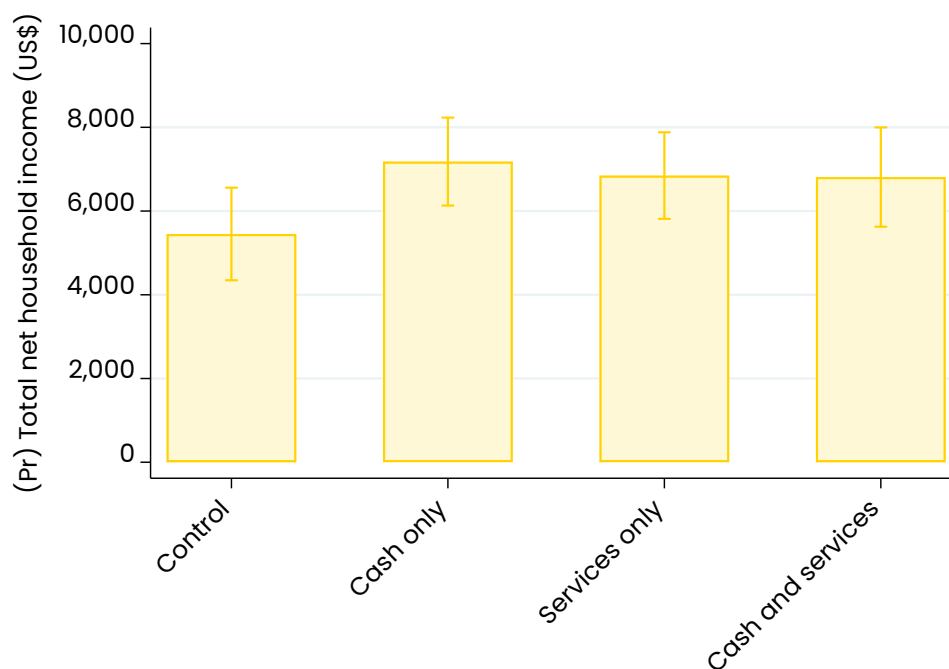
The Services Only and Cash & Services groups experienced a comparable programme's effect on income levels (respectively US\$1,395 and US\$1,359). While the Cash & Services group had the lowest effect on cocoa profits, households in this group also had higher chances of running a business/shop by leveraging the cash transfers and the VSLA loans. Therefore, their non-cocoa income seems to have compensated the lower income derived from cocoa sales compared to the other two groups.

Table 8. Household income and Living Income gap (US\$)

	<b>Total net household income (US\$)</b>	<b>Unadjusted Living Income gap (US\$)</b>	<b>Adjusted Living Income gap (US\$)</b>	<b>Above Living Income benchmark (%)</b>
Control	Ref (.)	Ref (.)	Ref (.)	Ref (.)
Cash Only	1729.681** (725.746)	-1739.112** (708.317)	-1881.685** (730.975)	0.040 (0.084)
Services Only	1395.155** (679.973)	-1450.924** (656.474)	-1532.507** (680.650)	0.038 (0.077)
Cash and services	1359.812* (774.600)	-1262.579 (765.581)	-1388.250* (773.446)	-0.069 (0.078)
Observations	445	469	445	445

Notes. Regression results with IPWs and covariates. \* p<0.10, \*\* p<0.05, \*\*\* p<.01.

Figure 13. Total net household income (US\$) by treatment level



Beyond the total household income, one key question of the programme is whether the different interventions have helped reduce the LI gap for the participating households. The change in the LI Gap (whether adjusted for household size or not<sup>11</sup>) appears to be significantly different between the control group and each of the three treatment arms. In line with the previous findings, the most significant reduction in the LI Gap is registered in the Cash Only group (-US\$1,882), followed by the Services Only group (-US\$1,532), and finally by the Cash & Services group (-US\$1,388).

