PRODUCER ORGANISATION ACCESS TO FINANCE:

LESSONS FROM THE COCOA SECTOR IN CÔTE D'IVOIRE

Quantitative Analysis Report

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SUMMARY

AMEA commissions case studies to support learning that contributes to the development of professional farmer organisations. Focusing on the cocoa producer organisations in Côte d'Ivoire, the overall purpose of this case study is to improve the understanding of how to address the producer organisation (PO) capacities that will lead them to become "bankable". (Terms of reference are attached at Annex 1).

The study comprised two main components:

(1) initial quantitative analysis of data shared by AMEA's partners, including a large SCOPEinsight dataset, based on detailed assessments of the professionalism of producer organisations; and
(2) follow-up in-country work of a more qualitative nature.

This report presents key findings from the quantitative analysis and explores some of the challenges, and potential solutions, in conducting work of this nature. The overall findings of the study (both components) are reported separately in Gordon and Chell, 2022.

The data were analysed to identify how measures of professionalism change between assessments (a period that is usually associated with training or other interventions) and which factors show most correlation with access to finance (loans).

Key points arising from the analysis, that informed the in-country follow-up, include the following:

- the analysis is largely based on the assessment data relating to 202 POs (from 2020 and earlier)
- sub-sets were identified to control for factors that influence assessment scores:
    - different versions of the assessment tool, and
    - whether pairs of assessments are 1st and 2nd assessments or 2nd and 3rd assessments
- that sub-division of data is very important – initial findings based on the aggregate data were overturned (i.e., found to be misleading) once key factors were controlled
- in this study, there seems to be a stronger more consistent uplift when an organisation is first re-assessed compared with subsequent results, but this finding merits wider testing
- for those POs reporting access to loans, 70% of the variation in the loan amount could be explained by the amount of cocoa land (around Euros 50 for each additional hectare of cocoa)
- the factors that seem to be most closely associated with whether a PO obtained a loan include: several measures of staff numbers, the SCOPEinsight assessment total score and even more closely the scores for internal management and financial management, several of the related sub-dimension scores and the presence of particular PO financial and management documents
- Notwithstanding the smaller dataset analysed, it was also possible to confirm some of the Bankability Metrics (work by SCOPEinsight and the Center for Financial Inclusion, conducted for AGRA with funding from USAID).

A concluding section highlights some of the challenges in conducting such analysis, including the time and cost implications of sharing and using data that was most probably collected for a different purpose. A number of recommendations focus on potential approaches to aspects that may limit the analysis. Nevertheless, the judicious use of mixed methods (quantitative and qualitative) seems unavoidable as a pragmatic solution to some of those challenges, notwithstanding the suggestions that are made on how the quantitative component of such studies may be strengthened.

List of acronyms

AGRA	Alliance for a Green Revolution in Africa
ALP	Agribusiness Leadership Program (of IFC)
AMEA	Agribusiness Market Ecosystem Alliance
ANADER	l'Agence Nationale d'Appui au Développement Rural (responsible for agricultural extension in CdI)
BDS	Business Development Services
CCC	le Conseil du Café Cacao
CdI	Côte d'Ivoire
CFI	Center for Financial Inclusion
CGIAR	Consultative Group for International Agricultural Research
cif	cost insurance freight
CNFA	Cultivating New Frontiers in Agriculture
CSAF	Council on Smallholder Agricultural Finance
EFI	European Forest Institute
FAOSTAT	Food and Agriculture Organisation (of the United Nations) Statistics
fcfa	West African franc (franc cfa); pegged to the Euro (1 fcfa = Euro 0.0015)
FCIP	the Farm and Cooperative Investment Program
FSP	Financial Service Provider
GAP	Good Agricultural Practices
GDP	Gross Domestic Product
GISCO	German Initiative on Sustainable Cocoa
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
IDH	The Sustainable Trade Initiative
IFAD	International Fund for Agricultural Development
IFC	International Finance Corporation (World Bank Group)
IFPRI	International Food Policy Research Institute
ISO	International Standards Organisation
IWA	International Workshop Agreement
OHADA	l'Organisation pour l'Harmonisation en Afrique du Droit des Affaires
MFI	micro-finance institute
MOCA	Maximising Opportunities in Cocoa Activity
NGO	non-government organization
PIM	Policies, Institutions, Markets
PO (/FO)	Producer Organisation (sometimes also FO, Farmer Organisation)
SCOOPS	Société coopérative simplifiée
SCOOP-CA	Société coopérative avec conseil d'administration
SIB	Société Ivoirienne de Banque
SME	Small and medium enterprise
SOCODEVI	Société de Coopération pour Le Développment International
ToRs	Terms of reference
UNACOPPEC-CI	Union Nationale des Coopératives d'Epargne et de Crédit de Côte d'Ivoire
UNDP	United Nations Development Programme
VAT	value added tax
XOF	West African franc (also referred to as fcfa); pegged to the Euro (1 fcfa = Euro 0.0015)

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INTRODUCTION

Background to the case study

The Agribusiness Market Ecosystems Alliance (AMEA) is a network whose members and partners are committed to accelerating the development of professional farmer organisations. AMEA facilitated the consultation process that resulted in the development of ISO guidelines for the characteristics of professional farmer organisations (IWA 29: 2019[1]).

AMEA commissions case studies to support learning and improvement related to the AMEA approach and the tools it promotes. The overall purpose of this case study is to improve the understanding of how to address the producer organisation (PO)[2] capacities that will lead them to become "bankable".

In 2020, AMEA commissioned a study (Gordon, 2021) that drew lessons from three International Finance Corporation (IFC)-supported but private sector driven projects:

- the Cargill Coop Academy, for cocoa POs, in Côte d'Ivoire
- the Olam Cotton/Cocoa capacity building programme, in Côte d'Ivoire, and
- the Telcar Coop Academy for cocoa POs, in Cameroon.

With additional data and reporting from other projects working with cocoa cooperatives in Côte d'Ivoire, AMEA proposed to dive deeper into this body of experience. Exploring PO access to finance, the study was intended to focus on the design and effectiveness of BDS for cocoa sector POs, and the potential for sustainable scaling of successful approaches, via public or private avenues.

Terms of reference

The terms of reference (ToRs) outline 17 specific areas of enquiry, grouped under three main headings:

- Design and delivery of BDS
- Effectiveness and attribution, and
- Scaling strategies.

In addition, where possible, a gender lens was to be used and distributional impacts explored. This is extremely important in the context of widespread poverty among cocoa farmers in West Africa and actions in support of a living income for cocoa farmers (see e.g., Tyszler *et al*., 2019).

The ToRs (including some revisions subsequently agreed) are attached at Annex 1.

Two main phases of work: quantitative analysis and more qualitative in-country follow-up

The work was divided into two main phases: an initial phase of analysis of the quantitative data, followed by more qualitative in-country follow-up - with inevitable feedback loops between the two.

This report presents the findings of the quantitative analysis. Another report (Gordon and Chell, 2022) presents the overall case study findings and recommendations.

[1] https://www.iso.org/standard/75808.html

[2] The Terms of Reference refer interchangeably to farmer organisations (FOs) and producer organisations (POs). These are assumed to be the same thing and are referred to as POs in this report.

As the work unfolded, regular discussions were held with AMEA and other key stakeholders, to provide updates, and seek clarifications and agreement on emphasis, where appropriate.

Overview of the approach to the quantitative analysis

The ToRs list a number of data sources, including case study reports and evaluations. Two datasets, suitable for quantitative analysis, were shared with the consultants in late 2021. The largest and richest of these, by a significant measure, was a dataset derived from SCOPEinsight assessments of the "professionalism" of producer organisations[3], which provided the main bedrock of data for analysis.

In essence, the availability of the SCOPEinsight dataset yielded an opportunity to explore factors associated with changes in producer organisations over time (from one assessment to another, with the organisation usually having undergone training in the intervening period) and factors associated with access to finance (loans). Analysis of differences in relation to gender was also undertaken, where appropriate and where data were available to do so. Detail on the methodology is attached at Annex 2.

The analysis is organised around the following topics:

- SCOPE scores and factors associated with changes in scores (Annexes 3a-3b)
- the characteristics of the organisations in the main sub-groups analysed (Annex 3c)
- Data on PO loans and factors associated with obtaining those loans (Annex 4)
- the Bankability Metrics published by AGRA[4] and the extent to which those metrics are confirmed by the case study data (Annex 5), and
- the POs covered by data provided by SOCODEVI[5] and how they compare with those covered by SCOPEinsight data (Annex 6).

Descriptive statistics about single variables, measures of the relationship between variables (correlations, regressions, etc) and measures of differences including their statistical significance are supported by appropriate graphics and explanatory text.

A summary of key findings is presented in the following section, whilst the full results are annexed.

Structure of the report

Beyond this introduction, two main sections address:

- a summary of the main findings from the quantitative analysis
- a discussion of challenges arising from such analysis and how these might be addressed.

[3] For more information on SCOPEinsight, see https://scopeinsight.com/. Another AMEA case study (Gordon, 2021) explores the SCOPEinsight assessment process and its relationship to IFC's Agribusiness Leadership Programme.

[4] https://agra.org/wp-content/uploads/2021/02/Mobilizing-agricultural-finance-2021-02.pdf

[5] Data relates to a project implemented by CNFA in partnership with SOCODEVI: https://www.cnfa.org/program/maximizing-opportunities-in-cocoa-activity/

QUANTITATIVE ANALYSIS – KEY FINDINGS

Assessment scores: determinants of change

The SCOPEinsight dataset on which the analysis was conducted was based on 206 assessments from 2020, 157 of which could be paired with an earlier assessment. Of those that could be paired, 94 of the 2020 were second assessments and 59 were 3rd assessments (with a few that were 4th and even 5th assessments). Preliminary analysis of these data suggested that:

- the version of the assessment tool appears to have an important effect on the overall score and the change in scores
- where an organisation has only been assessed twice (1st and 2nd assessments) the change in score seems to be positive and larger, than that observed for subsequent assessment pairs (where a less consistent (sometimes negative) response was evident).

So for the analysis, the data were sub-divided as follows:

Group 1	47 cases	All relating to one specific project and using SCOPE Basic version 1.3.0 for the last two assessments (all but one of these pairs were 1st and 2nd assessments)
Group 2	64 cases	All relating to another specific project and using SCOPE Basic version 2.0.1 for the last two assessments (where a majority of the pairs were 2nd and 3rd assessments)

A further 46 pairs were excluded from the analysis because two versions of the tool were used in one pair, or because that sub-group of paired assessments was very small.

These results have implications for how assessment scores or changes in scores are interpreted:

- where a comparison of assessment results is sought, it is important to check that the same version of the tool has been used[6];

- when considering changes in assessment scores, where the assessment falls in the sequence may also be important. i.e., is this a 2nd assessment or a subsequent assessment? In this dataset, the 2nd of two assessments seemed to show the most consistent positive change in score, as compared with subsequent pairs – a finding that merits wider testing. It could suggest a more consistent "uplift" in PO performance when it first receives assistance (i.e., the capacity development usually associated with the interval between the first two assessments).

- any analysis of pooled data from multiple assessments and projects should seek to control for these effects (i.e., sub-divide data to ensure that comparisons are based on the use of the same assessment tool and the same place in the assessment sequence); and

- as the characteristics of particular cohorts of assessed POs tend to differ between different projects (with perhaps different criteria for inclusion of POs or coverage of different regions) it may also be important to control for these effects too.

[6] This is consistent with SCOPEinsight's advice to its clients. When it upgraded the earlier series 1 SCOPE Basic assessment tool, the new version was expected to generate slightly lower scores (SCOPEinsight, 2019).

The detailed analysis attached at Annexes 3a and 3b demonstrates how some of the preliminary findings were indeed overturned once relevant effects were controlled.

In addition, it is possible to analyse the differences in the scores relating to assessments conducted by different assessors. The scores are automatically generated based on the data collected and verified by the assessors. These observed differences, in scoring associated with the assessments conducted by different assessors, may have implications for how the scores are interpreted or the validity of comparisons. (This analysis revealed instances of highly consistent scores associated with one group of assessors and apparent differences in the scores relating to the other group. See Annex 3c).

Some of the findings that emerge from the analysis of the Group 1 pairs are as follows:

1. the average increase in score between the 1st and 2nd assessments was 1.017 representing, on average, a shift from 3.424 to 4.464, on a scale of 1-5, where a PO achieving a score of 4 or more is considered "professional".
2. The strongest relation with change in total score is a negative correlation with the length of time it took to complete the assessment (between 2 and 47 days); it is not clear why this might be, though one could speculate that a less professional PO may take longer to provide the assessor with information and supporting paperwork[7].
3. There is a correlation between a number of indicators of PO scale (member numbers, employees, volume of cocoa handled) and overall assessment score when POs are first assessed, but this is less evident in second assessments, suggesting that the smaller organisations "catch-up" during the course of the intervention programme.

For Group 2, a gentler average increase is seen (nonetheless somewhat steeper where the change is between a first and second assessment).

Table 1 compares average changes in total scores observed for Group 1 and Group 2. It shows how the more modest improvements observed with Group 2, coupled with higher variability, make it hard to establish substantial change in scores at a 95% confidence interval.

Table 1: Group 1 & Group 2 - comparison of average change in scores (95% confidence interval)

	Group 1 – 1st to 2nd assessments	Group 2 – 1st to 2nd assessments	Group 2 – 2nd to 3rd assessments
Number of assessment pairs	46	18	45
Average change	1.0402	0.3989	0.2170
Standard deviation	0.2981	0.6035	0.8408
Standard error of mean	0.0444	0.1464	0.1267
Minimum average change (95% confidence interval)	0.9670	0.1580	0.0085
NB: these categories control for the version of the assessment tool & the order of the assessment (one higher order assessment pair has been excluded from each group, for this analysis).			

Moreover, for Group 2, there was:

1. No correlation with the duration of the assessment.

[7] SCOPEinsight has indicated that changes were introduced to the assessment process to limit the to-and-fro on queries, but it is not clear how or whether this affected the findings of the analysis reported here.

2. Positive correlation with the time lapsed since the previous assessment (i.e., if more time had passed, the difference in score when reassessed was likely to be more)
3. The findings on infrastructure (water, internet, electricity, mobile coverage) were somewhat mixed, with some measures seemingly correlated with higher scores, but others less so, making it hard to draw conclusions.
4. The change in overall score was greater for POs that had obtained credit (loans and pre-finance) than those that had not – an apparently intuitive finding (consistent with POs developing over the course of a project, and then able to obtain credit).
5. For Group 2, changes in overall score are correlated with certification.
6. However, there was no correlation between scale of PO and change in total score.

For both groups, POs that handle coffee as well as cocoa, tended to score higher, but as this finding relates to nine assessment pairs only, it is not robust.

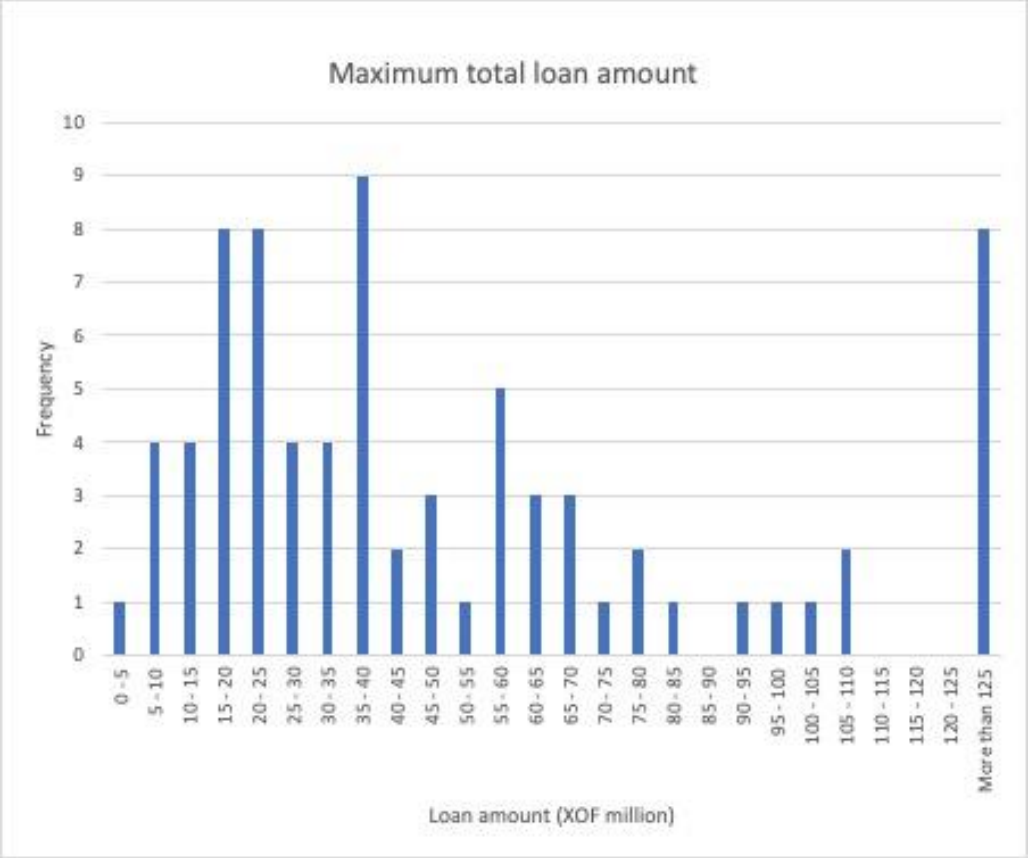
Access to finance: important factors

Information from the "loan history" part of the SCOPE dataset (whether a PO had obtained a loan and the value of the most recent loan) was used in this analysis. In consultation with SCOPEinsight, this was selected as the principal "measure of success". The analysis focused on those elements of the assessment data showing a high degree of correlation with receiving a loan. (See detail at Annex 4).

Overall, 40% of organisations had received a loan. Of 189 POs with an assessment that started in 2020, 76 had received a total of 105 loans. (For Group 1 this was 62% and for Group 2 was 19% - see details above concerning these two groups). The largest single loan recorded was Euros 1.2 million, whilst another PO had three concurrent loans totalling Euro 1.26 million. However, the average loan was 73.9m XOF (approximately 112,700 Euros) and the median was 35.5m XOF (approximately 54,100 Euros).

The variables which have a strong statistical relationship with whether an organisation obtained a loan include:

- Several measures of staff numbers. Amongst these, the relationship was strongest for the number of part-time staff per square kilometre of cocoa land, then the number of part-time staff, the number of full-time staff and the proportion of all staff who are female.
- Several measures of seasonal staff were highly related with obtaining a loan, but in each case negatively (a higher score is related to a lower chance of having had a loan).
- It is clear that whether organisations obtained a loan is related to the total SCOPE score and more closely to the scores for Internal Management and Financial Management. The change in those scores since the previous assessment, particularly for Internal Management, is also strongly related to a PO having obtained a loan.
- Many of the Sub-Dimension scores, especially many Sub-Dimension scores for Internal Management and some for Financial Management, are also significant.
- Those documents whose availability most significantly related to whether organisations obtained a loan were the Business Plan, the Cash Flow Forecast, Administrative Policy, Human Resources policy and Financial policy.



For those organisations that obtained a loan, the maximum amount of loan is related to many variables but is most strongly related to the amount of land used for cocoa production. A regression for the maximum loan amount with just this variable accounts for more than 70% of variation in the amount. (The addition of five further variables with the greatest partial correlations takes the proportion of variation explained to 83.5%). The coefficients in the regression suggest that the size of loan obtained was, on average, larger by about 32,500 XOF per hectare of cocoa land in use.

A comparative analysis with the Bankability Metrics

The team was asked to test its results against the Bankability Metrics published by AGRA[8]. The AGRA report, Mobilizing Agricultural Finance: Towards a Common Language between Lenders and Agri-SMEs in Sub-Saharan Africa (Eda Dokle and Johanna Farrell, February 2021) aimed:

> "…to create a standardized set of bankability metrics that can serve as a common language between lenders and agri-SMEs. Lenders can use the metrics to gain a clear overview of the state of an agri-SME's business that is robust enough for the lender to make an informed decision of whether to continue with due diligence, reducing the amount of time it takes to conduct a pre-screening and initial assessment. In addition, agri-SMEs and the service providers that support them can use the metrics to understand the expectations

[8] https://agra.org/wp-content/uploads/2021/02/Mobilizing-agricultural-finance-2021-02.pdf

of lenders, so they can better prepare for the financing assessments." (Ibid, p3).

SCOPEinsight and the Center for Financial Inclusion, in partnership with AGRA, conducted research with 90 lenders and industry experts, analysed datasets from the Council on Smallholder Agricultural Finance (CSAF) members and SCOPEinsight, and conducted desk research to develop a set of bankability metrics for agri-SMEs. Data from seven CSAF members covered 142 clients and 246 loans, totalling $83m (approx. 74m Euros) in disbursements in 2019. The average and median loan approved amounts reported were $723k and $400k (approx. 646,000 and 357,000 Euros), respectively. The resultant "metrics" include 7 categories of information, with a total of 48 sub-categories.

The Côte d'Ivoire analysis reported here, although also based on data provided by SCOPEinsight, has a narrower focus: 206 assessments (that started in 202O) of POs handling cocoa, in Côte d'Ivoire. Of these, 76 organisations received 105 loans totalling 7,760 billion XOF (approx. 11.8m Euros), with average and median loan amounts of respectively 73.9m XOF (approx. 112,700 Euros) and 35.5m XOF (approx.54,100 Euros), i.e., loan amounts that are much smaller than those analysed in the AGRA report.

The objective here is to see whether the Bankability metrics are confirmed as applicable using the data available for the Côte d'Ivoire study. Where there is overlap between the two sets of results, this may signal that these findings are likely to be more transferable or robust.

21 of the 48 Bankability metrics (sub-categories of information requirements) are not available in the Côte d'Ivoire SCOPEinsight data set and a further 9 are only partially available. A small number (mostly relating to general PO and contact information) could not be used in the analysis as the same information was available for all the POs (i.e., there was no differentiation among them). (See detail in Annex 5). However, those that are present in the Côte d'Ivoire dataset and for which there was a statistically significant relationship with a PO obtaining a loan were:

- cash flow forecast available
- ownership documents / titles
- number of employees. Amongst a range of measures of the number of different types of employees, those with the most significant relation to obtaining loans were the number of part-time employees per square kilometre of land used for production and the proportion of all employees who were women
- Score 1.1.1 "Management" and score 2.1.3 "Responsibility for daily financials" (these both relate to a single metric in the AGRA report "dedicated manager for each business function")
- Score 1.1.3 "Quality of management staff"
- Score 1.1.10 "Division of responsibility".

Note that scores 1.1.1 and 2.1.3 relate to a single metric in the Bankability metrics: "dedicated manager for each business function". This means that 6 of the 48 Bankability metrics (sub-categories) could be confirmed, in the Côte d'Ivoire analysis, as having a statistically significant relationship with whether a PO obtained a loan. (For the other metrics, this does not mean that they are disproven – rather, it means that it may only be possible to show statistical significance, through recourse to a larger dataset).

A comparison of the POs covered by SOCODEVI and SCOPEinsight data

SOCODEVI provided anonymised data on 22 organisations, about numbers of people (Board members, members, and staff) and financial performance (turnover, operating costs, net profit, assets and liabilities, etc). The data related to the years 2018 through to 2021. This allows a comparison with the data collected by SCOPEinsight and in particular with the 206 assessments which started in 2020 and which form a large part of the analysis in this report.

Table 2 provides an overview comparison of the two sets of producer organisations. Although the SOCODEVI POs tend to have a higher median number of members, the SCOPEinsight POs have more staff (higher median). Interestingly, although the SOCODEVI POs have a higher median percentage of female members, the median percentage of female employees is less than with the SCOPEinsight POs. (The financial data are difficult to interpret because of missing data and possible differences in the definitions used).

Table 2: broad comparison of POs covered by SOCODEVI and SCOPEinsight data

	SOCODEVI (22 PO assessments)			SCOPEinsight (206 PO assessments)		
	Min	Max	Median	Min	Max	Median
Members						
Numbers	216	2303	908	119	5683	620
% women	1%	100%	9.4%	0.2%	37.2%	5.2%
Employees						
Numbers	4	57	12.5	0	119	16
% women	0%	50%	10%	0%	84%	24%
Financial info* (in XOF)						
Turnover (t/o)	0.7 mn	2.25 bn	590 mn	13.8 mn	2.06 bn	146 mn
Net Profit (NP)	-61 mn	18.6 mn		-1.6 bn	169 mn	
NP ratio to t/o	-232%	16%		0.2%	65.5%	

*For both sets of POs there was a lot of missing financial data, so for this information category, for SOCODEVI n=11 and SCOPEinsight n=72; moreover, it is not clear that the definitions used are exactly the same, thus potentially limiting comparability.

CHALLENGES AND RECOMMENDATIONS ON HOW THEY COULD BE ADDRESSED

Overview

In commissioning this case study, AMEA planned to avail of the detailed information available on large numbers of cocoa producer organisations in Côte d'Ivoire. It hoped particularly that this would permit a robust quantitative analysis of the impact of different approaches to PO capacity development on their access to finance.

The quantitative analysis has yielded useful insights on factors that affect PO access to finance, revealed patterns of reported change in PO professionalism between assessments and highlighted questions to further explore in follow-up in-country work. It led to some shifts in emphasis, agreed with AMEA and reflected in revised Terms of Reference (see Annex 1). The overall findings from the case study (i.e., both quantitative and more qualitative in-country work) are reported separately in Gordon and Chell, 2022.

The analysis has not permitted the anticipated quantitative investigation of the impacts of different capacity development programmes but has generated useful insights into the reasons for this. In this section, those key challenges are identified and potential solutions explored.

Key lessons

The challenges presented in studies such as this are discussed with reference to two main aspects of the available data:

- accessing and using those data, and
- the type of analysis that is possible.

Accessing and using the data

- *data access*

Where partners have common interests and are willing to share data, they may nonetheless find they are bound by agreements with their clients, or by data protection laws or a wish to protect certain aspects of their data system. That can result in:

- sharing of parts of a database (which in turn adds time and costs to the process of sharing data)
- permitting access to a dashboard or reporting but not the raw data (hence limiting the further analysis possible)
- the need to seek agreement from multiple partners, even for a single project
- the development of formal or informal agreements on the use of data, and
- subsequent review processes that may become protracted if some partners prefer to see outputs before they are more widely shared.

Some players may tend to operate with a routine assumption of confidentiality, which can be very difficult to penetrate. In some situations, there may be particular sensitivity about data, even if not felt equally by all partners. (Some stakeholders have suggested this is the case with cocoa in Côte d'Ivoire and Ghana). In some cases, approvals at a senior level will be needed and larger organisations may wish to check possible legal implications.

- *the form in which the data are held*

Data that have been collected and stored for one purpose, may be amenable to different types of analysis but will almost certainly require re-organisation and a degree of transformation. In this case

study, most of the data that was shared was derived from what seemed to be a relatively "state-of-the-art" database which, although appropriate for its user, presented certain challenges for the case study analysis. The specifics will differ with each situation (Annex 2 details the tasks that were involved with this case study), but the broader point is that this part of the process should not be under-estimated.

- *inevitable to- and fro- on data queries*

Queries are bound to arise on aspects of the data, possibly at a later stage in the analysis. Responding to those queries will require additional input from the organisation sharing the data and, if specialist in nature, may fall disproportionately on a single person.

These considerations are largely practical and need not present insurmountable challenges (though access could). However, navigating them will almost certainly contribute time and costs - both for those seeking to acquire the data and for those sharing it.

The type of analysis that is possible

Here, three broad challenges to quantitative analysis and its usefulness are outlined.

- *data comparability, different projects, different tools*

Although multiple partners may agree to share data relating to projects with a broadly similar focus, the data collected may not be sufficiently comparable for a robust quantitative analysis of those projects. (A more qualitative comparison may nonetheless be possible). In this example, two very different datasets that were suitable for quantitative analysis were shared, with relatively little overlap between them.

Moreover, it transpired that the larger dataset was based on data collected using different versions of the assessment tool. That, in and of itself, need not necessarily be a constraint but preliminary analysis indicated the different versions did indeed generate somewhat different results, suggesting the need to control for this (i.e., analyse sub-sets of data where the data collection tool used was identical). This in turn affects sample size and may limit the demonstration of statistically significant results (see below).

A key focus for the analysis was evidence of differences between projects (and approaches to capacity development) but in that larger dataset, only two projects were represented with each (largely) associated with different versions of the data collection tool. (These were Groups 1 and 2 in the Key Findings section). Thus, it was hard to robustly distinguish between the effect of differences in the tool and in the projects.

Moreover, as those important sub-divisions in the data were only highlighted by the preliminary analysis, it was not possible to have anticipated this issue, except in broad cautionary terms.

- *Sample size, variability and statistical significance*

Sample size and variability combine to influence the ability to demonstrate the statistical significance of particular findings. For example, in Table 1 (in the Key Findings section), the data has been divided into three sub-sets. (Annex 3 illustrates the importance of that sub-division of data, as initial findings, based on the aggregate data, were over-turned once key factors were controlled). Yet, the smaller number of POs in each sub-set, combined with the variability of results, can make it hard to demonstrate statistical significance. For Group 2, the scores improve between the 2nd and

3rd assessments - a finding that is statistically significant. Yet we are 95% confident only that the increase is greater than 0.0085.

With a larger sample it might be possible to demonstrate statistical significance but if individual projects are the focus of analysis, the numbers of POs in the sub-sets are not atypical. Where there is less variability in the findings, a more substantial uplift may be apparent and statistically significant (in this example, this was the case with Group 1). Yet, it is precisely those situations where there is more complexity and variability that warrant closer analysis because the overall results are less clear.

- *Extrapolating to a wider population*

During the course of this case study, it became apparent that there was little data available which could be used to contextualise the POs covered by the projects studied *vis à vis* the wider population of cocoa POs in Côte d'Ivoire. Yet it was clear that they only accounted for a small proportion of the cocoa POs (which number roughly 3500 in Côte d'Ivoire) and reasonable to assume that they were not necessarily typical (at the very least, to the off-takers and NGOs who worked with them, they presumably exhibited some potential for stability or growth). Limited information available from other sources suggests that this is not true of many cocoa POs, for whom cocoa volumes handled may be low and leadership inconsistent.

The main implication of this is that it is difficult to extrapolate from these results to a wider population, hence potentially limiting the scope of the recommendations.

Recommendations

These findings underline the need for strategies to strengthen such case studies. Some of these points are well-established (and used in this case study) but included for completeness.

a. At a general level, it is important to recognise the time and costs in accessing and using data (see points above). Costs may also accrue to the organisation providing data (identifying and transferring relevant data, responding to queries etc.).

b. Use combined quantitative and qualitative research methods, including triangulation and corroboration of results from other sources; anticipate the degree of judgement that may be needed in accurately identifying key results.

c. Consider undertaking preliminary (but nonetheless substantial) work to define the bounds of what types of quantitative analysis may be feasible and useful; timely preliminary work can inform the design of subsequent work, including identifying helpful interim activities that might take time but contribute to the usefulness of results; the trade-offs implicit in different approaches can also be identified (e.g., a quantitative survey that may need more time and resources, versus a mixed method approach).

d. Recognise the importance of digging deeper into data – and the possibility that basic analysis of aggregate data may generate misleading findings.

e. In seeking to identify findings with wider relevance, it is also important to consider how these POs, for which some data are available, may differ from those on which there are no data or very little data, that may not have been involved in projects or other assistance. This study involved neither constructing a sampling framework nor conducting a sample survey - but ideally these would each be required to assess the relevance of the findings to a wider group and also to obtain a better understanding of the whole sector (see box).

A sample survey – a further step in identifying how applicable the results might be

It would be a reasonable to assume that the organisations for which assessment data were shared are not (and were not before they before they received support) typical. They are likely to be among the "stronger" organisations - the larger ones or those that better managed, or those that have higher productivity, perhaps those that are better linked. These are general statements but there is very little specific information about where these organisations would be positioned relative to the wider group of cocoa cooperatives.

A "sampling frame", a list of all the farmers organisations that exist in the country would make it possible to conduct a sample survey. If that list contained other information, such as some measure of size and region, the sample could be stratified. An initial pass could establish whether an organisation registered met basic criteria such as: whether it is actually operating, has employees, has a certain number of members, deals in relevant crops, etc. A follow-up survey could collect the most important information using a limited number of questions as similar as possible to existing data collection methods (e.g., those in SCOPEinsight's SCOPE Basic assessment tool) but much shorter to reduce costs and help to reduce non-response. The identification of a sampling frame and the design of a sample survey could both be approached pragmatically, building as far as possible on existing sources of data or data collection processes.

A survey of this kind would establish the degree to which existing data collected represented the picture for the whole sector, and might highlight the types of organisation both where information was most lacking and where interventions might provide the highest returns.

In conclusion

The case study generated interesting and useful findings, derived from both the quantitative analysis and subsequent in-country work of a more qualitative nature. This report, including the annexes, has presented the detail of that quantitative analysis – and highlighted important lessons for the conduct of other similar studies.

REFERENCES

Dokle, E and J Farrell, 2021 (for CFI and SCOPEinsight, respectively). Mobilising agricultural finance – towards a common language between lenders and agri-SMEs in sub-Saharan Africa. AGRA: Nairobi.

Gordon, A., 2021. Professionalizing farmer organizations through private sector-led models - Capacity development initiatives in Cameroon and Côte d'Ivoire. (A case study of Agriculture Human Capital Investment). Rome: FAO.

Gordon and Chell, 2022, Producer Organisation Access to finance: lessons from the cocoa sector in Côte d'Ivoire. For Agribusiness Market Ecosystems Alliance.

ISO. 2019. IWA 29:2019. In: *ISO* [online].

SCOPEinsight, 2019. The upgrade of the SCOPE Basic: Towards improved user-friendliness and data quality. (Advice for clients, on the upgrade of the SCOPE Basic assessment tool).

Tyszler, M., Bymolt, R and A. Laven, 2019, Analysis of the income gap of cocoa producing households in Côte d'Ivoire. Comparison of actual incomes with the living income benchmark. Prepared for the living income community of practice. Royal Tropical Institute.

ANNEX 1: Terms of reference
(including subsequent revisions made in March 2022)

Case Study on Private Sector Driven Farmer Organizations Development Strategies within the Cocoa Sector in Côte d'Ivoire (September 2021)

Background

In 2020, AMEA published one case study[9] drawing learning from three IFC projects in West Africa:

- Cargill Coop Academy, Côte d'Ivoire;
- Telcar, Coop Academy, Cameroon;
- Olam Cocoa/Cotton capacity building program, Côte d'Ivoire

In addition, in early 2021 AMEA designed a guidance document for the activities of the Access to Finance Working Group (A2F WG), which includes a learning agenda outlining four key questions that the WG would like to answer this year:

1. Has Technical Assistance (TA) / Business Development Services (BDS) support to farmers and producer organizations (POs) enabled access to finance?
2. What are the most promising initiatives in each (AMEA Local Network) country to enable farmers and POs to have a financial track record and access to finance?
3. Would a PO database that provides details on PO capacities be valuable to Government, FSPs, and potential value chain partners?
4. What could be an efficient and effective approach for delivering segmented, targeted capacity building which enables access to finance?

In view of this background, AMEA aims to draw new and deeper lessons, building from the Case Study Report in 2020 and contributing to the A2F learning agenda.

Overview and Purpose of the Case Study

AMEA sees an opportunity to dive deeper into three projects in Côte d'Ivoire and draw learning from the design of BDS and the effectiveness of BDS to enable POs to develop capacities that enable them to deliver better returns to members. The case study will also examine the potential for BDS to be sustainably scaled up through recurring public sector programs and private sector business models. This will lead the consultant(s) to consider cost and effectiveness of BDS approaches, including methods of segmenting the PO market and delivering tailored BDS based on a deep understanding of the PO's needs.

This case study is therefore expected to be of value to a wide range of stakeholders in West Africa who aim to deliver BDS that transforms the prospects of millions of farmers and their organisations. We therefore encourage the consultant(s) to present their findings in a form that can be used by these stakeholders to design their next phase of interventions.

[9] This case study was a result of the partnership between AMEA, FAO, IFPRI and the CGIAR Research Program on Policies, Institutions and Markets (PIM), who collaborated to review "Strategies to invest in human capital in agriculture"

Case Study Approach and Backstopping

The case study will have available to it a range of quantitative data such as the following:

- AMEA West Africa case study which draws from IFC's recent evaluation of its work with Cargill
- IDH FCIP final report including survey data and impact evaluation report
- CNFA MOCA program final report which we would expect to be produced this year
- Data available from 343 SCOPEinsight assessments undertaken in the Ivory Coast in 2020
- Data available from Conseil Café et Cacao (CCC) 100+ assessments using a different tool.
- Data available from SOCODEVI assessments
- Data available from IDH Intelligence Centre

We therefore invite the consultants to propose an approach that will use these data sources to draw out lessons and good practices which can be supported by this data. We therefore expect that the approach will include quantitative analysis which is then followed by qualitative processes to interpret the data. These qualitative processes must involve interviews with the POs and reflections from a range of the key stakeholders in the programs.

The final approach should be agreed with AMEA and IDH prior to the start of activities and backstopping support will be provided from these organizations. AMEA has also ensured this case study has commitment from IFC and CNFA.

Specific Objectives

The consultant should aim to triangulate information/data (incl. with companies) and to reflect on results by using a gender lens when possible. The case study process should aim to answer the following questions:

1. **Design and delivery of BDS and other incentives/interventions**
   - How did the different programs choose which POs to work with?
   - What are the lessons learned in the design, commissioning and implementation of assessment processes with farmers and FOs?
   - How were the different BDS[10] designed? Did the design use the assessment data? If not, why?
   - How were the different BDS delivered to farmers and the POs i.e. duration, format?

2. **Effectiveness and attribution**
   - How was the effectiveness of BDS measured?
   - What were the most significant improvements in farmers and POs capacity and did these significantly lead to improved business performance?
   - What is the tipping point for POs to have a step change in their growth e.g. become bankable and part of a new supply chain that delivers better returns? Assessment data should be used to show the degree of correlation/causation and AGRA's Bankability Metrics should be tested if possible.
   - What combination of BDS and other support (e.g. access to finance, storage, transport) leads to an sustained acceleration in FO development?
   - What impact did the BDS have on farmers and POs taking into account the uncontrollable externalities?

[10] Please provide a typology of the type of BDS delivered such as the one included in https://www.icco-cooperation.org/en/wp-content/uploads/sites/2/2021/04/BDS-Learning-brief.pdf

- Did other factors (e.g. policy interventions; other forms of support) have a stronger impact in terms of contributing to PO development?
- What do we not know? How would we improve the generation of data to enable effectiveness of BDS to be measured more reliably?

3. Scaling strategies

- What is the cost effectiveness of different BDS approaches used to support the FOs that have achieved a step change in their growth?
- Do stakeholders[11] see value in the development of a PO data set? If they do, what are their opinions on how this would be set up and financed in a sustainable way. Consider both public and private sector strategies; and the possibility of a phased approach.
- What are the triggers for private sector clients to integrate BDS to POs into their business model?
- What is the role of public sector organizations in providing BDS to POs and how could they integrate the learning from this case study in their programs? Consider the different segments of the PO market such as early developers where private sector is unwilling to invest.
- Do stakeholders see value in creating a digital platform for sharing data and/or collaborating on BDS? If they do, how would this platform be created and sustained?
- Which (digital) agricultural technologies would be recommended for the AMEA AgTech Guide? Provide details on results and potential of the AgTech, including PO members demand.

[11] Public sector, private sector, financial sector, PO sector, etc.

PO ACCESS TO FINANCE: LESSONS FROM THE COCOA SECTOR IN COTE D'IVOIRE

Revised Terms of Reference (7th March 2022)

Context: Interim findings

The first phase of the study – quantitative analysis of available data - is now largely complete. In relation to the intended focus of this study (PO professionalism and bankability, and BDS that promote bankability), the quantitative analysis has contributed an improved understanding in three areas particularly:

- how PO assessment data can be used and interpreted
- factors associated with PO access to loans, and
- a possible (and plausible) implication that PO benefits from training may start to "plateau" (mixed results from 3rd assessments and beyond).

In general, the quantitative analysis has not helped identify the effect of different programmes of assistance on PO access to finance – although clear differences between those programmes are evident.

Those findings have been reported in the interim summary of findings (updated 25th February) and discussed with the AMEA team on 28th February. It was agreed that the ToRs for the 2nd part of the work (qualitative follow-up including field work) should be modified to more closely build upon those results. These revised (draft) ToRs therefore focus on the intersection between those interim findings and AMEA's interests in relation to PO access to finance.

AMEA interests in relation to PO access to finance

The AMEA ToRs (September 2021) refer to the 2020 case study of IFC projects (Gordon, A., 2021) and the learning agenda of its Access to Finance (A2F) working group, whose key interests focus on:

> A1. Have technical assistance (TA) and Business Development Service (BDS) support to farmers and POs enabled access finance?
> A2. What are the most promising initiatives in supporting farmer and PO access to finance and development of a financial track record?
> A3. Would a database of PO capacities be useful to governments, financial service providers and value chain actors? and
> A4. What is an efficient and effective approach for the delivery of segmented, targeted capacity development for the improvement of farmer and PO access to finance?

AMEA wish to use analysis of the quantitative data, shared by its partners in Côte d'Ivoire, supported by subsequent qualitative investigation, to build on the earlier work and contribute to the A2F learning agenda.

Proposed revised ToRs

Access to finance

1. Validate interim findings relating to access to finance including:
    a. Importance of PO scale (various measures) in A2F and how much can be borrowed
    b. Importance of strong internal and financial management in A2F, and related factors
    c. The potential and actual role of (various) metrics in determining A2F

2. Where relevant, explore other factors stakeholders consider important in relation to A2F.

Findings will contribute to A1 and A2 above.

How POs respond to intervention programmes

3. Validate interim findings on:
    a. smaller weaker POs seeming to "catch up" with the stronger POs, after interventions (training)
    b. possible signs that the benefits of training "plateau" (mixed results from 3rd assessments and beyond)
4. Explore possible causes of different results and patterns of results (e.g., in relation to the quantitative analysis of Groups 1 and 2 assessments).
5. Explore the process by which POs are “recruited” into different programmes and the extent to which assessment data (or other information) are used to tailor interventions and training.

Findings will contribute particularly to A4 above (relevance to segmentation and tailored training) and also A1 and A2. In as much as the available data has not permitted a robust quantitative analysis of which BDS “packages” are most effective in promoting PO bankability, the consultants will also consider what data would be needed, and the practicability of its collection, for such analysis.

Interpreting PO assessment data and how this could relate to a potential PO database

6. Explore experience with and perceptions of assessment data (how much is it used, by whom and for what purpose – and how that experience and those perceptions differ among stakeholders)
7. Explore the value/perceived value of a PO database (who wants it?, what do they want/"expect"? is there anything in use or being piloted at present - e.g., with CCC? what is known about the POs not being "assessed").
8. Consider what data might be useful and practicable to collect, and how it might be managed (how funded, how objective, how shared and used).

Frame subsequent recommendations based on field follow-up and the prior interim findings on the analysis and interpretation of those data.

This would address A3 of the A2F learning agenda.

<u>Information sources</u>

These topics would be explored particularly with FIs and MFIs, off-takers, those providing training and assessment services as well as relevant donors and NGOs, representatives of cocoa associations, and government, including the CCC. As far as possible, input and experience from a range of cocoa associations will be sought, including experience beyond those projects referenced in the AMEA ToRs. Where relevant, follow-up may be with key informants outside Côte d’Ivoire. Review results alongside information contained in other relevant documents and studies.

ANNEX 2: Methodology

Focus of the quantitative analysis

The quantitative analysis focused on the identification of measures of access to finance and finding correlations of these measures with other PO attributes, including exposure to different types of BDS. The analysis was also to examine variation in measures by gender and other groups where appropriate and where data was available to do so.

Available Data

The ToRs list a number of data sources, including case study reports and evaluations. Two datasets, suitable for quantitative analysis, were shared with the consultants in late 2021.

Summary data provided by AMEA indicated that 343 SCOPEinsight assessments were carried out in 2020 on projects implemented by its partners in Côte d'Ivoire (IFC, IDH and TechnoServe), who had agreed to share data for this study. The assessment tools used were SCOPE Basic, Basic SME and Pro (including different versions of those tools). The AMEA report indicated the overall PO score for each assessment.

SOCODEVI also provided data relating to 22 co-operatives, for each of the four years 2018-2021:

- Financial data: turnover, gross margin, operating profit, net profit, cash, accounts receivable, inventory, current assets, total assets, short-term liabilities, total liabilities, assets of members, total assets
- Numbers of people: members, user-members, elected members, members of the Board of Directors, those present at last meeting of the Board of Directors, members present at the last AGM, employees. All of these are broken down by number who are women and number who are young.

The larger dataset is the SCOPEinsight assessment data so this has been the main focus of the quantitative analysis. Other data and reports, as well as field work, have been used to further explore findings from that analysis (see Gordon and Chell, 2022).

A step-wise approach to organising the data, which was shared in successive tranches

SCOPEinsight provided data in a number of tranches over a 6-week period in response to the consultants' requests. The first tranche allowed for checking for duplication in the data, as it was suspected that some farming organisations had been assessed more than once but identified differently on the database. A spreadsheet of 7311 rows was provided which included such details as name of organisation, detailed address, region and GPS co-ordinates, legal and financial details, etc. Analysis of this found no evidence of such duplication. Two further files of 1251 and 4005 rows were provided to identify 2020 (start date) assessments relating to work of AMEA partners who had agreed to share data.

A further tranche of data included financial and production information. This was for assessments started in 2020 and included some data for Mali and Cameroon as well as for Côte d'Ivoire, and while mainly about cocoa, also included data relating to some other products.

The final tranche of data, the largest, was based on assessments for Côte d'Ivoire only, for organisations dealing in cocoa (a small number also dealt in other products), and across the whole period of assessments from 2017 onwards. It included data on the assessment, the organisation, infrastructure, number of staff and members, assessment scores and documentation.

The data related to 206 assessments commenced in 2020, with four organisations having been assessed twice during that period, and a total of 716 assessments across the whole period from 2017.

Data Structure

The SCOPEinsight data appears to be from a sophisticated relational database where the data is held in "Third Normal Form" or better, i.e., it is held in a way that eliminates duplication of data by holding data in a series of files each linked to one another by unique keys. For example, information about an organisation is held in one file and then information about each assessment of that organisation is held in another, as there might be several, but this avoids duplication of information about the organisation such as the address on the records for each assessment. Again, information about annual accounts are held in another file as there might be data for several years held in separate records. This is efficient in terms of storage and also in terms of updating. If an organisation moves to a new address or an error is found in an item of data, it needs updating in only one place. Then reports can be generated that bring data together from all the different files, linking them through the unique keys.

The downside of this arrangement is that when extracting data from the database (the collective term for the collection of linked files), it is necessary to join the files together, and this can create a lot of duplication. For example, if an organisation has had two assessments and there is data for three years of accounts, then a report which brings together information about assessments and accounts will, by default, produce six records. An extreme example in the SCOPEinsight data is that one of the spreadsheets provided had 58,817 rows. These related to just 206 assessments, but each assessment had a different number of rows of data depending on many multiples of different products, different years of production data, different years of produce sold data, different inputs and different years of inputs data. Another spreadsheet relating to the detailed questions for sub-dimensions had 262,319 rows, representing an average of 366 items for each of 716 assessments.