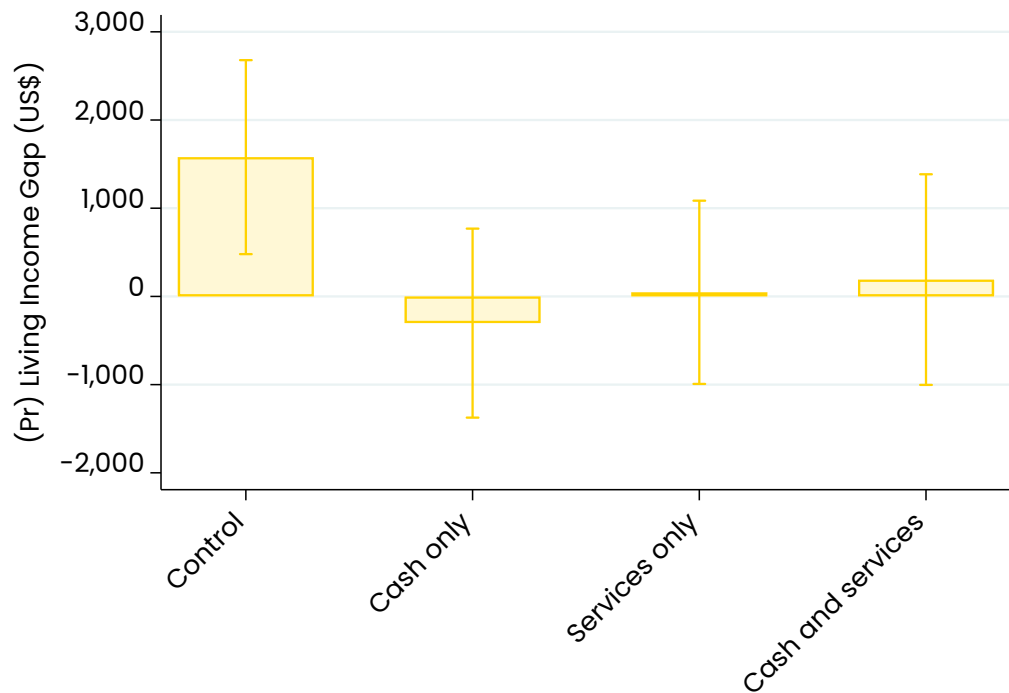
As a result of these variations, the households in the Cash Only group are expected to earn, on average, US\$303 above the LI benchmark. Those in the Services Only group are, on average, US\$46 below the benchmark, while this number is US\$191 for the households in the Cash & Services group. For reference, the average LI gap in the control group is US\$1,579.

<sup>11</sup> For the subsample used in the analysis (after adjusting for the IPW), the average benchmark used is US\$6,608, which corresponds to US\$6,958 after adjusting for the household size. Indeed, the average household size in this subsample (5.5 members) is smaller than what was considered in the determination of the benchmark (6 members), but the number of adults is higher (3 in this study compared to 2 in the original benchmark study).

See:

[www.living-income.com/fileadmin/living\\_income/Publications/Actual\\_Income\\_and\\_Gap\\_Measurement/2024\\_Update\\_Report\\_Cote\\_d'Ivoire\\_Living\\_Income\\_2024.pdf](http://www.living-income.com/fileadmin/living_income/Publications/Actual_Income_and_Gap_Measurement/2024_Update_Report_Cote_d'Ivoire_Living_Income_2024.pdf)

Figure 14. Living Income gap (US\$) by treatment level



Despite the magnitude of these changes in average income levels, it should be noted that the EnRoute programme did not generate a significant change in the proportion of households earning an LI (see the last column of Table 8). The increase in cocoa prices benefited all households, regardless of whether they are part of the programme or not. Combined with the positive programme's effect on yield levels, the income levels of all households increased and moved them closer to the LI benchmark. Yet, a significant proportion of the households are still earning below that benchmark<sup>12</sup> and despite the shift of the income distribution towards the right, the change is not large enough to generate a significant change in the proportion of households earning an LI between the different groups.