Data transformation and cleaning

To analyse the data using statistical software, the data needs to be transformed into a single file with one row (record, case) for each assessment, and each column containing a single variable (field). For this project, this has been a major task.

An Assessments file of 716 assessments with data items from across the whole range of the assessment report, and for the whole period of assessments starting in 2017 was created. However, the file has full information for finance and production only for those assessments which started in 2020.

In addition, an Organisations file has been created, of all the organisations, with assessment scores across all the assessments which took place of that organisation. This one allows the tracking of change in assessment scores across time. The numbers of assessments are indicated in the table below.

Overview of the dataset on PO assessments		
# of times assessed	# of POs	# of assessments generated
1	179	179
2	162	324
3	56	168
4	10	40
5	1	5
Total	408	716
i.e., the dataset included 179 organisations that have been assessed once, generating 179 assessments, whilst 162 organisations have been assessed twice, generating 324 assessments etc.		

In preparing the data for analysis, there are three other necessary tasks: the data must be cleaned, the variables required for analysis must be created from the existing data, and checks are needed to identify missing data. See detail in the box below.

Preparing data for analysis

Cleaning. In all but the most expensive and robust of systems, the data will include some values which are incorrect or inconsistent. Examples are:

- Text fields such as names may contain typing errors which are impossible to validate
- Numbers may be entered in the wrong units or with the decimal place in the wrong place, or simply mis-typed. Range limits can be put in place, but there is always some scope for error.

In some cases, data can be corrected. Letters can be changed between upper and lower case to be consistent with other entries, or obvious spelling mistakes can be corrected. In other cases, data must be omitted from the analysis.

Secondly, the variables desired for analysis must be created from the data which exists, perhaps in a different form. In this project, where there was data for multiple years, generally data for the most recent year has been selected.

Thirdly there are missing data. This may be for different reasons.

- It may be because the data value is not required. For example, if there is no amount entered for expenditure on inputs, then there is no need to enter the currency code.
- It may be that there should be a value, but none was entered, or
- It may be that the data item should come from looking up a value on a table, but that there was no appropriate record on the table.

Small amounts of missing data are quite normal and do not usually have a significant impact on analysis; where there is a significant amount of missing data, it can impact on the number of cases which can be included in the analysis or require that certain variables are omitted from the analysis.

The SCOPEinsight assessments

Of the 716 assessments across the years for which we have data, there are 206 with a start date in 2020. The table below shows how these are distributed between different Projects and different versions of the SCOPEinsight assessment tool. This shows that of those with a start date in 2020, 119 were carried out using versions 2.0.0 or 2.0.1, which are very similar, while 74 were carried out using version 1.3.0 and 13 using version Pro 4.2.0, which are substantially different.

Projects

Project #	Assessments	Assessments (2020)
256	173 (V 1.1.0, 1.2.2, 1.3.0)	0
285	104 (V1.2.2, 1.3.0)	0
348	136 (V1.3.0*)	70 (V1.3.0)
374	103 (V2.0.1**)	0
436	69 (40 V2.0.1)	29 (V2.0.0)
459	4	4 (V1.3.0)
463	103	103 (90 V2.0.1, 13 V Pro 4.2.0)
534	24 (V20.21.0)	
Total	716	206

*Except one assessment V2.0.0.

** Except 4 assessments V Pro 4.2.0

What is in the data?

Heading	Scope of data
Assessment	Basic information about the assessment, including the project under which it was carried out, the start and finalization date, assessor, quality control
Organisation	Name, address, locational and contact information
Infrastructure	Communication by road, public transport, utilities, warehousing
Number of people	Board member, staff (full-time, part-time and seasonal), members, outgrowers, etc, including breakdown by women, young people
Financial Information	Annual accounts, Financial strategy, bank accounts, loan history, pre-finance history, grant history
Production & Sales Information	productive units (e.g. hectares of land), average yield, produce purchased, produce sold, inputs purchased, for both cocoa and for other crops
Scores ***Dimensions*** Internal Management Financial Management Sustainability Operations Production Base Market External Risks Enabling Environment	There are 4 levels of data involved in SCOPEinsight scores Overall score (1) Dimension scores (8) Sub-Dimension scores (92 in SCOPE Basic Version 2.0.1) Detailed responses (approx. 250-350 per assessment)
Documentation	Whether the organisation has available certain documents

Analysis conducted

The analysis conducted focused on the following:

- SCOPEinsight scores and factors associated with changes in scores (Annexes 3a-3b)
- The characteristics of the organisations in the main sub-groups analysed (Annex 3c)
- Data on PO loans and factors associated with obtaining those loans (Annex 4)
- the Bankability Metrics published by AGRA[12] and the extent to which those metrics are confirmed by the case study data (Annex 5), and
- The POs covered by the SOCODEVI data and how they compare with those covered by SCOPEinsight data (Annex 6).

Descriptive statistics about single variables, measures of the relationship between variables (correlations, regressions, etc) and measures of differences including their statistical significance are supported by appropriate graphics and explanatory text.

[12] https://agra.org/wp-content/uploads/2021/02/Mobilizing-agricultural-finance-2021-02.pdf

ANNEXES 3a-3c: SCOPEinsight scores and how they change

Annex 3a: SCOPEinsight scores and how they change – initial analysis

- **The nature of the data**
- **Initial overall analysis – changes in professionalism scores**
- **Two factors associated with markedly different levels and patterns of scores**
- **Sub-dividing the data into two groups**
- **Characteristics of the two groups – a broad comparison**
- **Group 1 – characteristics**
- **Group 2 - characteristics**
- **Review of initial analysis**
- **Summary**

The nature of the data

Only one dataset is under consideration in this initial part of the analysis - that from SCOPEinsight. The data relate specifically to cocoa producer organisations in Côte d'Ivoire, for which AMEA partners agreed to share relevant data and where an assessment was started in 2020 (see Annex 2).

The data is derived from an assessment system designed to measure producer organisation (PO) "professionalism", often used with a programme of PO capacity development. In principle, the dataset permits comparative analysis of POs that have been assessed under a number of programmes.

The data does not represent a census of all farmer organisations, nor indeed all farmers. It is not a sample survey of farmer organisations, with any sort of random or stratified random sampling, nor is it administrative data from a universal system such as returns to the Ministry of Agriculture or tax returns. So it is not possible to compare those POs which have been assessed with those which have not, about which little is known.

Within the dataset, some organisations have been assessed more than once, in fact up to five times. For the analysis of change of scores, only pairs of assessments have been considered, where one assessment in that pair started in the year 2020[13]. There were 206 assessments which started in 2020 in our dataset, of which 157 were paired with earlier assessments of the same PO.

The dataset shared does not include any weighting to standardise across different scales of PO (e.g., by the number of PO members, or turnover or land used for production). So the comparisons here are between farmer organisations, considered on an equal basis no matter their size.

The outcomes which are considered here are the SCOPE Basic total score[14] and to a lesser extent the eight Dimension scores which contribute to it, and the change in these between assessments. All scores are on a range from 1.0 to 5.0, where a PO score of at least 4.0 is considered "professional".

Initial overall analysis – changes in professionalism scores

The average change in overall score between paired assessments was +0.466 (3.474 to 3.939, N=157). The following observations concern the change between assessments, relative to a number

[13] Reference is made to start date, as assessments have both a start date and a completion date.

[14] A small number of SCOPE Pro assessments are also included and clearly noted where relevant.

of variables, refer to averages for the sub-group, and give the number of assessments. Where this number is small, the differences are less likely to be statistically significant.

- Where the distance to hub was more than 100km, the overall change was greater
  - 100-200km +0.635 (N=15)
  - >200km +0.773 (N=12).
- Where electricity was provided only by generator, the overall change was negative at -0.175 (N=25).
- Where there was no internet provision, the change in overall score was on average greater at +1.069 (N=8), while where the internet provision was over a stable fixed line, the change was less at +0.359 (N=27). The majority of organisations had internet over mobile (N=117).
- For those organisations which had a loan or loans, the change in overall score was higher at +0.678 (N=58).
- For those organisations with grants, the overall increase was less (+0.393), but there were only four of these, so this is not a robust result.
- Those organisations which also dealt with another crop has a larger increase (+0.703, N=9) in overall score on average. The differences appear largest in the dimensions of Financial Management and Markets.
- For organisations in the region of Moyen-Cavally, the average change in overall score was negative at -0.710 (N=11), and change for all 8 dimensions were negative.
- For the region of Sud-Comoé, overall change is small, at -0.040 (N=9), with some dimension scores increasing, some decreasing.
- These contrast with the regions of Bas-Sassandra (N=45), Fromager (N=16), Haut-Sassandra (N=19), Marahoué (N=9), Sud-Bandama (N=11) and Vallée du Bandama (N=1), where there is, on average, positive change across all dimensions and the average overall score increases by at least 0.5.

Two factors associated with markedly different levels and patterns of scores

However, the strongest relation to the change in score is with the version of the SCOPEinsight assessment tool. Looking just at the version of the second of the two assessments, where SCOPE Basic 1.3.0 was used, there was on average an increase of 0.940, while for SCOPE Basic 2.0.1 it was 0.256 (there were only three assessments which used version 2.0.0, so these results have been omitted). SCOPEinsight expected a difference in the scoring when it upgraded SCOPE Basic. It advised its clients (SCOPEinsight, 2019): “we expect that total scores of the upgraded SCOPE Basic [2.0] will be a fraction lower (0.2-0.3)”.[15]

Another strong relation is with the number of assessments carried out. Where we measure the change from the first ever assessment to a second starting in 2020, the average change in overall score is +0.745 (N=94). Where it is change from the second assessment to a third one starting in 2020, the figure is only +0.092 (N=59). (From the third to fourth -0.147, although this figure is based on just three organisations).

Given how strongly changes in score relate to the version of the SCOPEinsight tool used for the assessment, it was necessary to unpick which versions of the tool were used for different assessments on different projects. The table below shows this.

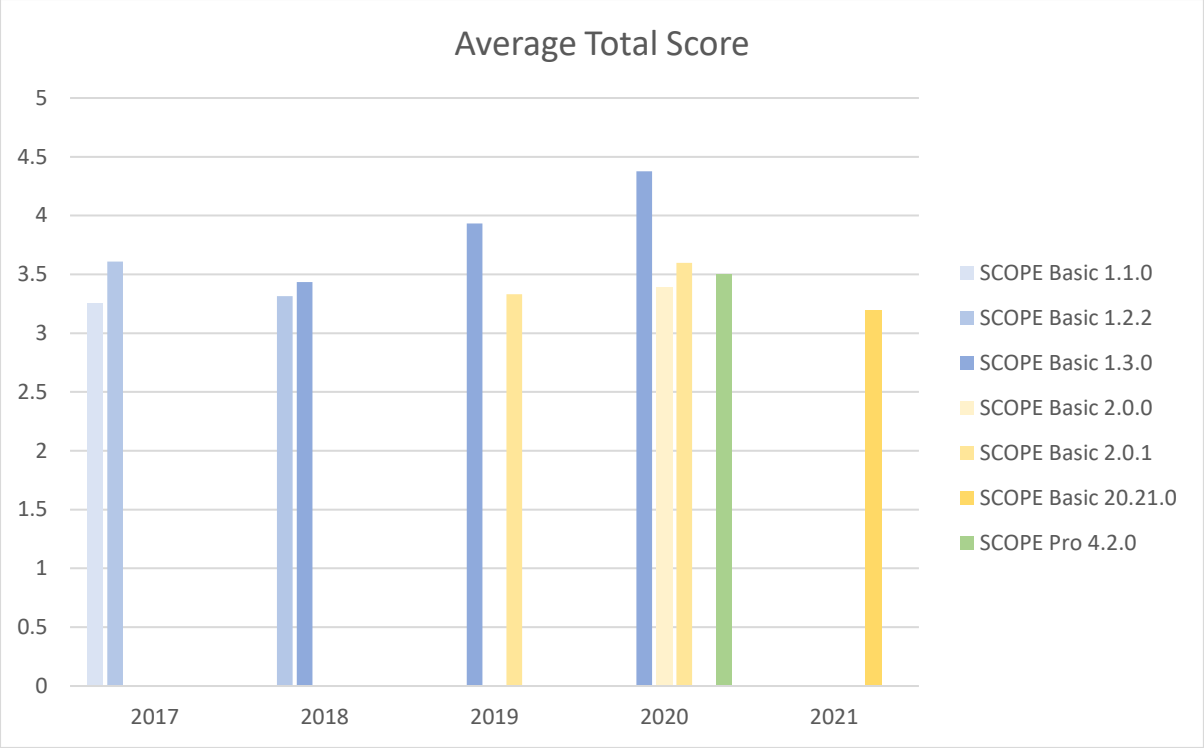
[15] Also, of the 206 assessments which started in 2020, 13 used SCOPE Pro 4.2.0 for the last assessment. This tool is different. These scores were lower on average by 0.516 relative to the previous assessment.

Type of Assessment * StartYear * ProjID Crosstabulation

Count

ProjID			StartYear 2017	2018	2019	2020	2021	Total
256	Type of Assessment	SCOPE Basic 1.1.0	34	0	0			34
		SCOPE Basic 1.2.2	69	22	0			91
		SCOPE Basic 1.3.0	0	12	36			48
	Total		103	34	36			173
285	Type of Assessment	SCOPE Basic 1.2.2	28	69				97
		SCOPE Basic 1.3.0	0	7				7
	Total		28	76				104
348	Type of Assessment	SCOPE Basic 1.3.0		1	64	70		135
		SCOPE Basic 2.0.0		0	1	0		1
	Total			1	65	70		136
374	Type of Assessment	SCOPE Basic 2.0.1			99			99
		SCOPE Pro 4.2.0			4			4
	Total				103			103
436	Type of Assessment	SCOPE Basic 2.0.0			0	29		29
		SCOPE Basic 2.0.1			40	0		40
	Total				40	29		69
459	Type of Assessment	SCOPE Basic 1.3.0				4		4
	Total					4		4
463	Type of Assessment	SCOPE Basic 2.0.1				90		90
		SCOPE Pro 4.2.0				13		13
	Total					103		103
534	Type of Assessment	SCOPE Basic 20.21.0					21	21
	Total						21	21
Total	Type of Assessment	SCOPE Basic 1.1.0	34	0	0	0	0	34
		SCOPE Basic 1.2.2	97	91	0	0	0	188
		SCOPE Basic 1.3.0	0	20	100	74	0	194
		SCOPE Basic 2.0.0	0	0	1	29	0	30
		SCOPE Basic 2.0.1	0	0	139	90	0	229
		SCOPE Basic 20.21.0	0	0	0	0	21	21
		SCOPE Pro 4.2.0	0	0	4	13	0	17
	Total		131	111	244	206	21	713

To remove the impact of different versions on the analysis, ideally we would want to use pairs of assessments where the same version of the tool was used for both assessments. However, this is not enough, as the graph below demonstrates. In this dataset, for SCOPE Basic Version 1.3.0, there is a trend of increasing scores over time, while for SCOPE Basic Series 2 versions, the scores appear to remain relatively more constant over time. As the trend in scores is different (for SCOPE Basic 1.3.0 and the series 2 versions) it is useful to distinguish between them in further analysis.



N=708 (omitting 3 assessments with missing start date; and in 2019, 1 assessment for SCOPE Basic 2.0.0 and 4 assessments for SCOPE Pro 4.2.0)

Sub-dividing the data into two groups

As a result, we have had to separate the data into two groups for this analysis. These are:

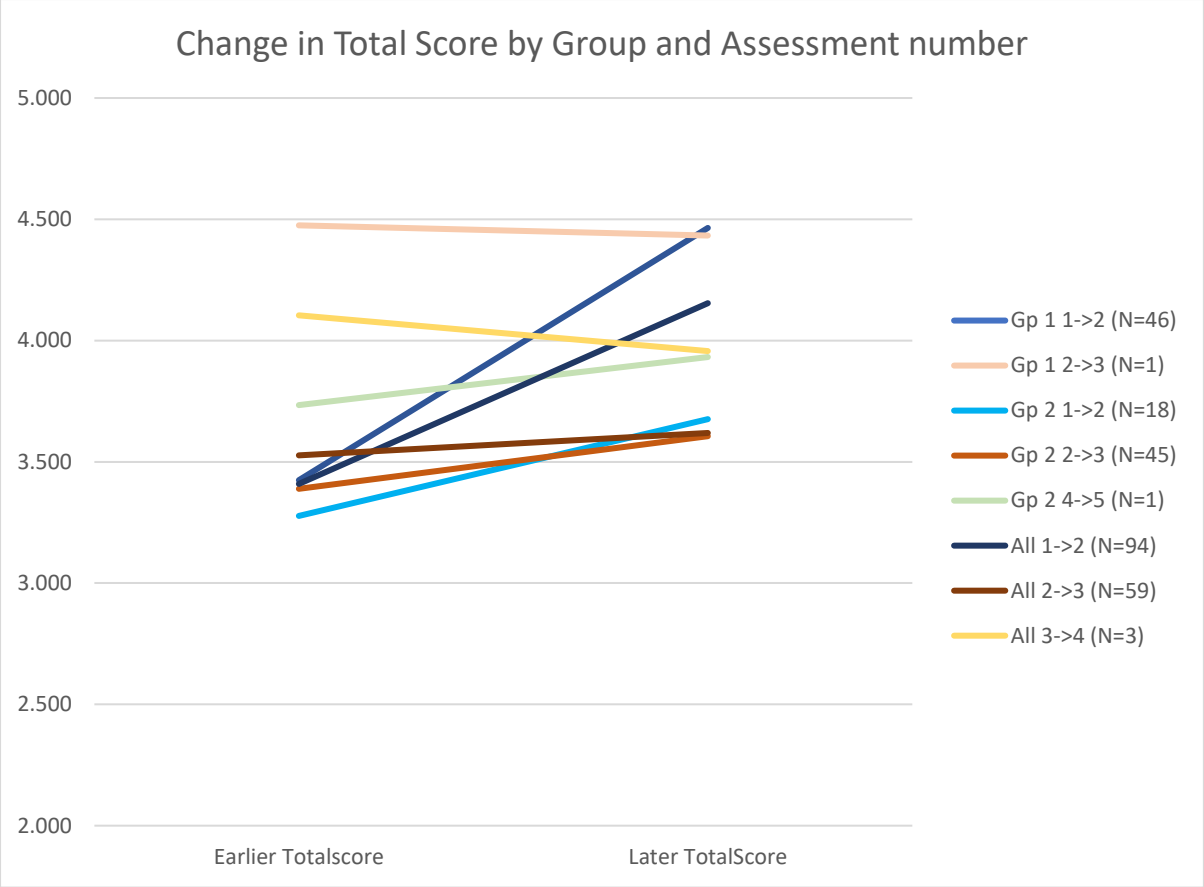
Group 1	47 cases	All relating to one specific project and using SCOPE Basic version 1.3.0 for the last two assessments
Group 2	64 cases	All relating to another specific project and using SCOPE Basic version 2.0.1 for the last two assessments

The graph below shows how the average change in score varied by Group and also by which pair of assessments were being considered.

The strongest increase was for Group 1 between the first and second PO assessment PO. The increase was from 3.424 to 4.464. But for Group 1 from the second to the third assessment, and for all cases from the third to the fourth assessment, there is a decrease in total score (noting though that there were very few assessment pairs in these categories).

For Group 2, a gentler average increase is seen (nonetheless somewhat steeper where the change is between a first and second assessment).

More mixed findings are evident for the category “all” – where the results are combined irrespective of the version of the assessment tool used, including assessment pairs where two different versions of the tool were used.



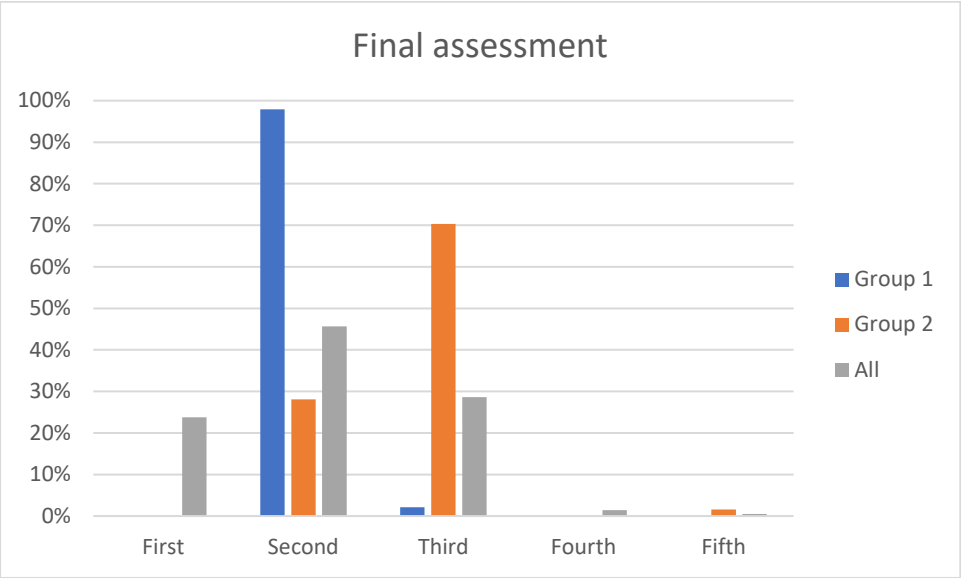
"All" here refers to all organisations which had an assessment starting in 2020 and an earlier assessment. For those organisations not in Group 1 or Group 2, different versions of SCOPEinsight assessment tools may have been used for each assessment.

Characteristics of the two groups – a broad comparison

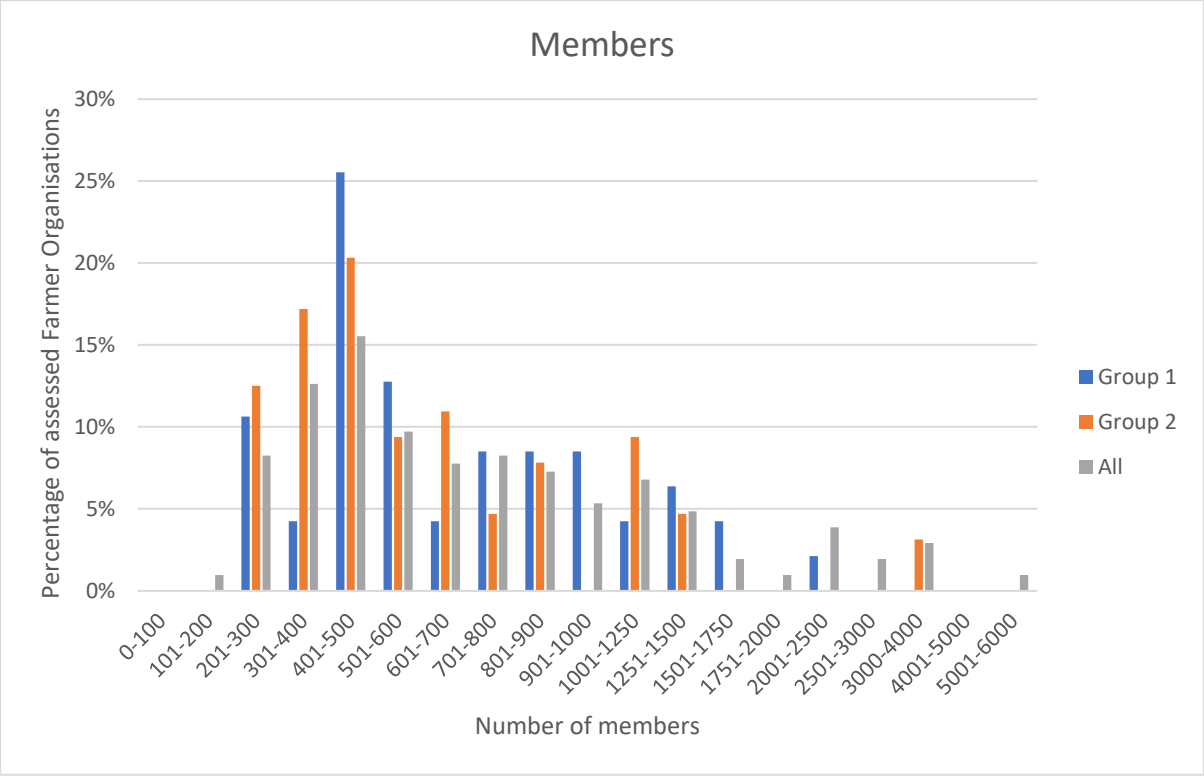
This section compares the characteristics of the two groups with those of all the assessments (N=206) carried out starting in 2020. Organisations had up to five assessments.

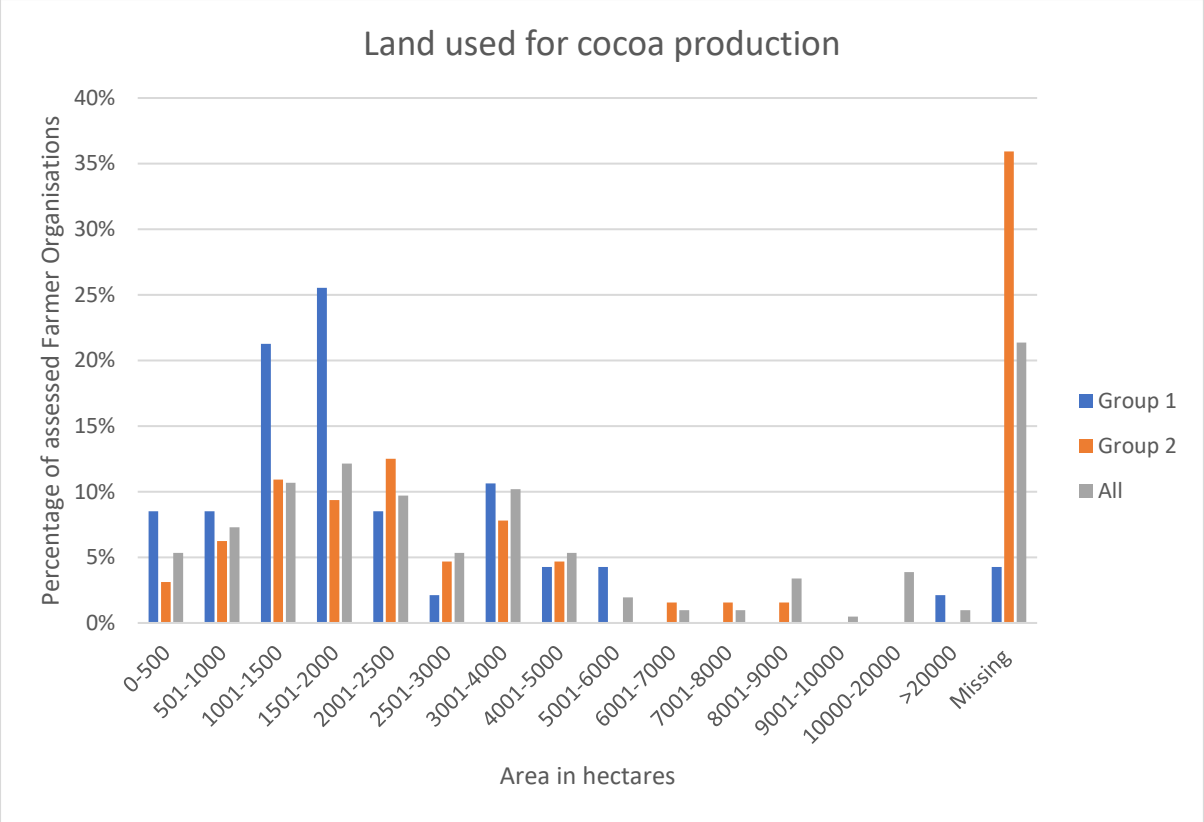
The first graph below shows which assessment is the final assessment (i.e., the second of the pair or the only assessment, where the PO has only been assessed once). Clearly, neither of the two groups of paired assessments can have the second assessment considered being the organisation's first assessment. For Group 1, 97% were second assessments, while for Group 2, 70% were third assessments. Note the observed smaller average increase for Group 2 compared with Group 1, consistent with the earlier findings that larger increases were achieved for 1st and 2nd assessments, and for assessments conducted using the earlier version of the tool (SCOPE Basic 1.3.0) i.e., both factors applicable to Group 1.

Distribution of assessments by Group (whether 1st, 2nd, 3rd assessment etc.)

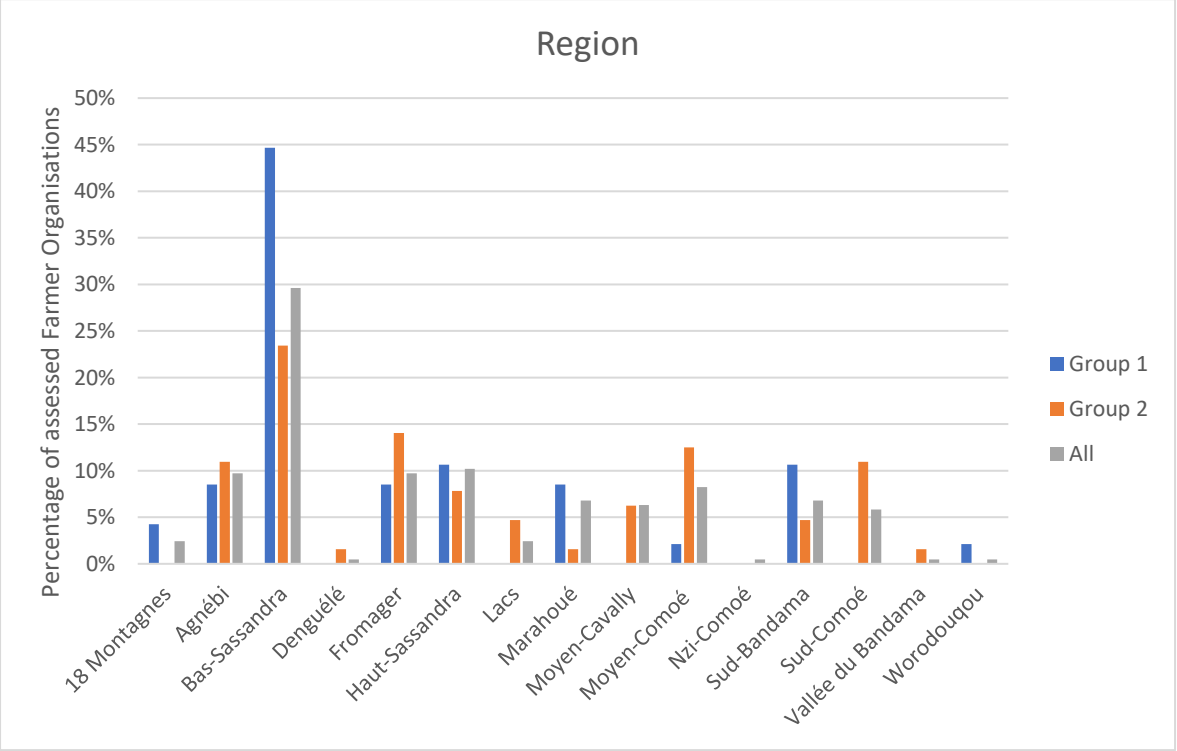


The scale of organisation can be indicated by a number of variables: numbers of staff and members, land used for production, volume of produce bought and sold, etc. There is no clear difference between the two groups and all the organisations assessed. (However, for Group 2, there is much missing data for land used for cocoa production, resulting from production data not being present).





45% of Group 1's assessments were in the region of Bas-Sassandra. This region also had the highest proportion of assessments for Group 2 and overall.

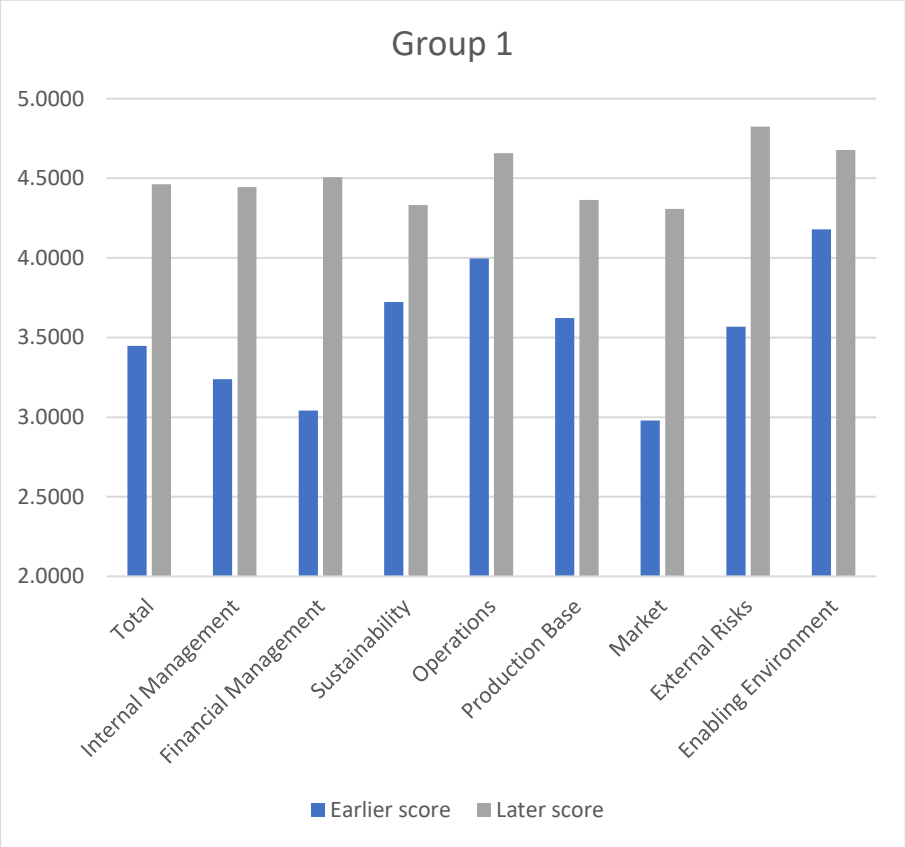


As the two groups represent different versions of the SCOPEinsight assessment tool used and different assessors, it is not possible to make absolute comparisons between the two groups. However, it is clear that the story in terms of scores and the change in scores is quite different for the two groups.

Group 1 – characteristics

There were 136 assessments carried out as part of one specific project. However, only 47 started in 2020 and were paired with earlier assessments of the same organisation using the same version of SCOPE Basic (1.3.0), and these are the ones included in Group 1.

Group 1: changes in scores between two assessments



N=47

Group 1 used SCOPE Basic 1.3.0 for both assessments. As can be seen from the graph above, average scores increased between the two assessments. Almost all (46) are changes from first to second assessment, with the remaining one a change from second to third. There is no evidence of differences in scoring between the four different assessors, although the average scores for the organisations they were given to assess were different at their previous assessments, differences which have levelled out on the second assessment. The average time between assessments was 447 days, i.e., about one year and three months.

The average total score increased from 3.447 to 4.464, an increase of 1.017. The standard deviation of scores for the second assessments was 0.175. The table below shows the relation between the change in the average total score and other variables.

Group 1: Change in average total score and the effect of other variables

		Change in total score	Number of assessments
Electricity supply	No electricity	+1.156	N=14
	Stable with no generator	+0.831	N=4
Internet	No internet	+1.280	N=6
	Mobile only	+1.034	N=31
	Stable fixed line	+0.792	N=8
Mobiles	Limited coverage	+1.382	N=12
	Broad coverage	+0.892	N=8

In this group, all organisations had a bank account. Two dealt with crops other than cocoa, in these cases coffee. There was no significant difference in change in scores between those organisations which had received a loan (change of 1.030 to 4.487, N=29) and those which had not (change of 0.997 to 4.426, N=18).

The discussion below examines the relation between the change in total score between assessments and other variables. A correlation between two statistics does not prove a causal relation, either that A caused B or that B caused A. It is possible, for example, that there is another element C, possibly unmeasured, which caused both A and B to change. However, it may suggest areas for further investigation.

While the change in scores is between the earlier assessment and the later, all other information discussed relates to what is recorded in the later assessment.

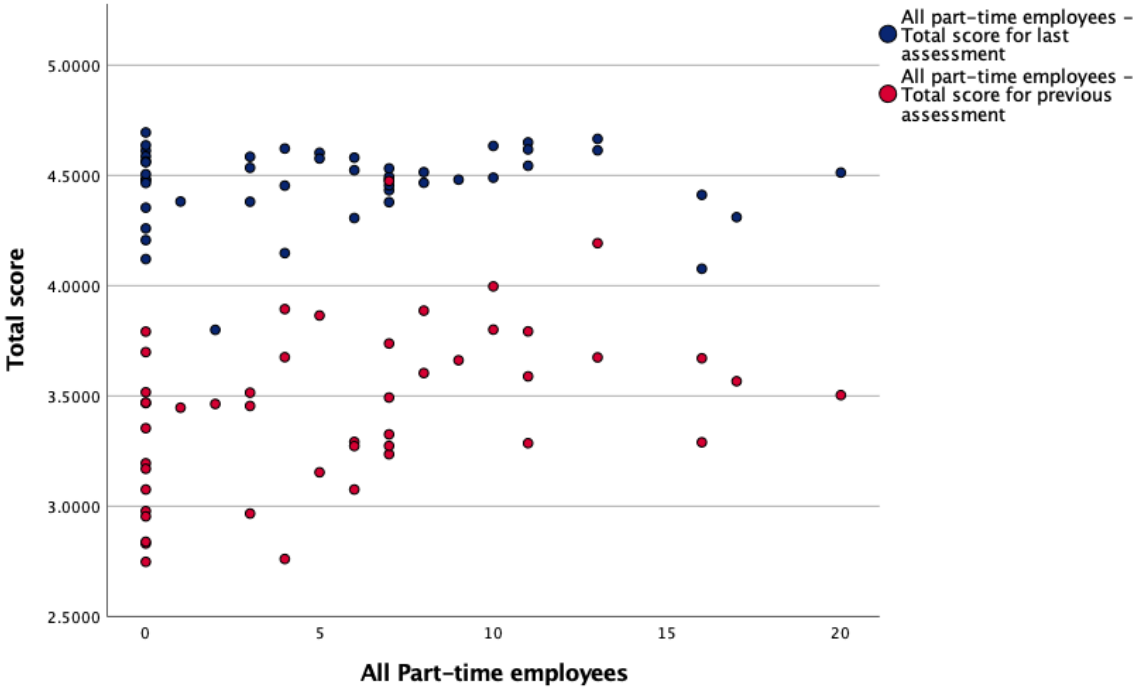
The strongest relation with change in total score is with the duration of the assessment. Assessments took an average of about 30 days to complete. The range is between 2 and 47 days (apart from two outliers at -8 days, which is clearly a data error, and 71 days). With these outliers removed, the correlation is still strong at -0.365, meaning that the longer it took to complete an assessment, the lower the probable increase in score.[16]

There was a strong negative correlation between the change in total score and the total number of part-time employees, so that where the number of part-time employees was higher, the change in total score was lower. There was also a negative correlation with the total number of active members and the total number of members. This is associated with strong positive correlation between the total score for the earlier assessments with these measures of employees and members. In other words, it seems to be a “catching up” on total score for smaller organisations.

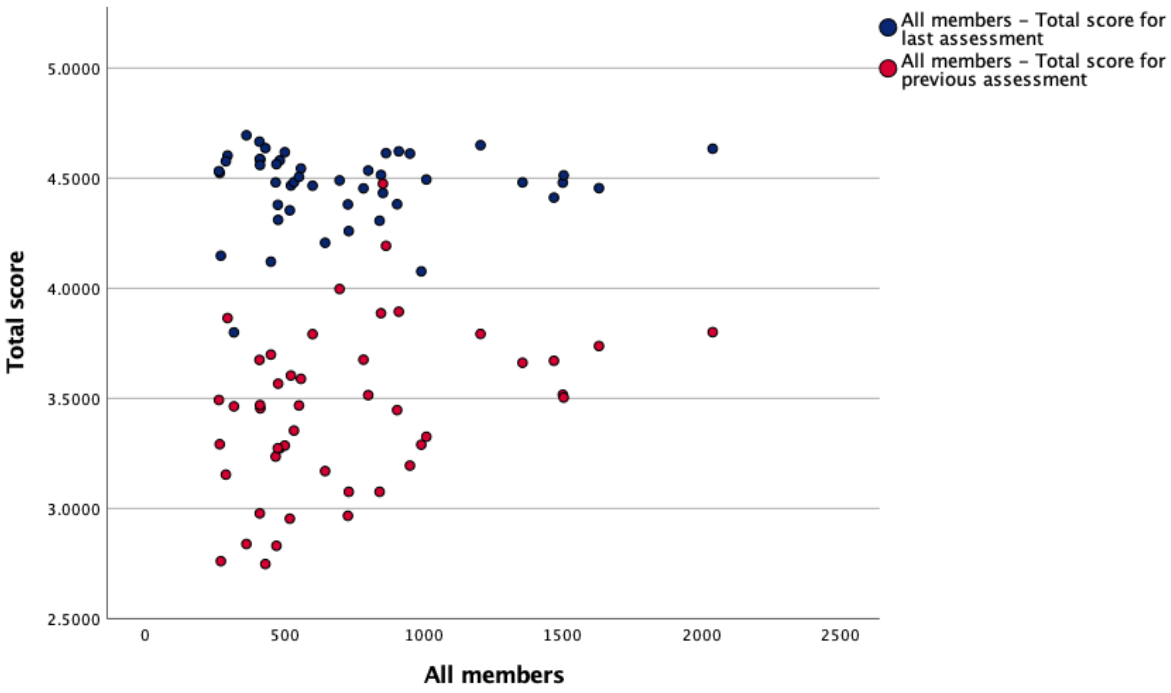
This is illustrated in the graphs below, where the blue circles represent the scores in the later (2020) assessments and the red circles the immediately prior assessments. These are plotted against different measures of scale of organisation: all part-time employees; all members; land used for cocoa production (hectares), volume of produce purchased; and volume of produce sold. In each case, a strong correlation can be seen in the earlier scores, while in the later scores which are generally higher, it is not evident.

[16] SCOPEinsight has indicated that changes were subsequently made to the assessment process to limit the number of times an assessor could check or confirm input for the assessment process.

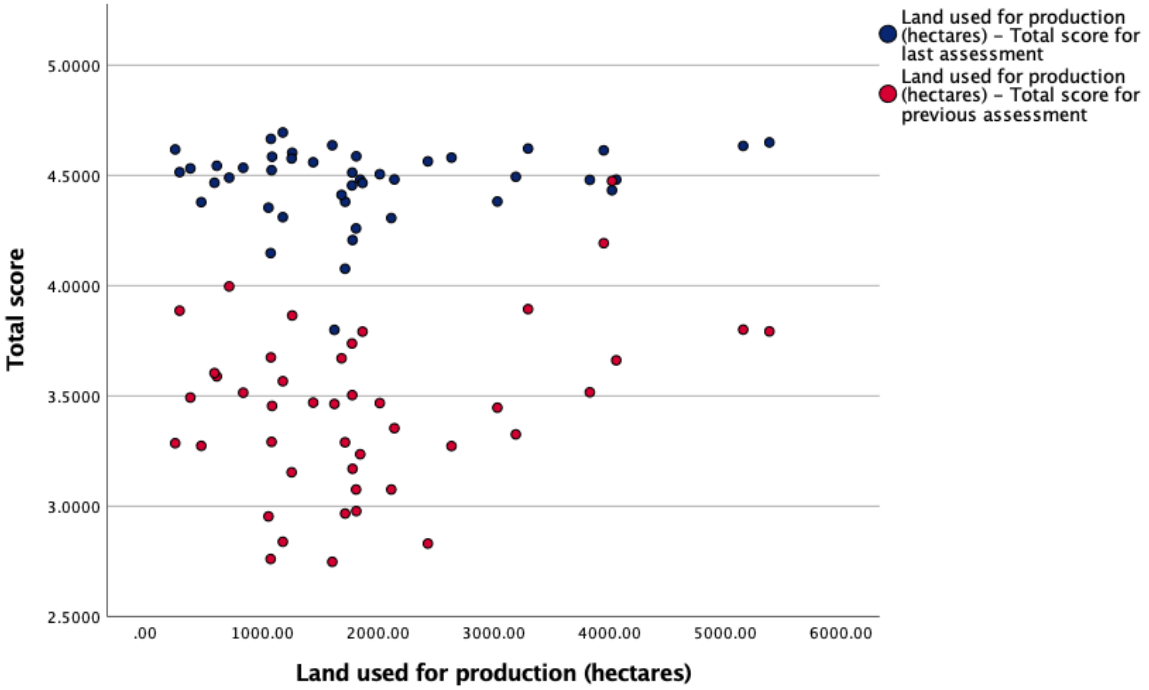
Group 1 - graph of assessment scores, relative to number of part-time employees



Group 1 – graph of assessment scores relative to number of PO members

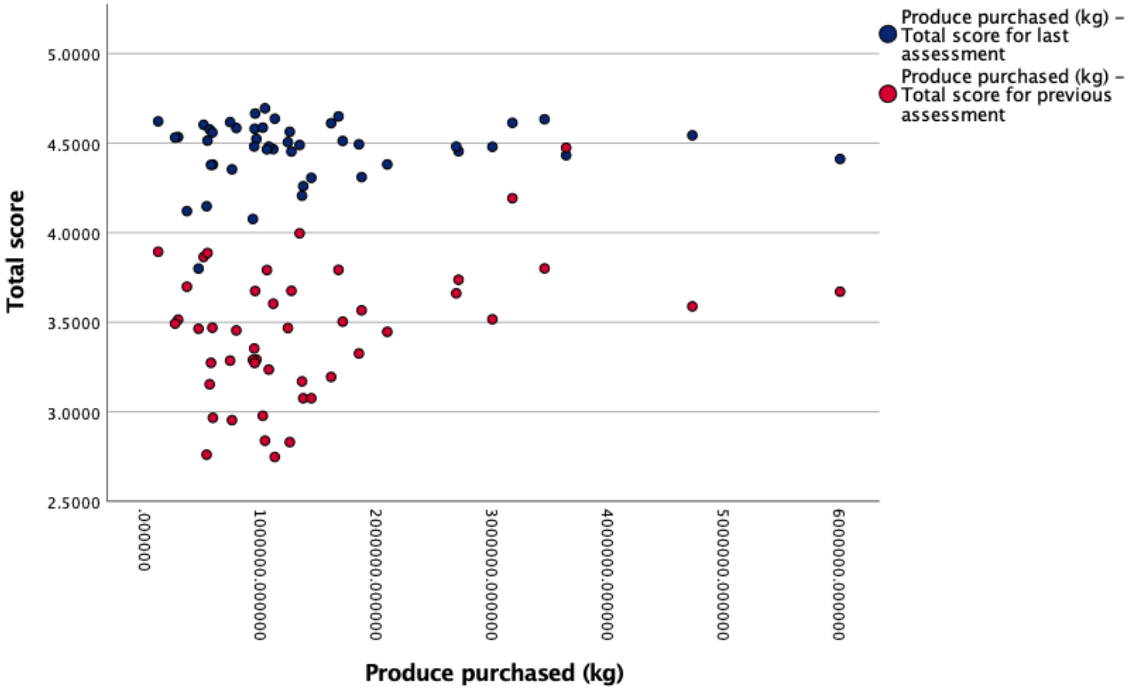


Group 1 – graph of assessment scores relative to number of hectares for cocoa production

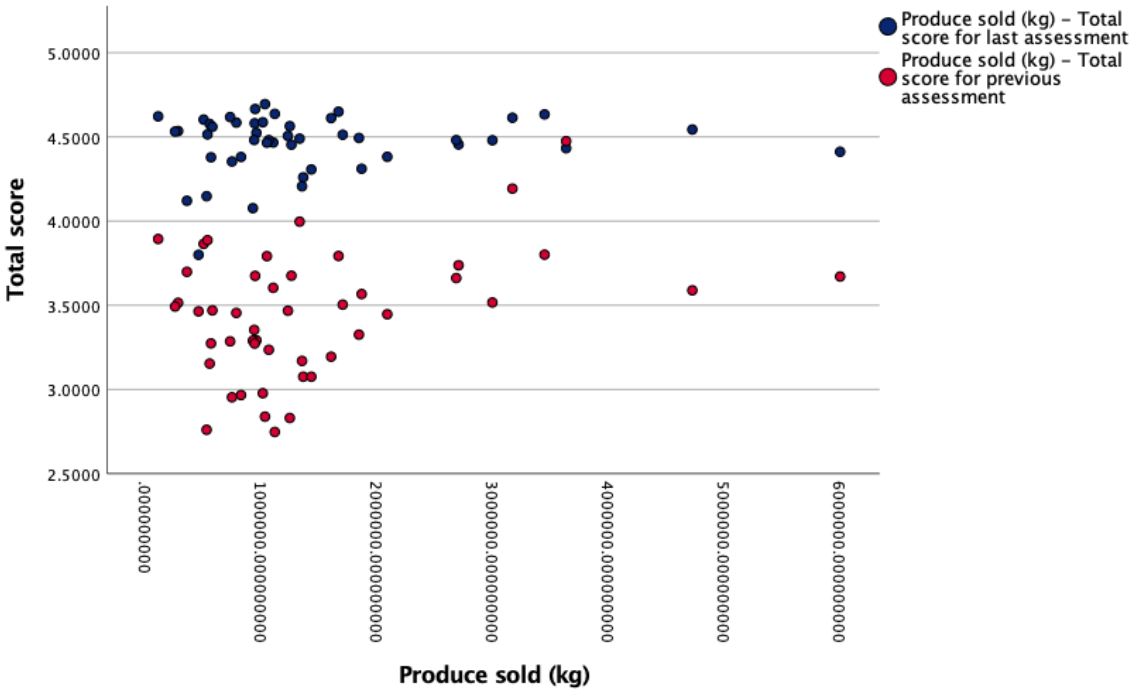


NB one outlier removed.