## 4.6 Other socio-economic indicators

### 4.6.1 Access to finance

The main contributor to improved financial access in the EnRoute programme is the setup of VSLAs in the Services Only and Cash & Services groups. In addition, the various trainings offered in these groups (financial management, GALS) can influence the capacity to manage savings and loans. But VSLAs could also exist in the control and Cash Only groups,

<sup>12</sup> To illustrate, the income of the median farmer is located US\$670 above the LI benchmark in the Control group. This number is US\$940 in the Cash Only group, US\$2,255 for the Services only group, and US\$1,361 for the Cash & Services. Therefore, if the upper half of the population is above the LI benchmark, the other half is likely below.

albeit not set up by the EnRoute programme, but by other ongoing interventions in the area<sup>13</sup>.

In Table 3, we highlighted that VSLA participation was much higher in the Services Only and Cash & Services groups, where the EnRoute programme actively pushed for the setup of these institutions. Beyond the increased participation, Table 9 below shows that households in these two groups saved and borrowed more money in VSLAs. On average, in the past 12 months, male VSLA participants from the Services Only group saved US\$48 more than the control group, and their female partners saved US\$43 more. Regarding loans, despite the change not being statistically significant, we also noticed a difference in favour of the Services Only group, with US\$9 more for the male VSLA participants and US\$18 more for the female VSLA participants. The effects are even higher in the Cash & Services group, where male VSLA participants saved US\$87 more and female participants saved US\$42 more than their counterparts in the control group. For loans, only the increase of US\$21 among women appears to be statistically significant, the difference of US\$29 for men being offset by the larger standard error associated with the estimated coefficient.

This powerful effect of the Cash & Services combination was confirmed during the FGDs in Zagoué and Blonleu, where participants explained:

*“We use the cash transfers to cover immediate needs such as children’s schooling fees or hiring workers for weeding, for example. We could then use the VSLA loans to support our existing IGAs or realise larger investments such as buying freezers or agricultural inputs.”*

Moreover, the financial management training further amplified the effectiveness of the VSLAs for financial inclusion. FGD participants in Mlongouiné, Zagoué, and Blonleu reported that:

*“The financial management training helped us reduce unnecessary spending and improve the profitability of IGAs by tracking income and expenses. We also improved our budget planning skills to create emergency funds to finance key expenditures such as children’s schooling and health needs”.*

Finally, the GALS training also played a role in the improved financial situation since households report *“an increased collaboration between spouses, leading to pooling economic resources and making decisions jointly”*. A similar outcome was also reported by the FGD participants in the Cash Only villages of Voumgbé and Gotemba as a result of the EBDM training. They indicated that the training promoted better financial behaviour:

*“We learned to check our household expenses together, reduce the unnecessary ones like alcohol at the maquis, and decide which ones are worth investing in, like children’s school fees, household food. This has made us more efficient for the household”.*

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<sup>13</sup> On average, 32% of farmers and 37% of partners in the control group had access to a VSLA. These numbers are respectively 40% and 37% for the Cash Only group. The FGDs in Voumgbé (Cash Only) and Gouagononpleu (Control) confirmed these numbers since participants reported joining VSLAs set up, among others, by the government safety nets programme (“Filets Sociaux”).

As VSLAs were not actively promoted in these villages, it could be that the households' improved financial behaviour, complemented by the reception of cash transfers, reduced the need to request loans to cover immediate daily needs in the Cash Only communities. Also, with a better spousal relationship, women could feel less need to "protect" their savings within a VSLA instead of keeping the resources available to cover their household's needs. Indeed, women testified that:

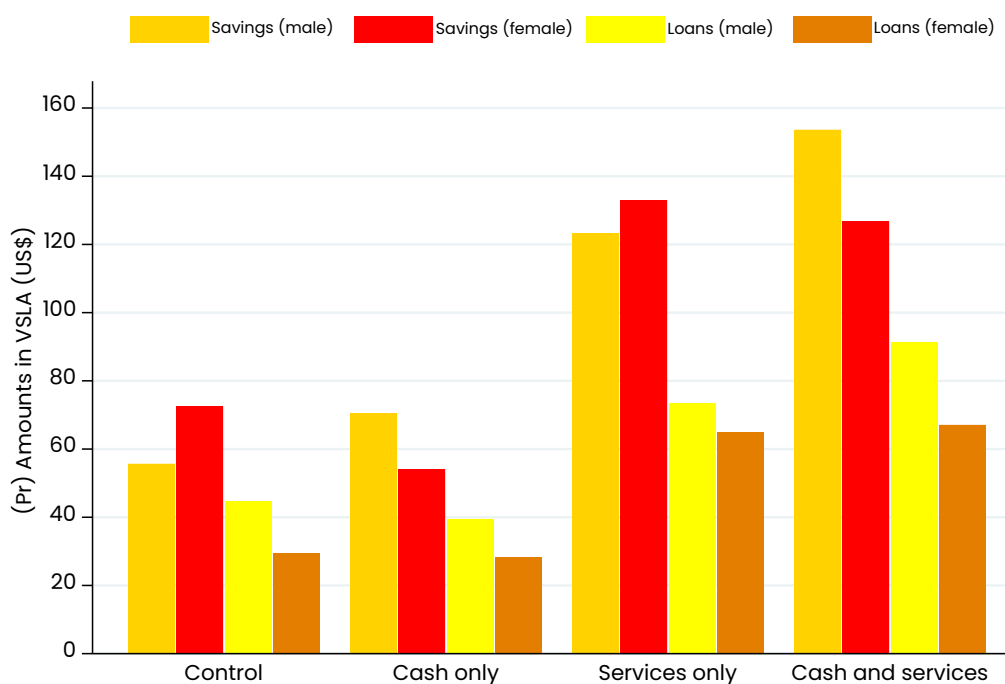
*"Our husbands have changed: some stopped drinking and beating their wives, they even bring home gifts like clothes and wood from the farm. They are more supportive with household chores like fetching water and washing the children".*

Table 9. VSLA savings and loans (US\$)

	VSLA savings male (US\$)	VSLA savings female (US\$)	VSLA loans male (US\$)	VSLA loans female (US\$)
Control	Ref (.)	Ref (.)	Ref (.)	Ref (.)
Cash Only	8.971 (26.517)	-31.721 (20.855)	-22.113 (19.179)	-6.998 (14.603)
Services Only	48.005** (20.770)	42.663* (24.340)	8.999 (17.509)	18.131 (14.940)
Cash & Services	87.102*** (21.068)	42.204** (20.528)	29.583 (20.487)	20.956* (12.462)
Observations	418	400	371	330

Notes. Regression results with IPWs and covariates. \* p<0.10, \*\* p<0.05, \*\*\* p<0.01.

Figure 15: VSLA savings and loans (US\$) by gender and treatment level



## 4.6.2 Women's empowerment

To gauge the programme's impact on women's empowerment, we use the Abbreviated Women's Empowerment in Agriculture Index (A-WEAI)<sup>14</sup>. The A-WEAI is a standardised tool that measures women's empowerment across key domains related to agricultural livelihoods, including decision-making power over agricultural production, access to and control over resources, control over income, leadership in the community, and time use. By capturing both individual and household-level indicators, the A-WEAI provides a nuanced picture of the extent to which women can participate in and benefit from agricultural activities. The index measures whether women's empowerment has increased overall, while also identifying specific areas where they may still face constraints.

After computing the A-WEAI, it appears that no woman was classified as Empowered<sup>15</sup> across all treatment arms. But the different interventions of the EnRoute programme have actually increased the empowerment index scores, in particular for the Cash Only group, where the change in the index score appears to be statistically significant (see Table 10 below). When breaking down the overall index in several sub-domains, we find that this positive effect in the Cash Only group is primarily driven by women's involvement in agricultural production. The FGD insights from Voumgbé and Gotemba help shed light on these results, as participants explained that the EBDM training modules encouraged joint household decision-making, better spousal cooperation, and men's greater involvement in household chores and budgeting. This, in return, created a context where women could participate more actively in agricultural production because men were contributing more to domestic chores and sharing resources transparently. Women reported that:

*"Now, spouses go together to the field and work jointly depending on the seasonality of crops. If they are too tired or have too much work, they can communicate and decide to hire people. Because of the improved solidarity, there are fewer tensions in the household".*

Table 10. Abbreviated Women's Empowerment in Agriculture Index (A-WEAI)

	A-WEAI score	Sub-domain: Production	Sub-domain: Income	Sub-domain: Time
Control	Ref (.)	Ref (.)	Ref (.)	Ref (.)
Cash only	0.059* (0.033)	0.518** (0.259)	0.301 (0.266)	0.21 (0.236)
Services only	0.015 (0.032)	0.329 (0.246)	0.128 (0.253)	-0.132 (0.240)
Cash & services	0.027 (0.033)	0.255 (0.270)	-0.091 (0.274)	0.292 (0.255)
Observations	448	448	448	449

Notes. Regression results with IPWs and covariates. \* p<0.10, \*\* p<0.05, \*\*\* p<.01.

<sup>14</sup> <https://weai.ifpri.info/files/2024/07/WEAI-Instructional-Guide.pdf>

<sup>15</sup> A woman is considered empowered if her weighted score across all A-WEAI dimensions (production, assets ownership, access to and decisions on credit, income, leadership, and time) is above a certain cut-off point. For this analysis, we used the common cut-off value of 80% which ensures that at least four of the weighted A-WEAI domains are covered for a woman to be considered empowered.

One male farmer also explained that the EBDM training:

*“Changed our vision of household chores: helping our wives brings more joy in the household. I now fetch water and wood or take care of the children when they are sick”.*

From these testimonies, it seems that the EBDM training offered in the Cash Only communities, specifically the “Couple Dialogue” module, has played a pivotal role in changing spousal dynamics and empowering women. Since the GALS training offered in the Services Only and the Cash & Services communities is also aimed at influencing gender relationships, we compared the effects of these two interventions in a set of selected indicators. First, we considered the time worked by women, as the previous results on the A-WEAI indicated that more women were involved in agricultural production. Moreover, as women’s empowerment is expected to foster investment in human capital<sup>16</sup>, we examine the effects of spousal joint decision-making on two categories of household expenditures: weekly food costs and annual school costs for children.

Table 11 confirmed that female respondents in households exposed to “Couple Dialogue” reported working more hours per day (a statistically significant increase of 0.76 hours per day), consistent with an increased participation in productive activities. The same group also showed a significant increase (+272%) in school expenditures per child, holding other factors constant. Additionally, there is a smaller but statistically significant increase in weekly food expenditures per capita of 27%, indicating potential improvements in household consumption or food security. In contrast, the GALS training did not show statistically significant effects on any of the measured outcomes. The coefficients for hours worked by women, children’s school expenditures, and household food expenditures were all positive but imprecisely estimated, as highlighted by the large associated standard errors. Therefore, it seems that the GALS training, while beneficial, does not have measurable effects comparable to the “Couple Dialogue” module of the EBDM training. One possible explanation for this difference could be that the GALS training being more focused on changing gender norms, its effects take longer to manifest compared to the EBDM training, which involves quicker actions within the household.

Table 11. Effect of Couples Dialogue and GALS Training

	Daily hours worked by women		Annual school expenditures per child (log)		Weekly food expenditures per capita (log)	
	(5)	(4)	(5)	(6)	(7)	(8)
Couples dialogue	1.314*** (0.472)		1.314*** (0.472)		0.241* (0.132)	
GALS training		0.143 (0.654)		0.324 (1.11592)		0.067 (0.172)
Observations	360	389	360	366	396	411

Notes. \* p<0.10, \*\* p<0.05, \*\*\* p<.01. Regression results with robust standard errors. The control group was excluded from the sample. Treatment dummies and covariates added as control variables.

<sup>12</sup> See Duflo, 2012 ([https://www.nber.org/system/files/working\\_papers/w17702/w17702.pdf](https://www.nber.org/system/files/working_papers/w17702/w17702.pdf)) for a literature review on the links between Women’s Empowerment and Economic Development, including their connection to children’s education, nutrition, and health.