Group 1 – graph of assessment scores relative to amount of produce (cocoa) purchased



Group 1 – graph of assessment scores relative to amount of produce (cocoa) sold



So, in addition to the general significant increase in average total score observed for Group 1 assessments, the largest effect one can see is a levelling up, bringing smaller organisations up to the level of the larger ones. In the total scores for the later assessments, little correlation with measures of scale remains. There is some, with total numbers of managers and of full-time employees, but it is not statistically significant at a 95% level of confidence.

Changes in the Dimension scores which contribute to the total score were related to other variables as follows:

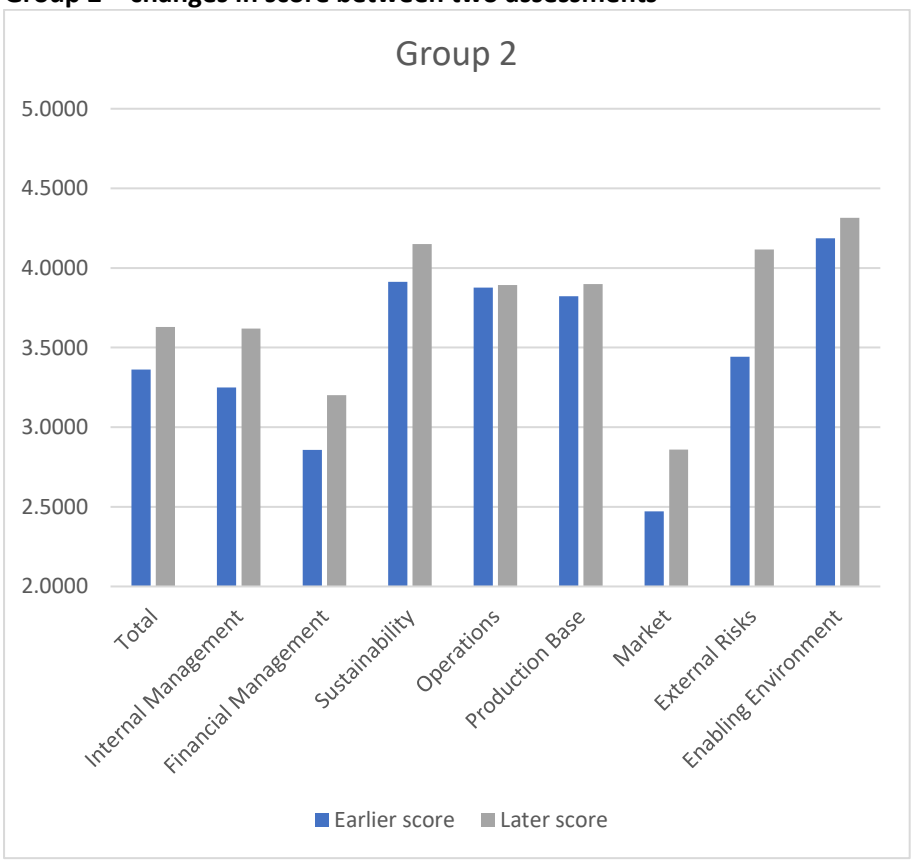
- Product purchase price was negatively correlated to the Financial Management score, i.e., as purchase price increased, the Financial Management score decreased. However, this result is affected by a small number of outliers and by the granularity of the price data[17], recorded at intervals of 25 XOF with the majority of assessments recording the same purchase price of 750 XOF.
- Product sale price was negatively correlated to both Enabling Environment and External Risk scores, so if the sale price increased, these scores decreased. Again, this result is affected by a number of outliers and the fact that the majority of assessments record exactly the same sale price of 830 XOF
- Statistically, the proportion of Board members who are women was negatively correlated with both Production Base and External Risk scores. However, three-quarters of organisations have no women Board members, so this result is highly influenced by a small number of outliers.

[17] The granularity is not unexpected as farmgate cocoa prices paid by cooperatives are set seasonally by Government.

Group 2 - characteristics

A total of 103 assessments were carried out under another project. However only 64 were started in 2020 and paired with earlier assessments of the same organisation using the same version of SCOPE Basic assessment tool (in this case SCOPE Basic 2.0.1), and these are the ones included in Group 2.

Group 2 – changes in score between two assessments



N=64

Only 28% of the Group 2 assessment pairs are first and second assessments, while for Group 1 it was 98%. Looking at all Group 2 assessment pairs, the average total score increased from 3.363 to 3.631, an increase of 0.268. The standard deviation of the later score was 0.471. The total score increased in 40 cases and decreased in the other 24.

However, for Group 2, between first and second assessments the average increase was 0.3989 (N=18). A smaller increase of 0.2170 was observed between the pairs of second and third assessments (N=45).

The table below compares average changes in total scores observed for Group 1 and Group 2. It shows how the more modest improvements observed with Group 2, coupled with higher variability, make it hard to establish substantial change in scores at a 95% confidence interval.

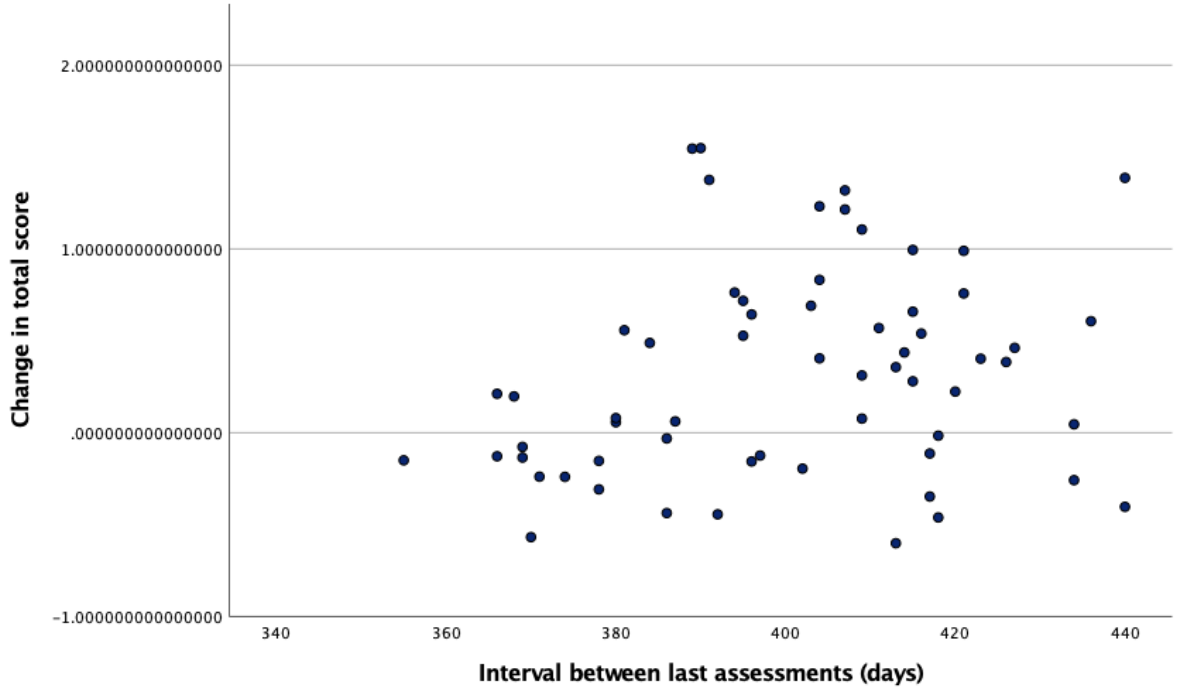
Group 1 & Group 2: comparison of average change in scores at 95% confidence interval			
	Group 1 – 1st to 2nd assessments	Group 2 – 1st to 2nd assessments	Group 2 – 2nd to 3rd assessments
Number of assessment pairs	46	18	45
Average change	1.0402	0.3989	0.2170
Standard deviation	0.2981	0.6035	0.8408
Standard error of mean	0.0444	0.1464	0.1267
Minimum average change (95% confidence interval)	0.9670	0.1580	0.0085

For Group 2 there is no relationship between the change in score and the duration of the assessment. It seems that assessments for Group 2 took longer on average than those for Group 1, but it is not immediately apparent whether this is related to the project, or the assessment tool, or something else. The differences in time taken between the 2 groups (an average of 56 days for Group 2 compared with 29 days for Group 1) and between the 2 versions of the tool (an average for 56 days for SCOPE Basic 2.0.1 and 30 days for SCOPE Basic 1.3.0) are both strongly statistically significant ($p < 0.001$).

There is, however, a positive correlation between the change in score and length of time since the earlier assessment, so the longer the interval, the higher the change recorded on average. The graph below illustrates this and suggests, other things being equal, to observe a positive change, it is worth waiting over a year before reassessing an organisation.

For all assessments (i.e., not just Group 2) the time since the previous assessment was longer on average for the second assessment (i.e., first re-assessment) at 523 days. For the third it was 393 days and for the fourth 346 days. However, some reduction when measuring the data is what is expected even if the actual time taken remained constant. This is because the data has been truncated. For example, if the average was 500 days and there were three assessments which took place 400, 500 and 600 days after the previous assessments, and if the data was harvested when only the first two of these had occurred, then the data would register an average of 450 days. There is more data truncation for later assessments. See graph below.

All assessments – graph of scores relative to time lapse since previous assessment



NB 3 outliers omitted.

Regionally, for Group 2, for organisations in Bas-Sassandra, the average change in total score (+0.002, N=15) was lower than the average for all regions, while for the region of Fromager, the average change was higher +0.606 (N=9). There is some variation in average change between assessors, with +1.065 (N=10) for one and at the other extreme -0.148 (N=17) for another. This is accounted to some extent by differences in scores in the earlier assessments. (Wider differences between the organisations allocated to each assessor have not been investigated). There was no overlap between the assessors used for Group 2 assessments and those used for Group 1.

In Group 2, there were no organisations more than 200km from a hub (0%) and only three more than 100km (5%). For those between 50 and 100km from a hub the average change in total score was +0.045 (N=12, 19%) while for those less than 20km from a hub it was +0.393 (N=32, 50%). So the change was larger, on average, for organisations closer to a hub. This contrasts with a preliminary finding in the initial overall analysis that change was larger for organisations further from a hub. This was true but misleading, as separation into the two groups (and some residual assessments) provides a more robust and useful analysis. In Group 1, 15% of organisations were 100-200km from a hub and 19% were more than 200km. The vast majority of assessments for organisations that were more than 100km from a hub were carried out using versions 1.1.0, 1.2.2 and 1.3.0 (129 out of 147, 88%) even though overall, assessments using these versions form 58% of all assessments in our dataset.

For Group 2, the change in total score was greater for those organisations which had broad coverage for mobiles at +0.359 (N=49) than for those with limited coverage (-0.030, N=15), and for those with running water (+0.312, N=47) than for those without (+0.146, N=17). But it was less for those with internet via a stable fixed line (+0.060, N=12) than for those with internet only over mobile (+0.316, N=52), and also less for those whose stable electricity supply had generator backup (-0.002, N=12) than for those without backup (+0.405, N=31) or those with just generators (+0.161, N=12).

For Group 2, the change in total score was greater for those who had obtained a loan (+0.378, N=12) than those who hadn't (+0.242, N=52), and for those who had pre-finance (+0.295, N=50) compared to those who hadn't (+0.173, N=14). All organisations in Group 2 that had obtained a loan also had pre-finance.

For those POs in Group 2 which indicated how they were financed for the current fiscal year, under the heading Financial Strategy (46 of the 64), there was a positive correlation between change in total score and the percentages of finance coming from business surplus and from pre-finance. However, data has not been completed for all POs, and the percentages allocated to different headings do not always total to 100, so this is not a reliable result.

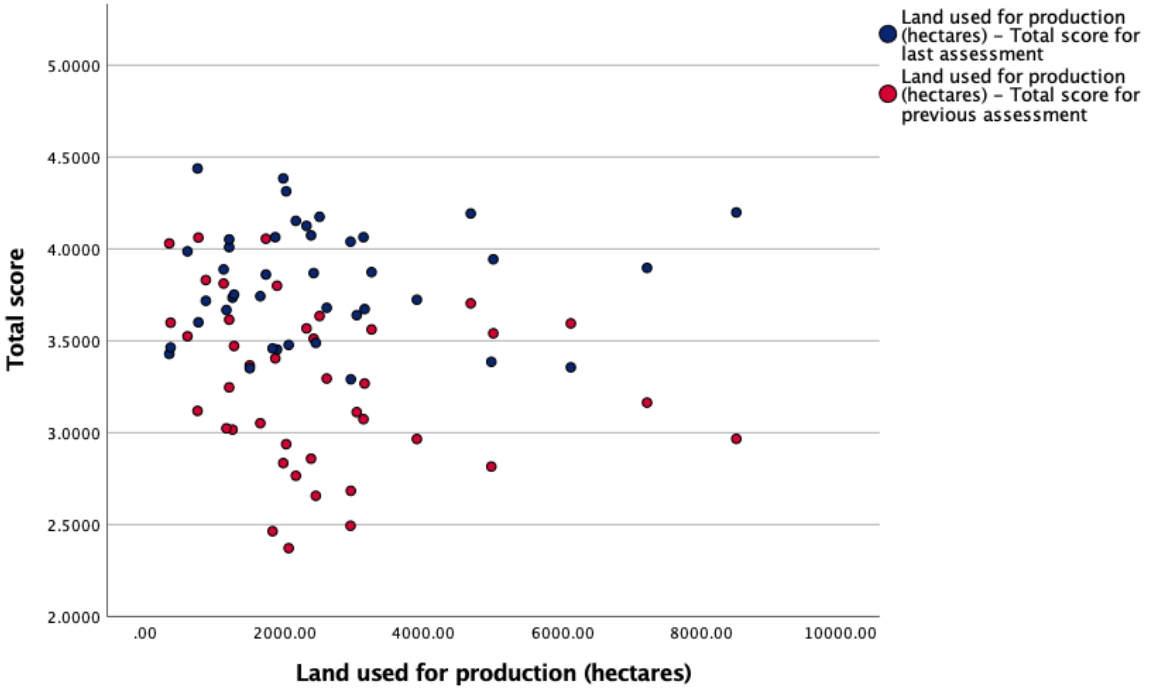
For Group 2, the change in total score seems to be correlated positively with the reported returns per hectare. It is also positively correlated with the produce purchase price, but as with Group 1, this is highly influenced by a small number of outliers and by the granularity of the price data, mostly recorded at intervals of 25 (and the vast majority of assessments recording a price of 825 XOF and almost all the rest at 750 XOF).

The change in score for Group 2 is also positively correlated with the percentage of produce both purchased and sold that is certified. Most organisations indicate either zero or one hundred per cent for these measures. For purchased produce, out of 62 organisations, 12 indicate 0% and 28 100%; for sold produce it is 7 at 0% and 29 at 100%.

For Group 2, there are strong negative correlations between the change in score on the one hand and the number of Board members and the number of managers on the other hand, in relation to the size of the organisation, measured here in terms of the land used for cocoa production. So if two organisations have the same number of Board members, or of managers, then the larger one (in terms of land used for cocoa production) is likely, other things being equal, to have the higher score.

With Group 2, although scores have on average increased, there is no clear relationship between change in Total score and the scale of the organisation, represented here by the land used for cocoa production (see graph).

Group 2: change in assessment scores relative to the amount of cocoa production land



NB 2 outliers omitted.

Review of Initial Analysis

The table explores findings from the two groups, relative to the initial findings, identifying which of the latter remain valid.

Validity of preliminary findings, once differences between the two groups are explored

Distance from a hub	For almost all organisations more than 100km from a hub (26 out of 27), the comparison was of first and second assessments, and thus likely to have a higher increase in total score.
Electricity	Nearly half of POs with only generators (N=25) were in Group 2, and only one in Group 1, so one would expect a lower increase in overall score.
Internet	For all organisations with no internet provision, the comparison was of first and second assessments, and thus likely to have a higher increase in total score. Most of these organisations were in Group 1 and none in Group 2.
Obtained a loan	A higher proportion of organisations which had obtained a loan were in Group 1 and a lower proportion in Group 2. As a result, one would expect a higher average increase in total score.
Obtained grants	There are only four organisations which recorded obtaining a grant. For three of these, the comparison was between second and third assessments and therefore a lower average increase in total score is to be expected.
Another crop	The POs which also dealt in another crop (coffee) were pretty evenly split between those moving from first to second assessment and those moving from second to third. Thus the result that these organisations have a greater average increase in total score appears to stand.

Regions	All regions where an overall negative change was noted contain POs assessed in Group 2 but no organisations assessed in Group 1. Those regions where a strong increase was noted contain POs assessed in Group 1 as well as in Group 2, with the exception of Vallée du Bandama where there was just one organisation assessed. The regional differences noted are probably related to this difference in distribution of organisations in each region between the Groups and between pairs of assessments which are first and second assessments, and pairs which are later assessments.

In conclusion, almost all the initial findings appear to be a consequence of the two major differences within the dataset, firstly between whether the pairs of assessments are the first and second for the organisation or subsequent pairs of assessments, and then secondly between different versions of the SCOPEinsight assessment tool. The result which remains is that organisations which also deal in coffee appear to have a greater average increase in total score. However, this is based on just nine organisations and is not a robust result.

Summary

There is a difference in the trends in scoring between the two main versions of the SCOPE Basic tool used for assessments in 2020 (1.3.0 and 2.0.1), and between comparisons of a first to a second assessment or from a second or subsequent assessment with the following assessment. The relationship between scores and other factors cannot be understood by looking at all the assessments together. Instead, we have examined two groups of assessments where the same version was used for both the assessment carried out in 2020 and the immediately previous one.

For the first group of paired assessments, Group 1, scores generally increased significantly between the first and second assessment, by an average of 1.017. (For Group 1, these were the first and second assessments of the organisation in question, with just one exception). In addition, when first assessed, larger organisations generally scored higher than smaller ones, whether measured by the amount of land used for cocoa production, the number of staff or the volume of product bought or sold. But in the later assessments, the differences due to scale were much less – the scores had levelled up.

For Group 2, in 45 cases (70%) the comparison of change is between the second and third assessments of the organisation. In this case, the longer the interval since the previous assessment, the larger the likely increase in total score.

However, for Group 2, smaller average improvements in scores and higher variability make it hard to be certain about a substantial improvement in score. The 95% confidence interval around the average change has a minimum value of 0.1580 between 1st and 2nd assessment. Between 2nd and 3rd assessments it is just 0.0085 – so one can be confident that there is positive change, but only just.

Annex 3b. Change in scores – further analysis

- **Changes in total scores, by Group, across a sequence of assessments**
- **Patterns of variability of total scores by Group**
- **Dimension scores by Group, level and variability**
- **Changes in Dimension scores, by Group and assessment sequence**

Changes in total scores, by Group, across a sequence of assessments, of two or more

This annex presents additional analysis of the change in scores up until the assessment in 2020, by splitting the assessments both by Group, as before, and by the sequence number of the 2020 assessment (i.e., is it the second assessment, the third, etc for the organisation).

For organisations in Group 1, only SCOPE Basic 1.3.0 was used for the 2020 assessment and the immediately prior assessment, while for organisations in Group 2, only SCOPE Basic 2.0.1 was used for both assessments. For the remaining organisations in the residual group "Other", a variety of versions of the SCOPEinsight tools were used, including different versions for successive assessments, and so no detailed analysis is presented for this group.

For Group 1, the majority of the assessment pairs were 1st and 2nd assessments (there was one pair that represented a 2nd and 3rd assessment). Group 2 included 45 2nd to 3rd assessments. The initial assessments for all those 2nd and 3rd assessment pairs (i.e., 46 from both Groups) were conducted using different tools (mostly version 1.2.2 and for Group 2, 2 cases of 1.3.0). This makes it hard to interpret results from the first assessment, *vis à vis* those achieved subsequently. So, although those earlier scores are shown on the graph below, it is important to keep that caveat in-mind. For Group 1 and Group 2, in all cases, it is only the last (2020) and previous assessment that were conducted using the identical tool.

The graph below shows how the average Total Score changed for each group. For Group 1, the vast majority of organisations (46 out of 47) had had two assessments, the second starting in 2020. A significant increase in average score can be seen, from 3.424 to 4.464, an increase of 1.040. There is also one organisation with three assessments, and here a considerable increase is evident from the first assessment to the second (3.535 to 4.475), then a slight decline on the third assessment.

For Group 2, there are 18 organisations which had had only two assessments, and here there is, on average, an increase from the first to second from a lower initial level (3.277), and the increase is less (0.399) than for Group 1.

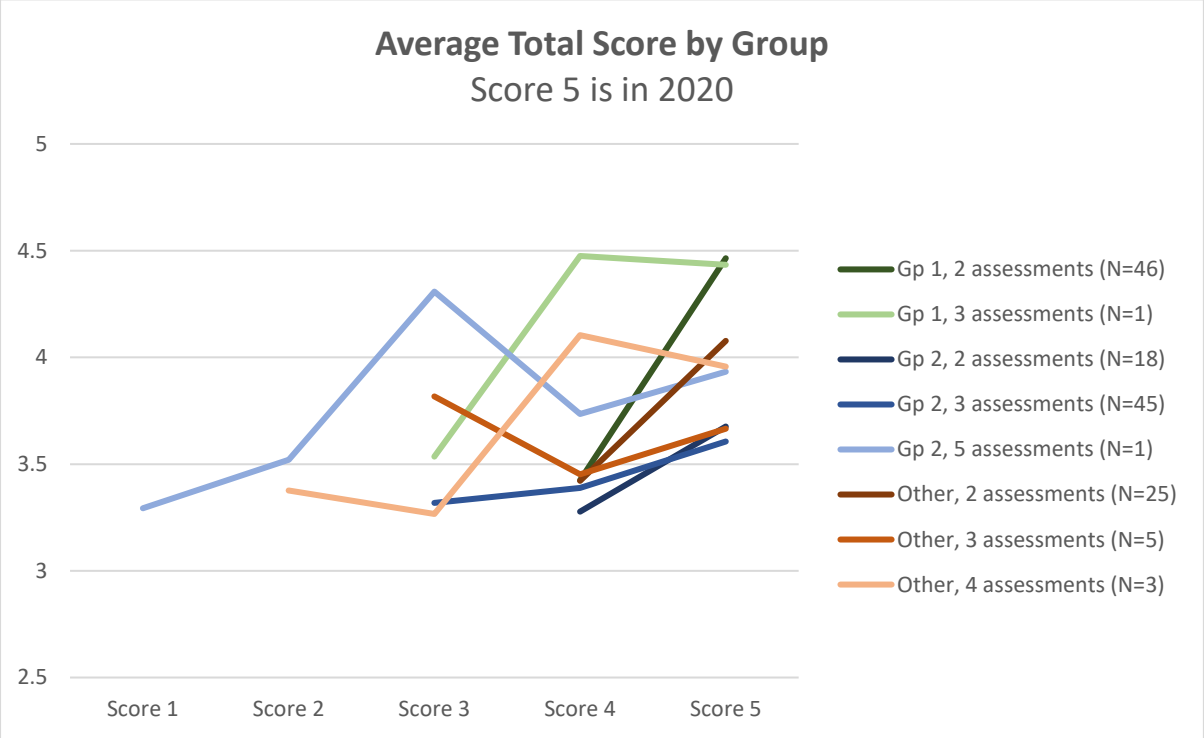
Group 2 includes 45 organisations which had had three assessments. However, it is very hard to interpret the results if all three assessments are considered, because the assessment tool used initially was somewhat different to that used for the subsequent two assessments. SCOPEinsight, 2019, advised its clients that scores were likely to be 0.2-0.3 lower, when the improved Series 2 tools were introduced. So, in principle, the 1st assessment score (Group 2, three assessments) could be expected to be lower, but we cannot be sure of that.

The residual group (marked "Other" on the graph) includes 25 organisations which had had only two assessments, with an average increase of 0.656, (i.e., somewhere between the increase for Group 1 and that for Group 2) from much the same base level as Group 1. There are also 5 organisations in this group which had had three assessments and three which had had four assessments. The assessments for the entire group use a variety of versions of the assessment tool, so comparisons between successive assessments are less reliable.

In the graph, Score 5 refers to the final assessment score of each organisation which took place in 2020. (This does not mean it was the 5th assessment). All organisations had one previous assessment, and a few more, up to a total of five assessments. It is the change from the immediately previous assessment (Score 4) to the last assessment in 2020 (Score 5) which has been discussed earlier. The assessment timeframe is indicated below:

Timescales for Assessments					
	Score 1	Score 2	Score 3	Score 4	Score 5
Earliest	13/2/17	24/1/18	26/7/17	24/12/17	13/1/20
Latest	13/2/17	19/6/18	26/6/19	12/7/19	28/9/20

The categories on the graph below are for organisations in specific Groups and which have had specific numbers of assessments. The number (N) of organisations in each category is shown on the graph. The majority of organisations (89 out of 144) had just two assessments.



Note – see accompanying text on effect of different versions of assessment tools used.

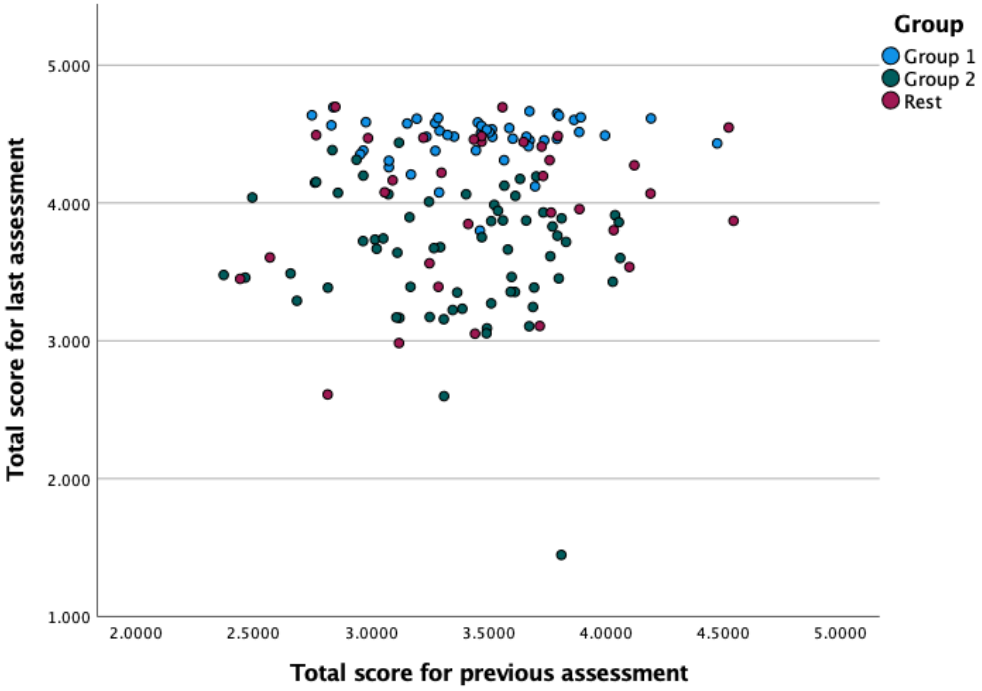
Patterns of variability of total scores by Group

Changes in average scores for the various groups were described above. There is also a change in the variability of scores. For Group 1 for organisations where there have been only 2 assessments, the variation in scores has reduced, from a standard deviation of 0.339 to 0.175. For Group 2, where there were only 2 assessments, the standard deviation has decreased slightly from 0.420 to 0.403, but increased where there were 3 assessments, from 0.393 to 0.492.

The graph below shows the total score in the later (2020) assessment plotted against the total score for the earlier assessment. Each circle represents one assessment. They are shown by group (Group 1, Group 2 and others). Again, it underscores the greater variability in the change in Group 2 scores

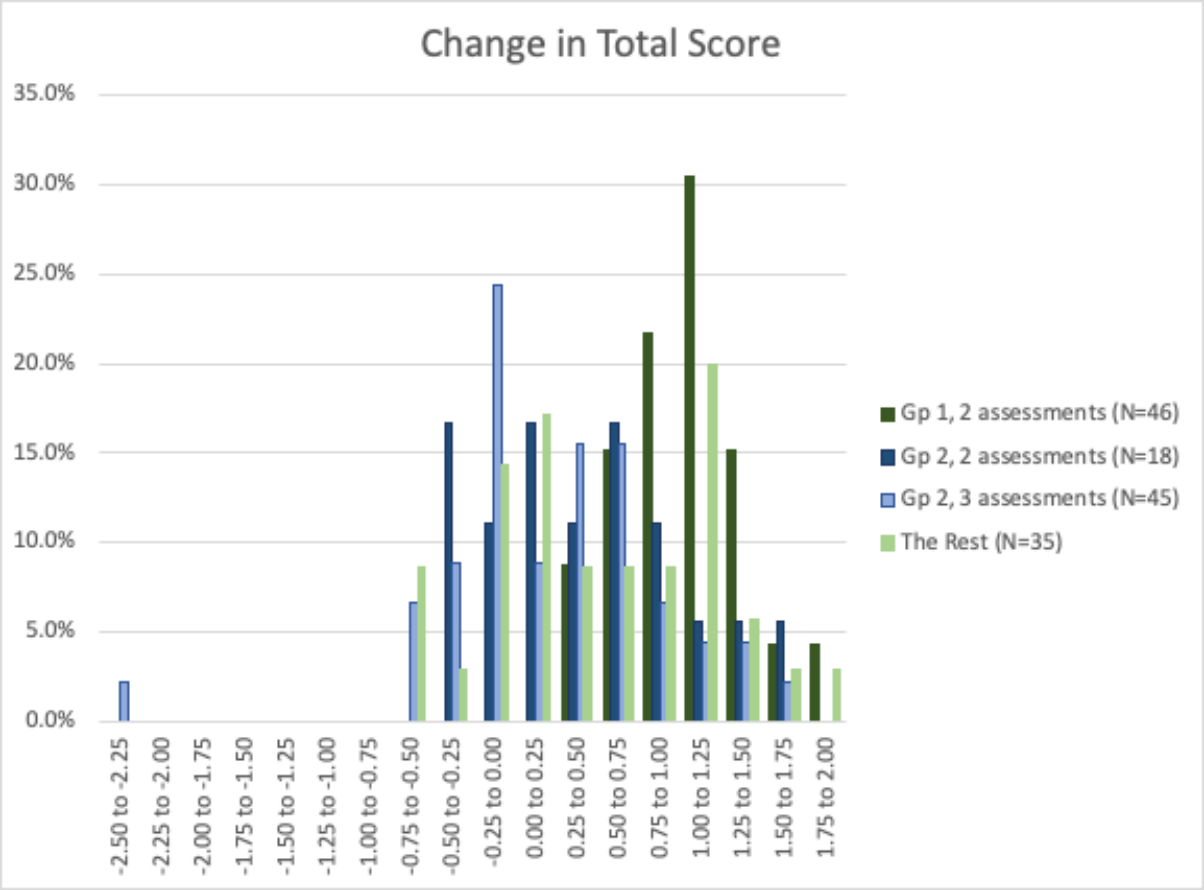
relative to Group 1. Group 1's scores (blue circles) have become more tightly clustered towards the top of the graph, while those for Group 2 (green) and the Others (red) remain more broadly distributed. (The graph also shows outliers, including a Group 2 assessment with a Total Score of 1.447. These can affect averages considerably, especially when categories have small numbers of organisations).

Graph showing variability in scores by different group



The following graph shows the distribution in change in total score from the penultimate to the last assessment. It shows clearly that scores for Group 1 (2 assessments) increased more than for other categories and also that the variation in amount of change is less for this category, with no negative values, than for other categories. For Group 2, the distribution of changes in score is much the same for those which have had 2 assessments as for those which have had three.

Graph showing variability of total score by Group



Dimension scores by Group – level and variability

The table below shows a similar story for the Dimension scores too. For Group 1, the variability reduces considerably. To some extent, this is expected as the scores increase to nearly 5, as this maximum score puts a limit on variability. For Group 2 where organisations had just two assessments, variability decreased slightly for most Dimensions, but increased for Financial Management and Market scores. For Group 2 where organisations had had three assessments, variability increased in the 2020 scores for all Dimensions except for Operations and External Risk.

Final scores, overall and for dimensions – last two assessments						
Average (standard deviation)	Group 1, 2 assessments		Group 2, 2 assessments		Group 2, 3 assessments	
	Previous	2020	Previous	2020	Previous	2020
Total score	3.424 (0.339	4.464 (0.175)	3.277 (0.420)	3.676 (0.403)	3.389 (0.393)	3.606 (0.492)
Internal Management	3.208 (0.420)	4.442 (0.225)	3.106 (0.417)	3.659 (0.394)	3.292 (0.444)	3.597 (0.555)
Financial management	3.011 (0.660)	4.503 (0.366)	2.780 (0.672)	3.144 (0.848)	2.875 (0.651)	3.205 (0.714)

Sustainability	3.711 (0.333)	4.330 (0.146)	3.808 (0.416)	4.204 (0.346)	3.948 (0.385)	4.125 (0.573)
Operations	3.977 (0.312)	4.662 (0.200)	3.832 (0.720)	4.016 (0.585)	3.895 (0.679)	3.825 (0.645)
Production Base	3.607 (0.350)	4.367 (0.198)	3.788 (0.470)	3.989 (0.341)	3.831 (0.353)	3.860 (0.493)
Market	2.957 (0.495)	4.313 (0.332)	2.467 (0.395)	2.940 (0.566)	2.478 (0.584)	2.840 (0.700)
External Risk	3.538 (0.829)	4.833 (0.189)	3.115 (0.680)	4.174 (0.533)	3.570 (0.823)	4.100 (0.775)
Enabling	4.167 (0.401)	4.675 (0.223)	4.139 (0.616)	4.410 (0.463)	4.190 (0.536)	4.290 (0.604)

Subsequent graphs show the same analysis for each of the eight Dimension scores. Once again, it is important to keep in-mind that only the last two assessments graphed (in the sequences of 2 to 5 assessments) will have been conducted using the identical tool. The graphs show where the change in scores is similar to the picture for the Total Score and where it is different. The discussion below concentrates on those categories which have the largest numbers of organisations.

For the Internal Management score, the pattern of change is almost identical to that for the Total Score, if more exaggerated. Internal Management is the largest component of the Total Score, but in combining with the other Dimension scores, the changes here are moderated in their effect on the Total Score.

For Financial Management, the pattern is much the same as for Internal Management.

For Sustainability, for those Group 2 cases where there were 2 or 3 assessments, the first assessment score of the assessment pair was on average above the Group 1 (2 assessments) initial score and increases upon reassessment. However, as Group 1 registers a larger increase, the Group 2 final scores end up being lower than those for Group 1. (For SCOPE Basic version 2.0.1, the Sustainability score has a limited influence on the total score).

For Operations, Group 2 (3 assessments) has a decline in average score, albeit minor (-0.070) to the last assessment, in contrast to the other main categories which register increases on average.

For Production Base, much like for Sustainability, Group 2 (2 or 3 assessments) starts from a higher average score than Group 1 (2 assessments), but records much lower increases to end up lower for the later assessment.

For Markets, Group 2 (2 or 3 assessments) starts at a much lower average score (2.467 and 2.478) than Group 1 (2 assessments) at 2.957 for the penultimate assessment and, as with other scores, has a smaller average increase.

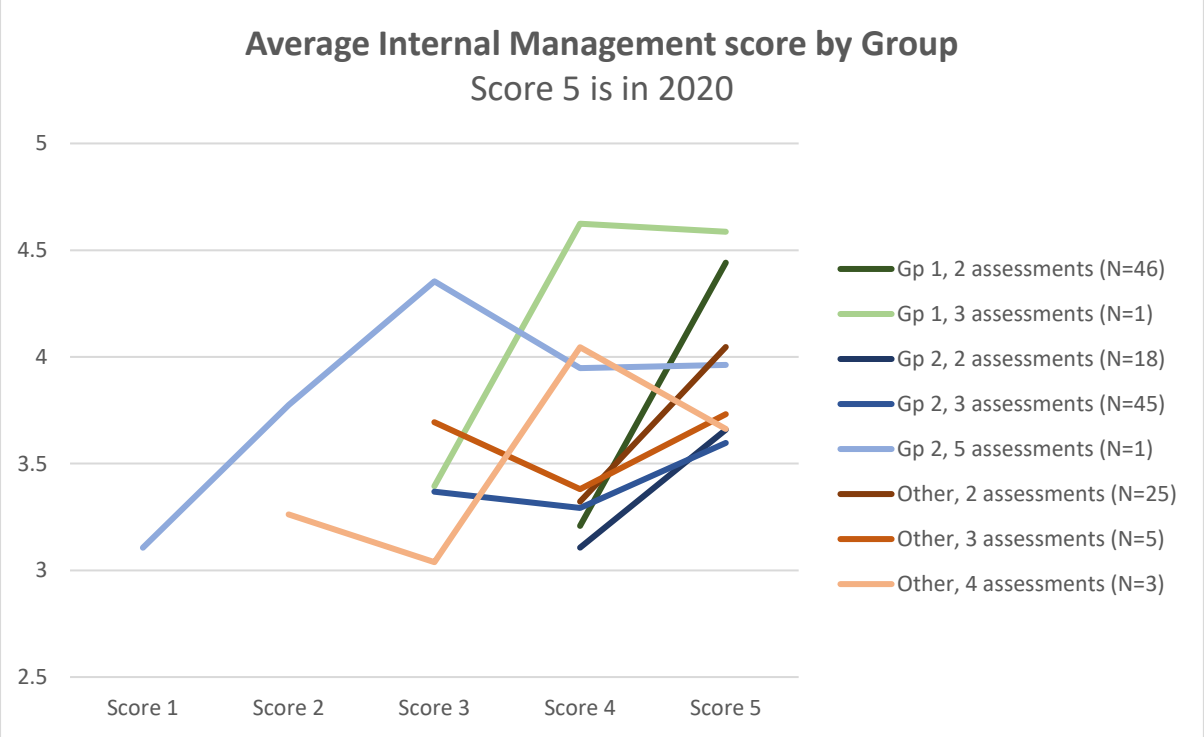
For External Risk, the changes in scores are more exaggerated for all three categories in the table than for other Dimensions even though the pattern of changes is much the same.

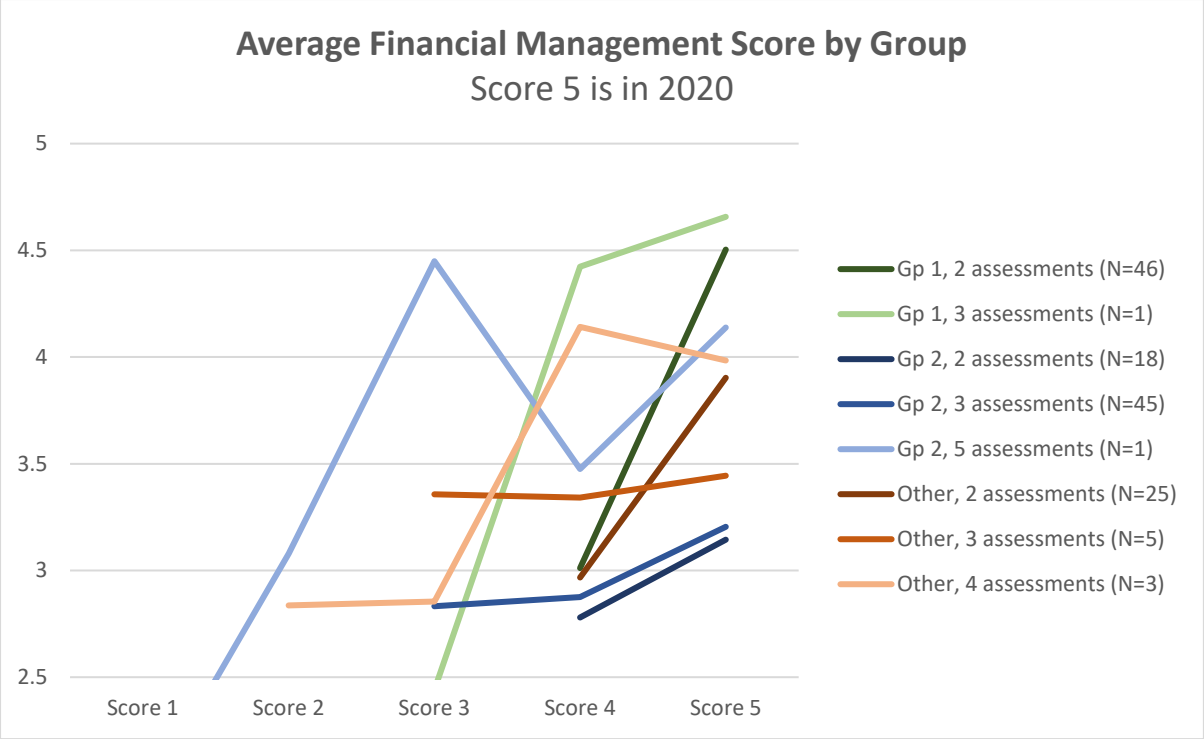
For Enabling Environment, the scores were already high, above 4, for the penultimate assessment for all three categories, and while most categories recorded an increase, there was less scope for improvement. Enabling Environment and External Risk are the smallest components of the Total Score.

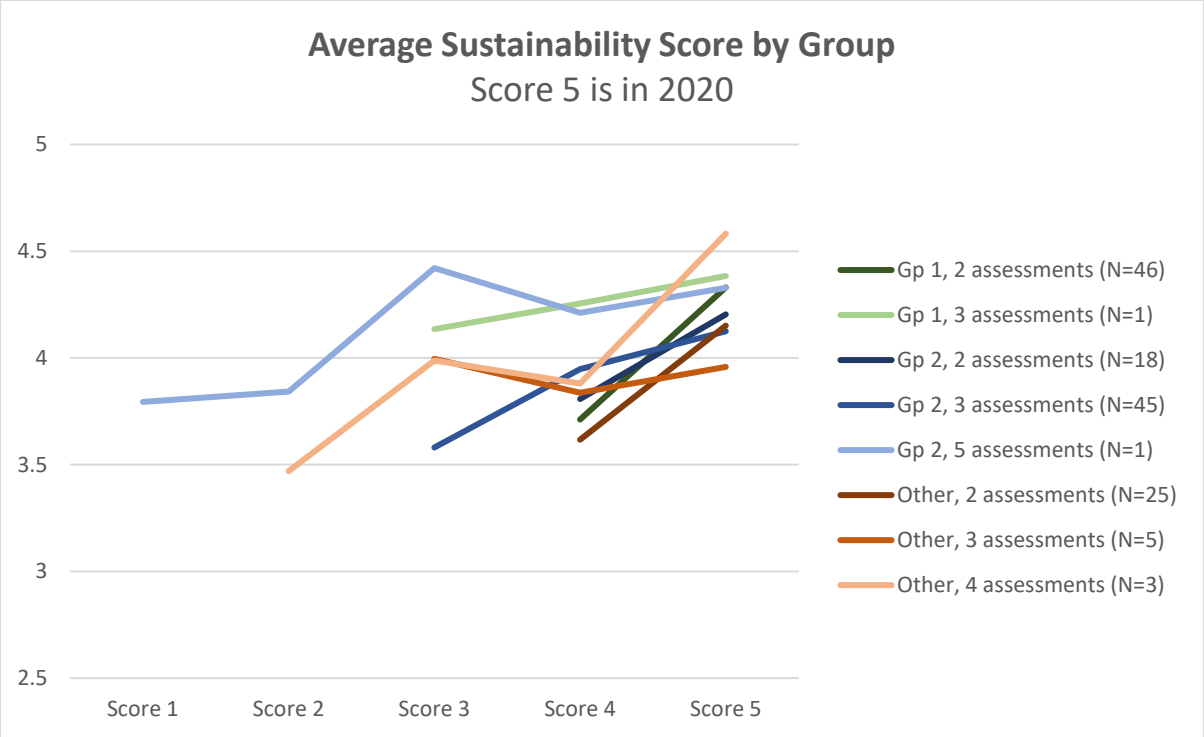
Group 1 (2 assessments) records considerable increases, on average, across all Dimensions, from +1.492 for Financial Management to +0.508 for Enabling Environment. Group 2 (2 or 3 assessments) for most Dimensions, starts from a lower score in the penultimate assessments and also records a smaller increase than Group 1 (2 assessments) or Other (2 assessments).