More generally, it appears that in the Services Only and Cash & Services groups, women did not experience any significant changes in the overall A-WEAI score or any of its specific empowerment domains. While the estimated coefficients in Table 10 are positive in some areas (e.g., time empowerment in the Cash & Services group), the effects are generally small and not statistically significant. These findings could suggest that cash-based interventions, especially when combined with the EBDM training, may have had a more meaningful effect on certain aspects of women's empowerment, particularly in agricultural decision-making. Meanwhile, services, whether alone or combined with cash, exhibit limited measurable impact within the scope of the A-WEAI indicators. Yet, given the lack of precision in many estimates, we cannot rule out the possibility that the A-WEAI score is less responsive to short-term interventions (this endline taking place only after two years) or that changes in this empowerment index require more sustained or intensive engagement.

During the FGDs, households in the Cash Only villages reported receiving structured EBDM training of defined duration (*“Two months with weekly two-hour sessions every Thursday afternoons and a one-day refresher in Voumgbé, three months with weekly one-hour sessions on Mondays and follow-up visits by the trainer to check behavioural change in Gotemba”*). In addition, these sessions were directly delivered by designated programme trainers, while the GALS trainings were done by field agents (Mlongouiné), but also via some lead farmers who received the training earlier and acted as representatives within the village (in Blonleu, for example, one man and one woman went to Man to receive the GALS training). Moreover, as the GALS sessions were integrated into the VSLAs meetings, the emphasis of the training was often put on financial management (daily expense reduction and women's financial independence in Mlongouiné, for example) rather than gender role changes, which could have further limited the effect of GALS on women's empowerment results.

## 4.7 School enrolment and CL risks

The data related to children's school enrolment, exposure to hazardous tasks, and overall risks of child labour were unfortunately not of a sufficient quality to conduct a robust impact evaluation. Among the sampled households, 143 did not have any children from the 5-17 age range interviewed. Furthermore, once the IPW procedure was applied, only 372 households remained across all four groups. This sample size is too small to conduct any meaningful comparison between four different intervention packages.

In addition, the number of children interviewed was disbalanced between the groups: 256 children were interviewed in the Services Only communities, 235 in the Cash & Services ones, 233 in the Cash Only ones, and 171 in the Control ones. The larger number of children surveyed in the treatment villages could bias the results, as the likelihood of finding children enrolled in school or involved in child labour increases with the number of interviews, as demonstrated by Table 12 below. Finally, not all children flagged at risk of CL received the follow-up interview to verify if they were effectively working or not, further biasing the numbers related to CL prevalence<sup>17</sup>.

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<sup>17</sup> The CL data was collected simultaneously to the household survey, under the supervision of the Beyond Beans Foundation. The process is as follows: in each household, all eligible children (age 5-17) receive a first questionnaire to identify if they are at risk of CL (i.e. they are either not going to school, don't have a birth certificate and/or are seen performing hazardous tasks by the

Consequently, it was not possible to establish any clear or credible links between the interventions studied and changes in CL outcomes or school enrolment.

Table 12. Descriptive statistics on school enrolment and CL risks

	Child at risk of CL	Child seen doing hazardous tasks	School enrolment (child at risk)	Child found in CL	School enrolment (child in CL)
Control	47% (171)	26% (171)	74% (171)	25% (65)	52% (65)
Cash only	63% (233)	24% (233)	79% (233)	24% (101)	68% (101)
Services only	53% (256)	19% (256)	86% (256)	16% (79)	76% (79)
Cash & services	71% (235)	28% (235)	77% (235)	22% (97)	70% (97)

Notes. Number of observations in parentheses

## 5 Summary and conclusion

The EnRoute programme set out to test whether targeted interventions (unconditional cash transfers, service packages, or a combination of the two) could close the living income (LI) gap and reduce child labour (CL) risks in two cocoa-growing regions in Côte d'Ivoire. Two years into the programme, the evidence shows that all three intervention packages delivered measurable improvements in cocoa production and household income. However, the nature and drivers of these impacts vary considerably across groups (as summarized in Table 13 below). The most important outcomes, such as cocoa productivity, cocoa profit, total household income, and the LI gap, have been impacted through all three intervention packages. Other outcomes, such as financial inclusion, women's empowerment, and income diversification, have only been impacted by some of the intervention packages.