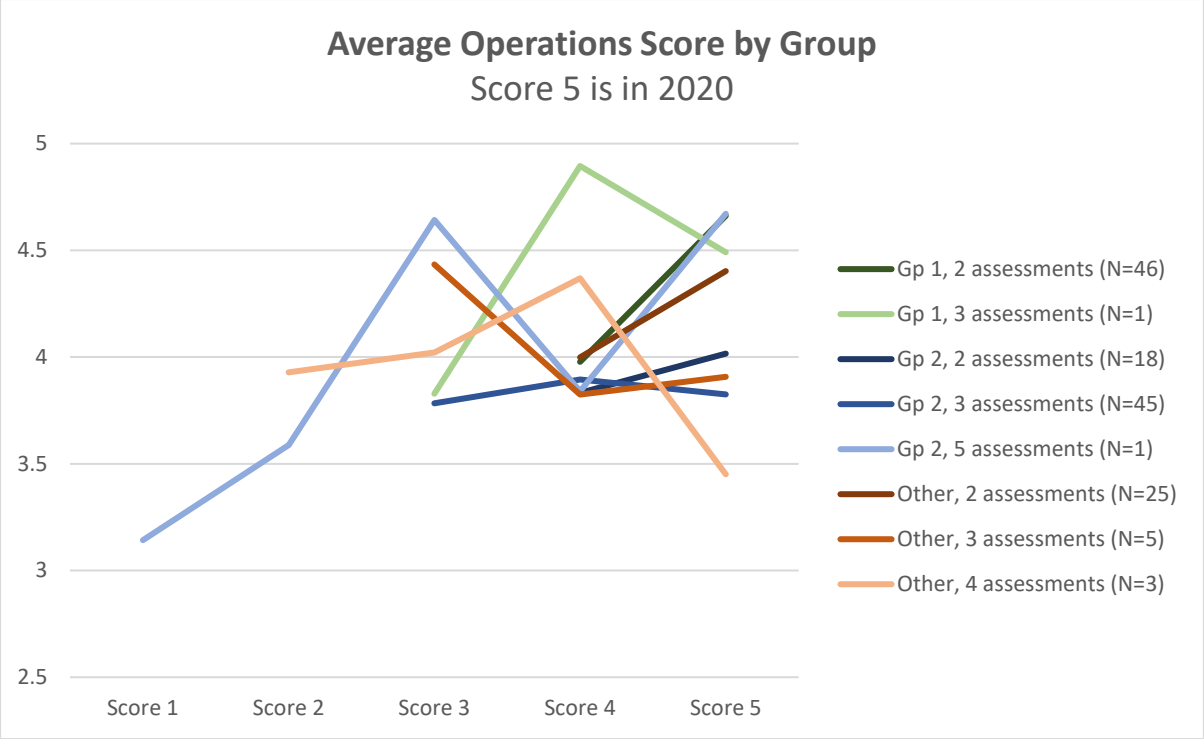
In Group 2, where there has already been an assessment before the penultimate one (i.e., an initial assessment in a series of 3), there has usually been a mild improvement in score already (although for Internal Management and Market, there has been a decline). There then follows an increase which is less on average for the organisations which have already been reassessed than for those which have not. And for the Operations score, there is a reduction in score on average for those being assessed for a third time. However, as noted above, for organisations in this category it is hard to interpret the change in scores because the initial assessment was conducted using an earlier version of the assessment tool.

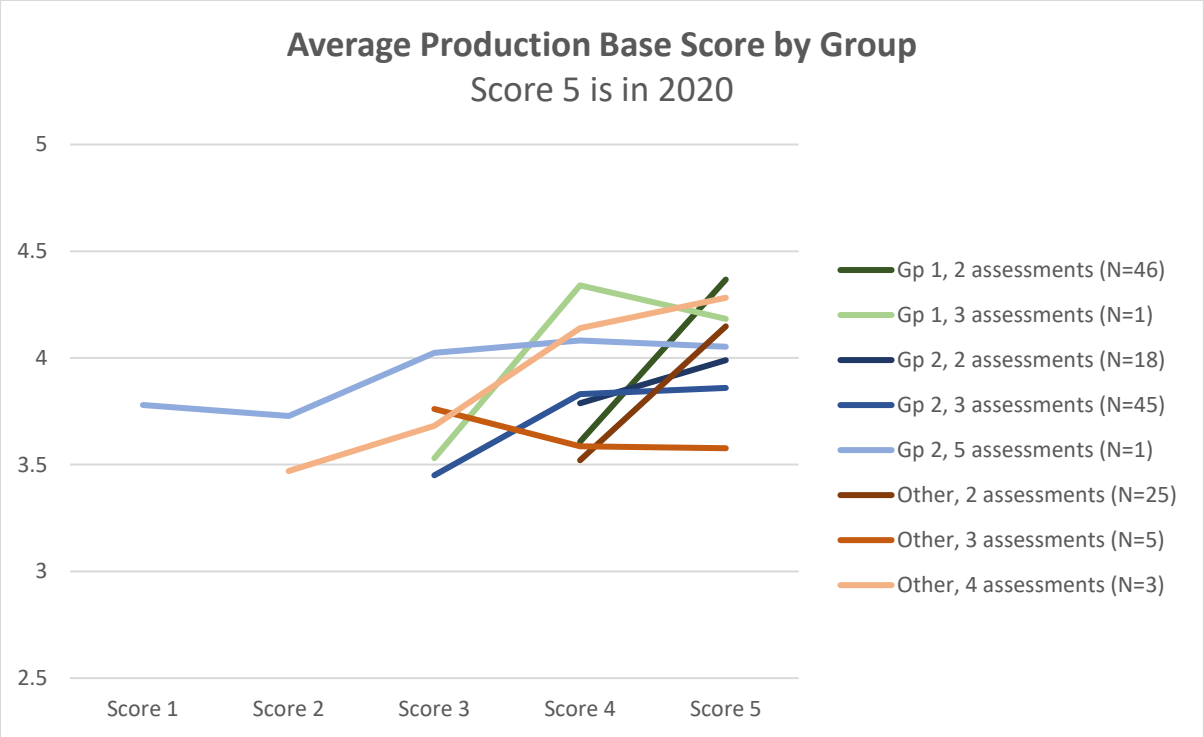
Change in Dimension scores by Group and Assessment Sequence

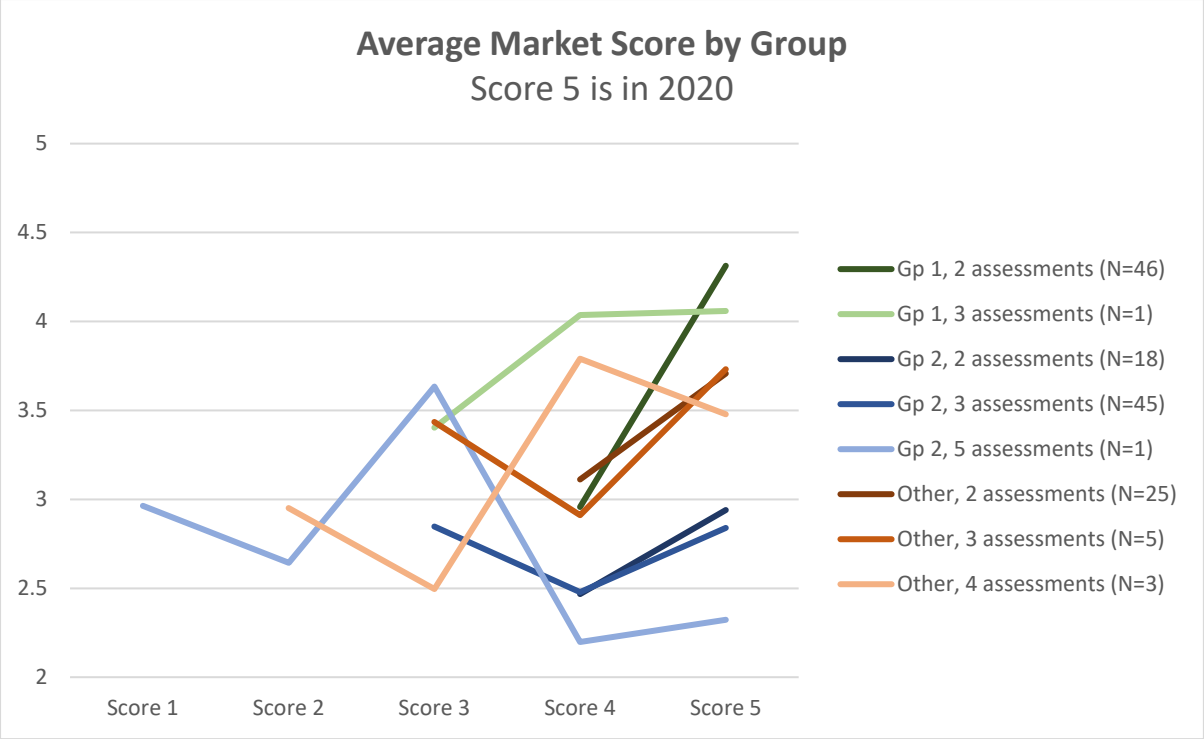


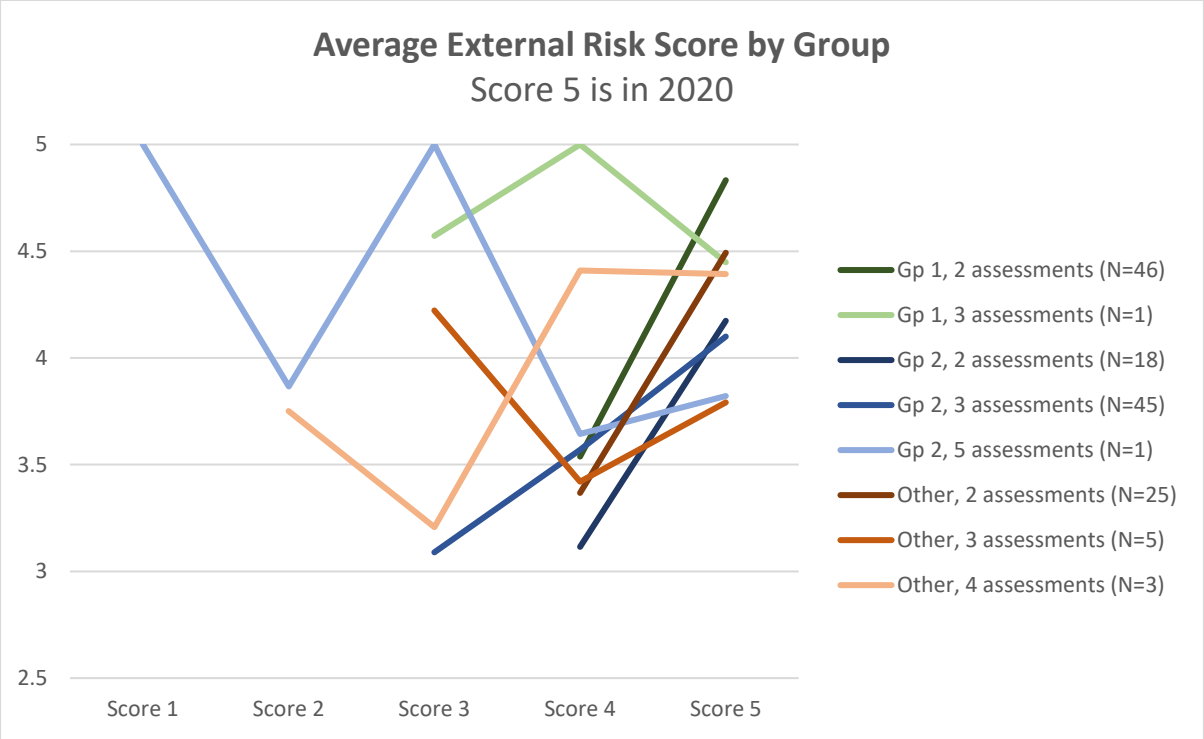

Average Financial Management Score by Group
Score 5 is in 2020
5
4.5
4
3.5
3
2.5
Score 1
Score 2
Score 3
Score 4
Score 5
Gp 1, 2 assessments (N=46)
Gp 1, 3 assessments (N=1)
Gp 2, 2 assessments (N=18)
Gp 2, 3 assessments (N=45)
Gp 2, 5 assessments (N=1)
Other, 2 assessments (N=25)
Other, 3 assessments (N=5)
Other, 4 assessments (N=3)

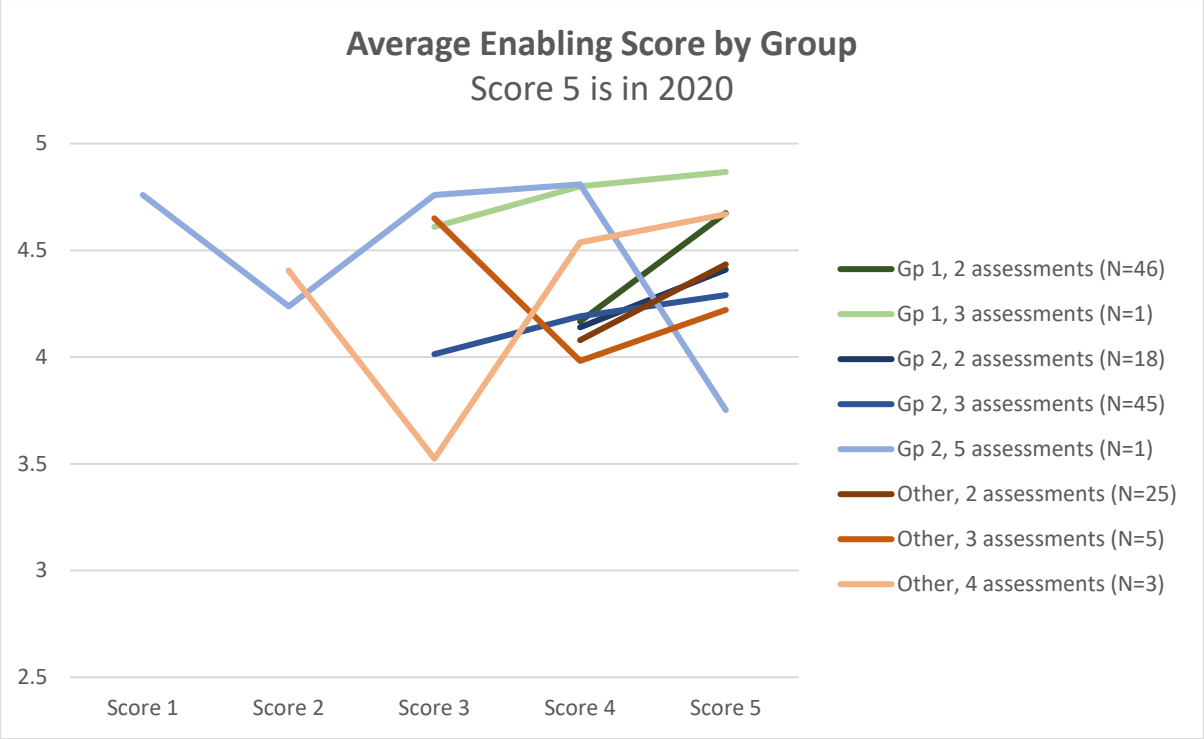

Average Sustainability Score by Group
Score 5 is in 2020
5
4.5
4
3.5
3
2.5
Score 1
Score 2
Score 3
Score 4
Score 5
Gp 1, 2 assessments (N=46)
Gp 1, 3 assessments (N=1)
Gp 2, 2 assessments (N=18)
Gp 2, 3 assessments (N=45)
Gp 2, 5 assessments (N=1)
Other, 2 assessments (N=25)
Other, 3 assessments (N=5)
Other, 4 assessments (N=3)


Average Operations Score by Group
Score 5 is in 2020
5
4.5
4
3.5
3
2.5
Score 1
Score 2
Score 3
Score 4
Score 5
Gp 1, 2 assessments (N=46)
Gp 1, 3 assessments (N=1)
Gp 2, 2 assessments (N=18)
Gp 2, 3 assessments (N=45)
Gp 2, 5 assessments (N=1)
Other, 2 assessments (N=25)
Other, 3 assessments (N=5)
Other, 4 assessments (N=3)


Average Production Base Score by Group
Score 5 is in 2020
5
4.5
4
3.5
3
2.5
Score 1
Score 2
Score 3
Score 4
Score 5
Gp 1, 2 assessments (N=46)
Gp 1, 3 assessments (N=1)
Gp 2, 2 assessments (N=18)
Gp 2, 3 assessments (N=45)
Gp 2, 5 assessments (N=1)
Other, 2 assessments (N=25)
Other, 3 assessments (N=5)
Other, 4 assessments (N=3)


Average Market Score by Group
Score 5 is in 2020
5
4.5
4
3.5
3
2.5
2
Score 1
Score 2
Score 3
Score 4
Score 5
Gp 1, 2 assessments (N=46)
Gp 1, 3 assessments (N=1)
Gp 2, 2 assessments (N=18)
Gp 2, 3 assessments (N=45)
Gp 2, 5 assessments (N=1)
Other, 2 assessments (N=25)
Other, 3 assessments (N=5)
Other, 4 assessments (N=3)


Average External Risk Score by Group
Score 5 is in 2020
5
4.5
4
3.5
3
2.5
Score 1
Score 2
Score 3
Score 4
Score 5
Gp 1, 2 assessments (N=46)
Gp 1, 3 assessments (N=1)
Gp 2, 2 assessments (N=18)
Gp 2, 3 assessments (N=45)
Gp 2, 5 assessments (N=1)
Other, 2 assessments (N=25)
Other, 3 assessments (N=5)
Other, 4 assessments (N=3)


Average Enabling Score by Group
Score 5 is in 2020
5
4.5
4
3.5
3
2.5
Score 1
Score 2
Score 3
Score 4
Score 5
Gp 1, 2 assessments (N=46)
Gp 1, 3 assessments (N=1)
Gp 2, 2 assessments (N=18)
Gp 2, 3 assessments (N=45)
Gp 2, 5 assessments (N=1)
Other, 2 assessments (N=25)
Other, 3 assessments (N=5)
Other, 4 assessments (N=3)

Annex 3c – Characteristics of Groups

This annex describes the characteristics of organisations in each Group, based on the 2020 assessment data. There were 206 assessments. Four organisations were assessed twice in this period, and the earlier of the pair of assessments has been omitted, along with 13 assessments carried out using SCOPE Pro 4.2.0 which is a different assessment tool.

As described in Annex 3a, two Groups were identified where the assessments were for the same Project, and both an assessment carried out in 2020 and the immediately prior assessment were carried out using the same version of the SCOPEinsight assessment tool. Group 1 comprised 47 organisations where SCOPE BASIC version 1.3.0 was used, and Group 2, 64 organisations where SCOPE Basic version 2.0.1 was used.

These assessments were further broken down by the number of assessments carried out in total. For Group 1, all but one organisation had had two assessments, giving the first category with 46 organisations. The remaining organisation had had three assessments.

For Group 2, there were eighteen organisations which had had just two assessments, and 45 which had had three, giving us the other two major categories to consider here.

All the remaining 80 organisations have been pooled to provide a contrast in the analysis below, but this remaining collection of organisations is more varied, from different projects and using different versions of the SCOPE Basic assessment tools.

The objective of the tables below is not to give a comprehensive analysis but to give some idea of the differences between the groups. A variety of measures are given here. For category variables, often just the percentage for the most popular response is given.

For some scalar measures, an average is given, but for others the range and the median is given. Typically, for skewed distributions such as income, the median is often a more useful central measure as the average (mean) can be inflated by very high values for a small number of organisations. However, a complication with the medians is that they cannot be used arithmetically. For example, if the median operating cost is subtracted from the median gross profit, the result is not necessarily equal to the median net profit.

	Group 1, 2 assessments N=46	Group 2, 2 assessments N=18	Group 2, 3 assessments N=45	All the rest N=80
Assessment				
SCOPE Basic Version	Basic 1.3.0	Basic 2.0.1	Basic 2.0.1	Basic 1.3.0, Basic 2.0.0, Basic 2.0.1
Duration of assessment – median	29 days	42 days	54 days	30 days
Number of assessors	4	6*	6*	20
Organisation				
Legal status	Co-operative 98%	Co-operative 100%	Co-operative 100%	Co-operative 96%
Year of Incorporation	2000 – 2017	2002-2019	1999-2014	1999-2019
In Operation Since	1975 – 2015 (75% missing)	2005-2009 (83% missing)	1994-2015 (0% missing)	1975-2015 (26% missing)

*Same 6 assessors across Group 2, different to the 4 assessors for Group 1

Infrastructure				
	Group 1, 2 assessments N=46	Group 2, 2 assessments N=18	Group 2, 3 assessments N=45	All the rest N=80
Roads -Tarmac , average quality -Dirt road	 50% 30%	 33% 39%	 16% 47%	 34% 28%
Distance to hub >=100km	35%	17%	0%	11%
Public transport - available in vicinity	100%	94%	89%	99%
Electricity – Stable w/o generator backup	60%	39%	51%	53%
Internet – Mobile only	65%	83%	82%	55%
Mobiles – Broad coverage	75%	78%	76%	68%
Water – running water	70%	89%	67%	71%

	Group 1, 2 assessments N=46	Group 2, 2 assessments N=18	Group 2, 3 assessments N=45	All the rest N=80
Numbers of people Median (Range)				
Board members (Av % female)	6 (3–15) (4.6%)	6 (3-12) (4.1%)	6 (3-12) (6.5%)	6 (3-12) (8.0%)
Managers (Av % female)	2 (1-7) (15.5%)	4 (1-14) (19.5%)	2 (0-13) (14.6%)	3 (1-36) (15.6%)
Employees – Full-time (Av % female)	7 (0-28) (13.8%)	7 (1-14) (9.0%)	4 (0-23) (12.4%)	7 (0-53) (14.6%)
Employees – Part-time (Av % female)	4 (0-20) (8.1%)	0 (0-10) (4.6%)	0 (0-12) (1.9%)	3 (0-46) (3.9%)
Employees – Seasonal (Av % female)	5 (0-23) (7.0%)	6 (0-12) (0.0%)	4 (0-16) (3.2%)	6 (0-45) (5.5%)
Members (Av % female)	533 (263-2039) (5.6%)	586 (244-1259) (8.3%)	492 (203-3836) (9.0%)	741 (119-5683) (8.1%)
Outgrowers (% 0) (Av % female)	0 (0-40) (98%) (0.0%)	0 (0-0) (100%) (N/A)	0 (0-317) (96%) (2.7%)	0 (0-1294) (89%) (2.6%)

Note that “Av % female” is an average across the percentages for organisations, not the overall average of all females as a percentage of all people in the category.

	Group 1, 2 assessments N=46	Group 2, 2 assessments N=18	Group 2, 3 assessments N=45	All the rest N=80
Accounts – Median (Range)				
Turnover (XOF)	207,000,000 (15,600,000-2,019,100,000) (N=45)	N/A	N/A	122,100,000 (13,800,000-1,923,700,000) (N=23)
Cost of sales (XOF)	181,000,000 (0-2,012,200,000) (N=45)	N/A	N/A	99,700,000 (12,800,000-1,900,100,000) (N=23)
Gross profit	N/A	57,200,000 (-9,400,000-517,200,000) (N=15)	30,600,000 (500,000-404,500,000) (N=42)	105,900,000 (-4,000,000-2,887,000,000) (N=52)
Operating costs	N/A	79,000,000 (14,400,000-494,400,000) (N=15)	32,000,000 (900,000-369,000,000) (N=39)	97,300,000 (4,700,000-3,827,200,000) (N=52)
Net profit	8,000,000 (1,100,000-59,100,000) (N=45)	10,300,000 (200,000-58,700,000) (N=15)	5,700,000 (-6,900,000-69,600,000) (N=38)	11,100,000 (-32,600,000*-168,500,000) (N=73)

Net profit is calculated as either Turnover minus Cost of sales, or Gross profit minus operating costs. Different information is available depending on the version of SCOPE BASIC used.
*omitting one outlier.