### Cash only

This package effectively addresses liquidity constraints, enabling households to make key investments in farm maintenance, children's education, and small household improvements such as home repairs. Notably, schooling expenditures per child in this group rose by 272%, suggesting an improved likelihood of attendance for children enrolled in school.

A central driver of impact within this package was the Empowering Better Decisions (EBDM) training, which recorded the highest attendance rates (92–94%) among all trainings offered in the EnRoute programme. This training improved spousal communication and joint decision-making, reduced domestic conflict, and significantly increased women's participation in agricultural activities (nearly 0.8 hours per day). Men reported shifting

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enumerators). All children flagged at risk should receive a follow-up questionnaire to verify if they are involved in CL or not and eventually what tasks they were performing, when, for whom and for how long.

spending away from non-productive uses towards productive investments in farming and their children's education.

As a result of these investments, the Cash Only group experienced the largest increase in cocoa production (+265 kg). This productivity gain, combined with the larger cocoa plots in this group (15% compared to the other groups) and the rising cocoa prices in the 2024-2025 season, translated into the highest increase in cocoa profit (+US\$948) and total household income (+US\$1,730). Ultimately, the LI gap was reduced on average by US\$1,882, more than any other treatment arm. The average income level in this group was surpassing the LI benchmark by US\$303.

However, in the absence of service-based support, these households remained reliant on periodic cash transfers and hired labour, with fewer structural cost reductions on farms compared to the other groups. At the same time, the lower access to VSLAs in this group did not stimulate saving or access to loans, two key parameters for income diversification. Therefore, the share of cocoa sales in the total household income rose significantly in the Cash Only group, increasing the dependency on cocoa. This suggests that while direct cash injections coupled with behavioural training can unlock significant economic and social benefits, they may be less effective at generating longer-term, sustainable changes in farm efficiency, cost management, and diversification of income sources without complementary services.

### **Services only**

In the Services Only villages, the provision of farm-based interventions positively impacted farm-level practices and productivity. Key interventions, including pruning brigades and cocoaching, triggered measurable improvements in cocoa yields (+110 kg/ha) and helped reduce pests and diseases. These gains also seem to have contributed to a reduction in production costs per unit of cocoa—estimated at US\$24 less for material expenses and US\$30 less for total farm costs per hectare, although these cost savings were not statistically significant. Cocoa profits increased by nearly US\$945, driving total household net income up by US\$1,395 relative to the control group. Consequently, the average LI gap narrowed by US\$1,533, leaving households in this group on average only US\$46 below the benchmark.

Another important component of the services package was the widespread uptake of Village Savings and Loan Associations (VSLAs). Between 94% and 98% of farmers and spouses joined these groups, collectively saving around US\$95–98 over the previous year and accessing affordable loans capped at 10% interest over three months. Financial management training complemented these efforts by helping households cut unnecessary expenditures and prioritise long-term goals—facilitated by tools such as the household vision journey developed through GALS training.

However, the absence of direct cash transfers left households with liquidity constraints and limited their ability to scale income-generating activities, particularly those often led by women. Additionally, some of the most vulnerable participants, such as widows, reported difficulties in repaying VSLA loans, which tempered the overall impact on women's empowerment. As a result, while the Services Only group saw significant gains in productivity and financial management, the effects on women's empowerment indicators

were less pronounced than those observed in the Cash Only group, and the effects on income diversification were modest compared to the Cash & Services group.

### **Cash & services**

The Cash & Services package generally demonstrated the broadest reach of positive effects, combining improvements in cocoa productivity with enhanced household financial resilience. Farm interventions lead to the highest increase in cocoa yields (+120 kg/ha) and generated the strongest reduction in farming costs, with material costs falling by US\$39/ha and total farm costs by US\$43/ha. However, absolute production gains (+109 kg) and profits (+US\$591) were somewhat lower than in other groups, partly because a higher share of households (19%) expanded their cocoa land, which was not yet productive. Indeed, yield is computed on productive area only and tends to be higher on smaller plots. Following increased cocoa profits, average net household income in this group increased by US\$1,360, and the LI gap narrowed by US\$1,388, leaving households on average US\$191 below the benchmark.

What sets this package apart, however, is its strong impact on income diversification. Nearly all participants (99%) engaged with VSLAs, and the combination of cash transfers and access to affordable VSLA loans empowered households to invest in alternative income-generating activities beyond cocoa farming. As a result, households in Cash & Services villages were 41 percentage points more likely to operate small businesses, with many women pooling resources to invest in ventures such as fresh fish trading—enabled by the purchase of freezers through VSLA loans and cash support. These entrepreneurial activities were further supported by GALS and financial management trainings, which promoted joint planning between spouses and helped increase profitability by improving income and expense tracking. This package, therefore, uniquely enhanced not only cocoa productivity but also household economic diversification and financial decision-making.

In summary, the EnRoute programme produced clear progress across all intervention packages. Whereas each package impacted cocoa production, profits, and income, the packages impacted other outcomes through different impact mechanisms. Trainings played a decisive role: EBDM fostered immediate behavioural change and women’s empowerment, while GALS and financial management training built long-term capacity and joint visioning, even if their short-term measurable effects were less pronounced. Importantly, the combined package reinforced the effects of separate interventions with cash transfers reducing the short-term liquidity constraints at critical moments (before the school year or during lean agricultural periods) while services were enabling the adoption of sustainable farming practices, gender-equitable decision-making, and (investment in) children’s education.

While the immediate effects on income were the lowest in the Cash & Services group, this intervention group exhibited the widest range of impacted outcomes across the board, considering both the number of outcomes impacted, as well as the magnitude of the impact (see Table 13). This result suggests strong potential of integrated support models for overall improvements in cocoa farming households’ living situations, including the potential for income diversification and, therefore, long-term resilience. Yet, the isolated packages (Cash Only and Services Only) have also demonstrated their effectiveness in addressing different types of household constraints (productivity, financial inclusion,

gender equity). The ultimate choice between these three packages is thus dependent on the outcome to be prioritised and the time frame of the intervention.

Table 13. Summary of each package's impact on project outcomes

Programme outcomes	Cash only	Services only	Cash and services
<b>Cocoa production</b>			
Likelihood to engage sharecropper on farm	+	+	+
Likelihood to hire temporary workers on farm		+	
<b>Farm investment</b>			
Cocoa production costs: material costs			-
Cocoa production costs: labour costs			
Cocoa production costs: total costs			-
<b>Cocoa production</b>			
Cocoa production	+	+	
Cocoa yield	+	+	+
Cocoa profit	+	+	+
<b>Non-cocoa income</b>			
Cocoa sales as proportion of income	+		
Number of income sources (including cocoa)			
Likelihood to engage in business/trade activities			+
<b>Household income and LI gap</b>			
Total net household income	+	+	+
LI gap (unadjusted)	-	-	
LI gap (adjusted)	-	-	-
Percentage of households above LI benchmark			
<b>Access to finance</b>			
Savings through VSLA (male)		+	+
Savings through VSLA (female)		+	+
Loans through VSLA (male)			
Loans through VSLA (female)			+
<b>Women empowerment</b>			
A-WEAI score	+		
Sub-domain: Production	+		
Sub-domain: Income			
Sub-domain: Time			
<b>Synthesis</b>			
Number of domains impacted	10*	10	11
Number of domains where impact was strongest	8*	2	7
*One of the impacts in the Cash Only group was increased dependency on cocoa, which is not considered a positive impact since increased dependency on a single crop is negatively correlated with household's resilience.			

Legend	
Significant impact	
Largest significant impact (compared to other packages)	
No statistically significant effect	
+ Positive effect	
- negative effect	