	Group 1, 2 assessments N=46	Group 2, 2 assessments N=18	Group 2, 3 assessments N=45	All the rest N=80
Financial strategy – Median				
Responses	N=0 (100% missing)	N=12 (33% missing)	N=33 (33% missing)	N=52 (35% missing)
Business surplus		1%	3%	5%
Fee capital		0%	2%	0%
Loan		0%	0%	0%
Pre-finance		4%	40%	50%
Grant		0%	0%	0%
Other		0%	0%	0%

	Group 1, 2 assessments N=46	Group 2, 2 assessments N=18	Group 2, 3 assessments N=45	All the rest N=80
Bank account				
Multiple accounts	25%	53%	61%	60%
Loan history				
Had a loan	63%	6%	22%	45%
More than 1 loan	2%	0%	7%	9%
Average maximum loan amount (XOF) (organisations with loan only)	50,500,000	27,000,000	23,100,000	128,300,000
Pre-finance history				
Had pre-finance	N/A	78%	78%	68%
More than 1 pre-finance agreement	N/A	6%	18%	32%
Average maximum pre-finance amount (XOF) (organisations with pre-finance only)	N/A	55,800,000	50,100,000	557,200,000
Grant history				
Had grant	N/A	6%	2%	6%

	Group 1, 2 assessments N=46	Group 2, 2 assessments N=18	Group 2, 3 assessments N=45	All the rest N=80
Production of cocoa				
Land used (hectares)	254-32,856 Median 1,720	600-4,971 Median 2,020	338-8,496 Median 1,888	119-23,652 Median 3,055
Average yield per hectare (kg/hectare)	400-801 Median 617	410-1,000 Median 654	356-962 Median 600	305-990 Median 600
Produce purchased				
Produce purchased (most recent year) (kg)	110,000-5,990,000 Median 1,050,000	0-4,730,000 Median 1,260,000	0-9,600,000 Median 860,000	0-11,300,000 Median 1,380,000
Purchase price (latest year) (XOF per kg)	700-905 Median 750	750-850 Median 750	700-825 Median 825	500-905 Median 750
Certified (%) (latest year)	0%-100% Median 85%	50-100% Median 100%	0%-100% Median 80%	0%-100% Median 80%
Produce sold				
Produce sold (latest year) (kg)	110,000 -5,990,000 Median 1,050,000	0- -4,730,000 Median 1,250,000	0- -9,600,000 Median 1,090,000	20,000 -11,270,000 Median 1,430,000
% Produce sold=produce purchased	98%	89%	73%	71%
Sale price (latest year) (XOF per kg)	700-1180 Median 830	0-930 Median 905	0-905 Median 905	0-985 Median 905
% Sale price = Purchase price +80XOF	85%	88%	92%	70%
Certified (%) (latest year)	0%-100% Median 83%	0%-100% Median 100%	0%-100% Median 88%	0%-100% Median 80%
Exported (%) (latest year)	All 0%	78% at 0% 22% at 100%	69% at 0% 31% at 100%	95% at 0% 4% at 100%
Other products				
Produces products other than cocoa	4%	0%	4%	9%

	Group 1, 2 assessments N=46	Group 2, 2 assessments N=18	Group 2, 3 assessments N=45	All the rest N=80
Documents available				
1) All the organisations (or nearly all) have				
Certificate of Registration	100%	100%	100%	100%
Constitution / Bylaws	100%	100%	100%	100%
Trading license	100%	100%	100%	100%
Tax / PIN Certificate	100%	100%	100%	99%
List of members	100%	100%	100%	99%
Business licence	100%	100%	98%	100%
AGM minutes	100%	100%	98%	96%
Contract with customers	100%	100%	96%	96%
Register of production volumes	100%	94%	98%	94%
Annual accounts most recent year	96%	83%	87%	89%
Annual accounts most recent year-1	98%	89%	96%	96%
Annual accounts most recent year-2	94%	89%	96%	95%
Proof of certification (e.g. Fairtrade, Utz Certified, ISO, etc…)	94%	100%	84%	94%
2) All organisations (or nearly all) in Group 1 have				
Finance policy*	100%	17%	18%	63%
Articles of association*	100%	82%	81%	95%
Resume of executive managers*	98%	83%	95%	80%
Bank statements past year*	96%	83%	62%	91%
Register of purchases/inputs*	98%	71%	68%	76%
Business plan*	100%	22%	31%	63%
HR policy*	100%	0%	2%	56%

	Group 1, 2 assessments N=46	Group 2, 2 assessments N=18	Group 2, 3 assessments N=45	All the rest N=80
3) Not all organisations have				
Cash flow forecast*	87%	22%	38%	51%
Asset valuation documents*	80%	72%	71%	50%
Contract with suppliers	80%	67%	69%	84%
Contract with other business partners	67%	53%	64%	57%
Offer letters of past loans/loan agreements*	62%	47%	33%	26%
Ownership documents/titles*	61%	56%	56%	80%
Insurance policies*	61%	61%	84%	84%
Resolution of right to borrow*	56%	14%	23%	21%
Environmental impact assessment	50%	41%	24%	40%
Credit reference bureau report*	40%	13%	16%	17%
List of outgrowers	35%	0%	27%	26%

*statistically significant differences

Scores

Total Score and Dimension Scores

See separate report on change in scores by Group

The Dimensions are:

1 Internal Management
2 Financial Management
3 Sustainability
4 Operations
5 Production Base
6 Markets
7 External Risk
8 Enabling

Sub-Dimension scores

There are a number of Sub-Dimension scores for which Group 1 do not have values. This is probably because these scores have been added to SCOPE Basic after Version 1.3.0. The majority of these are related to Financial Management (Dimension 2).

The scores involved are:

1.1.11	2.2.5	2.4.1
1.2.7	2.2.6	2.4.2
1.4.1	2.3.1	3.2.4
1.4.2	2.3.2	5.3.4
1.4.3	2.3.3	5.4.1
2.1.4	2.3.4	5.4.2
2.1.5	2.3.5	
2.2.4	2.3.6	

There are a number of Sub-Dimension scores for which a very high proportion of Group 1 (2 assessments) have a score of 5.0 in the last assessment, the maximum possible. These are:

1.1.1	98%
1.1.2	96%
1.1.5	80%
1.1.7	85%
1.1.8	94%
1.2.1	89%
1.2.2.	91%
1.3.1	85%
1.3.2	89%
1.3.3	83%
2.1.3	89%
2.2.2	83%
3.1.1.	80%
3.1.3	94%
3.1.7	85%
3.1.9	96%
3.2.1	87%
3.2.2	94%
3.2.3	91%
4.1.1	83%
5.3.1	98%
6.2.2	89%
6.2.3	87%
7.1.1	87%
7.1.2	91%
8.3.1	91%

For score 8.2.1, 76% are 4.2 and 17% are 5.0.
For score 8.3.2, 59% are 5.0 and 41% are 3.667

There is also one Sub-Dimension (3.1.5 – Diversity) for which nearly all (94%) of Group 1 (2 assessments) organisations score 1.0, the lowest value recorded. The questions here are mostly about the proportion of women in the organisation, and the remaining question is about youth participation.

There are also some Sub-Dimension scores where a high proportion of Group 2 organisations have the same score:

4.2.3	83% of Group 2, 2 assessments score 5.0
6.2.2	49% of Group 2, 3 assessments score 1.0
8.2.1	84% of Group 2, 3 assessments score 5.0

There are a number of Sub-Dimensions where the scoring is very granular (across all groups), that is to say, there appear to be a number of discrete values possible from 0 or 1 to 5, rather than a continuous scale of scores being available.

1.1.1	Only 8 values.
1.1.8	Only 7 values.
1.3.1	Only 7 values
2.2.3	Only 5 values: integers 1-5.
2.3.2	Only 5 values
2.3.3	Only 6 values
2.3.4	Only 6 values
2.3.5	Only 5 values: integers 1-5.
2.3.6	Only 3 values: 1, 3 ,5.
2.4.2	Only 7 values.
3.1.6	Only 6 values: integers 0-5
3.2.4	Only 6 values.
8.2.1	Only 7 values
8.3.1	Only 5 values.
8.3.2	Only 7 values.

ANNEX 4: Analysis of data on PO loans

- **The nature of the data analysed**
- **Financial history**
- **Accounting information**
- **Bank accounts**
- **Chronology**
- **Infrastructure**
- **People**
- **Production**
- **Scores**
- **Summary**

This analysis looks at whether organisations obtained a loan, and what other variables within the data are related to that. The data used were derived from SCOPEinsight assessments (start date in 2020) of cocoa producer organisations in Côte d'Ivoire.

There were 206 such assessments in the dataset provided. Of these there were four pairs of assessments for the same organisations, so only the later one of each pair was included. Also, 13 were carried out using SCOPE Pro 4.2.0 (a different assessment tool) so these were excluded too. There were therefore 189 assessments included in this analysis.

They were grouped as for the analysis for of scores (Annexes 3a-3c). This allows the separation of assessments into two groups, in each of which are assessments for one specific project using one specific version of the SCOPEinsight assessment tool. The remaining assessments, a mixture of projects and versions of the SCOPEinsight tools, form a third residuary group.

Group 1	47 assessments	One specific project using SCOPE Basic version 1.3.0.
Group 2	64 assessments	Another specific project using SCOPE Basic version 2.0.1.
Residuary group	78 assessments	Four different projects, using SCOPE Basic versions 1.3.0, 2.0.0, 2.0.1
Total	189 assessments	

60% of assessments were second assessments of the organisation, with most of the rest (32%) being third assessments. For Group 1, all but one were second assessments.

The data was examined using statistical software SPSS. For categorical variables such as mobile connection or whether an organisation had available a particular document, data were examined principally using cross-tabulations and a chi-squared test of significance. For continuous (scalar) variables such as net profit, SCOPEinsight scores and numbers of employees, data were examined using

scatterplots, descriptive statistics and a t-test for independence. These examine the relation between each variable with the variable of interest (whether or not the organisation obtained a loan) singly. Co-variation of variables was also examined by regression analysis using stepwise introduction of variables.

When looking for relationships in the data, it is vital to understand the key subdivisions in the data. With health data, for example, it is usually important to analyse by gender and age. For this data about assessments of farmer organisations in Côte d'Ivoire, it has proved imperative to control for the sequence of assessments and for the version of the SCOPEinsight assessment tool used. It is possible that there are other key dimensions which have been missed. Relationships found at one level in the data may be nullified or even contradicted by results for key sub-divisions of the data. Where finding at lower levels are similar to those overall, it suggests that the findings are more robust; where they are different, it suggests there may be more to understand.

The measure of whether a particular relationship is statistically significant used here is the p=value, the probability that the differences observed could have occurred by chance in two groups selected from a single population i.e. where there is no real difference. Where the p-value is less than 0.05, this is conventionally considered statistically significant, and where it is less than 0.01, it is conventionally considered highly statistically significant.

Regional distribution of the POs for which the assessment data was analysed

Region	Group 1	Group 2	Rest	Total
18 Montagnes (Région des)	2		3	5
Agnébi (Région de l')	4	7	9	20
Bas-Sassandra (Région du)	21	15	22	58
Denguélé (Région du)	0	1	0	1
Fromager (Région du)	4	9	6	19
Haut-Sassandra (Région du)	5	5	9	19
Lacs (Région des)	0	3	2	5
Lagunes (Région des)				
Marahoué (Région de la)	4	1	7	12
Moyen-Cavally (Région du)	0	4	2	6
Moyen-Comoé (Région du)	1	8	8	17
Nzi-Comoé (Région)	0	0	1	1
Sud-Bandama (Région du)	5	3	4	12
Sud-Comoé (Région du)	0	7	5	12
Vallée du Bandama (Région de la)	0	1	0	1
Worodouqou (Région du)	1	0	0	1
TOTAL	47	64	78	189

Financing history

Organisations provided their history of loans, pre-finance and grants. Under each heading, only the most recent year's figures (if any) have been included in the analysis here. (Pre-finance is not recorded for Group 1, as SCOPE Basic 1.3.0 did not include this field).

Loans

Our key measurement is whether or not a PO has received a loan. Our measure comes from the history section of the assessment tool. Other variables about loans captured as part of the history are the name and type of financier, the start date and duration, the interest rate, the repayment status and the purpose of the loan. Other variables available about loans are availability of a loan agreement, which is discussed below along with availability of other documents, and questionnaire responses on whether one or regular loans from a financial institution have been received.

As might be expected in a complex dataset, the different sources are not 100% consistent with one another, and in consultation with SCOPEinsight, it was decided to use the information from the loan history about whether a loan was obtained as our principal measure of "success" for this analysis.

Overall 40% of organisations had obtained loans. For Group 1, the proportion was higher at 62% (29 out of 47) while for Group 2 it was less at 19% (12 out of 64).

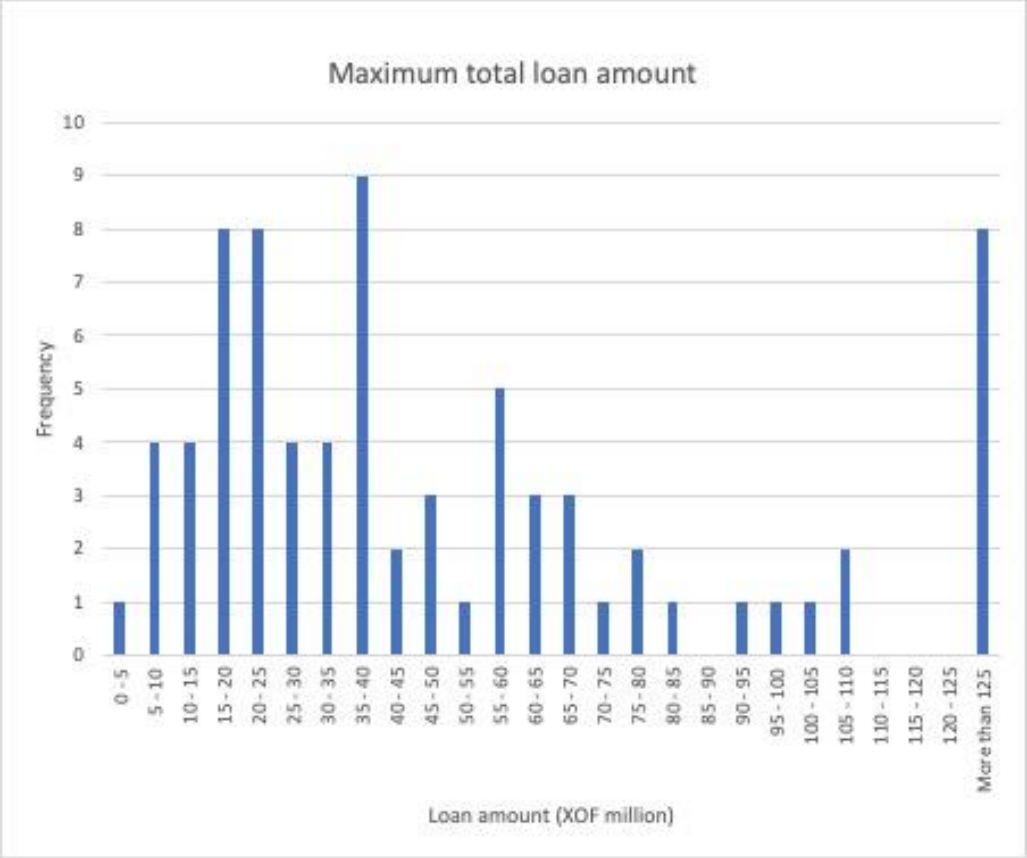
Access to Finance

Of the 189 assessments started in 2020, the numbers of loans recorded were:

No loan	113
One loan	58
Two loans	12
Three loans	4
Four loans	1
Seven loans	1
Total	189

The graph below shows the distribution of maximum loan amount, which is defined as follows: if only one loan was recorded, the amount of that loan; if more than one loan, then if they were concurrent, the sum of the loan amounts; if one followed the end of the other, the larger of the two; where there were more than two loans, the maximum amount of loan at any one time was estimated.

The average loan was 73.9m XOF (approx. 112,700 Euros) and the median was 35.5m XOF (approx. 54,100 Euros). The largest single loan recorded was for 787m XOF (1.20m Euros). Another organisation recording three concurrent loans totalling 829m XOF (1.26m Euros).



The tables below include the loans reported for the assessments started in 2020. 76 organisations had a total of 105 loans, with 18 organisations having more than one loan. Some loans were for the same amount from the same financier in a sequence of years, and so might be rolling over the same loan rather than a further advance. Some larger sums appeared to be the sum of two earlier smaller sums, and so on. Thus, the total amount of loans might be an exaggeration of the total credit available at any one time. The maximum loan amount for each organisation has been estimated for those 18 organisations which reported more than one loan using the available data, resulting in a revised estimate of the total amount borrowed of 6.34bn XOF rather than the 7.76bn XOF.

Purpose	**Total loans (XOF)**	
Harvest finance	4,138,798,073	53.3%
Trade finance	1,789,892,500	23.1%
Asset finance	755,974,227	9.7%
Export finance	650,000,000	8.4%
Input finance	189,701,000	2.4%
Investment capital (general)	173,994,154	2.2%
Working capital (general)	5,000,000	0.1%
Other	61,381,340	0.8%
TOTAL	**7,764,741,294**	100.0%

Note: See text about possible double-counting.

Financier	Total loans (XOF)	
MFI	2,424,342,121	31.2%
Bank	2,026,267,033	26.1%
Company	1,600,132,140	20.6%
Social lender	15,000,000	0.2%
Other	1,699,000,000	21.9%
TOTAL	**7,764,741,294**	100.0%

Note: See text about possible double-counting.

For those organisations that obtained a loan, the maximum loan amount is related to many variables, but most strongly related to the amount of land used for cocoa production. A regression for the maximum loan amount with just this variable accounts for more than 70% of variation in the amount. Adding the next five variables with the greatest partial correlations (all part-time staff, all female staff, all managers, the number of managers per square kilometre and the purchase price of produce) takes the proportion of variation explained to 83.5%. All these variables, with the exception of the last, relate to the scale of the organisation. The coefficients in the regression suggest the size of loan obtained was, on average, larger by about 32,500 XOF (about 50 Euros) per hectare of cocoa land.

Pre-finance

In Group 2, of those organisations which had pre-finance, 24% also had a loan, while those which didn't have pre-finance also didn't have a loan, and this difference is statistically significant (p=0.037). Within Group 2, those with larger amounts of pre-finance are more likely to have obtained a loan, but the differences were not statistically significant. We understand that SCOPE Basic version 1.3.0 did not include data about pre-finance, and thus there was no analysis for Group 1.

Grants

For Group 2, both organisations which received a grant also obtained a loan, while only 16% of those with no grant did, and this is a statistically significant difference (p=0.033). We understand that SCOPE Basic version 1.3.0 did not include grant data and thus there was no analysis for Group 1.

Accounting information

Different accounting information is required for different versions of the SCOPEinsight assessment tools, as shown in the table. These variables had a higher than average level of missing data.

Version	Turnover	Cost of Sales	Gross Profit	Operating Costs	Net profit
1.2.2	X	X	X	X	X
1.3.0	✓	✓	X	X	✓
2.0.0	X	X	✓	✓	X
2.0.1	X	X	✓	✓	X
Pro 4.2.0	X	X	X	X	X
Cases present	72	72	111	106	72
Cases missing	134 (0 – 103, 99 – 31)	134	95	100	134

For SCOPE Basic versions 2.0.0 and 2.0.1, in consultation with SCOPEinsight, we have calculated a net profit figure as gross profit minus operating costs, and this is then the only variable common between versions 1.3.0, 2.0.0 and 2.0.1.

The net profit is typically a small difference between two large numbers. In the case of version 1.3.0, between turnover and the cost of sales, and in the other cases between gross profit and operating costs. As such, it has a much larger degree of variability than the numbers it is derived from.

There is no evident relation between net profit and whether an organisation has obtained a loan. Examining the Groups separately (each used different versions of the assessment tools): for Group 1, there is no significant relation between turnover or cost of sales and whether an organisation has obtained a loan; for Group 2, there is no significant relation between gross profit or operating costs and whether an organisation has obtained a loan.

Bank accounts

All organisations assessed had bank accounts. 51% had more than one account, and those with multiple accounts were slightly more likely to have obtained a loan (45% against 38%) though this is not statistically significant. For Group 2 organisations, though, that difference was 31% against 4% (so those organisations with only one bank account were very unlikely to have obtained a loan) and this was statistically significant ($p=0.010$).

Chronology

One organisation started operating in 1975 while some started only in 2015. The median was 2008. Organisations were incorporated between 1999 and 2019, with a median of 2012. There is no evidence of a relation between these dates and obtaining a loan.

Assessments took a little less time (average 37 days) for those organisations which obtained loans than those which did not (average 46 days), but this is not statistically significant.

Infrastructure

Concerning infrastructure, the largest difference in terms of obtaining a loan appears to be access to electricity. Organisations with stable electricity and backup are less likely to have obtained a loan (30%) than those with stable electricity but no backup (46%) or those without electricity (48%), but this difference is not statistically significant. Other differences in infrastructure (water, internet, mobile phones, connection to public transport, road access, distance from a hub) are not significant.

People

The SCOPEinsight dataset provides numbers of Board members, managers and employees (full-time, part-time and seasonal), members and active members, outgrowers and active outgrowers. For each of these categories, totals of men and women are provided separately. This allows for the calculation of the totals of both genders and also the proportion of each category who are female (or male). As the numbers of each category will be strongly influenced by the overall scale of the organisation, the ratio of key categories to the amount of land used in production was calculated, as the land used was found to be the best proxy for overall scale in a regression on size of loan.

The table below show the relationships between various categories of people with whether or not the organisation obtained a loan. It shows the mean value for those organisations which did not obtain a loan and for those which did. It also shows the p-value (if this is less than 0.01, the result is considered highly statistically significant, if less than 0.05, it is still statistically significant).

In this table, because all numbers of people are to a large degree a measure of the overall scale of the organisation, there is a great deal of collinearity between the different categories. They vary together, are not independent, and should be considered together. The statistics which are proportions who are female or calculated as a number per square kilometre are independent of scale. There is no need to also consider proportions who are male, as these statistics would correlate exactly with the corresponding statistics for proportion who are female and in terms of analysis are redundant.

A number of measures of numbers of people were statistically correlated to whether an organisation obtained a loan. Amongst these, the relationship was strongest for the number of part-time staff per square kilometre, then the number of part-time staff, the number of full-time staff and the proportion of all staff who are female. A number of measures of seasonal staff were highly related with obtaining a loan, but in each case negatively (i.e., a higher score is related to a lower probability of having obtained a loan).

In the table below, those p-values less than 0.01 are highlighted in red (highly significant) and those less than 0.05 in yellow (significant). Where the difference in mean is lower for organisations which have obtained a loan compared to those that have not, i.e., where there is an inverse relationship, the numbers are set out in red.

	All			Group 1			Group 2		
	Mean			Mean			Mean		
Category	**No loan**	**Have loan**	**p**	**No loan**	**Have loan**	**P**	**No loan**	**Have loan**	**p**
Number of female Board members	0.40	0.68	0.030	0.11	0.52	0.029			
Number of female managers	0.50	0.86	0.025						
Number of male managers							3.8	2.2	0.035
Number of female full-time employees	0.83	1.37	0.004						
Number of male full-time employees	6.50	8.97	0.016						
Number of male part-time employees	3.26	5.88	0.004						
Number of male seasonal employees				8.33	3.97	0.004			
Number of female members	54.49	91.80	0.013						
Number of active female members	51.06	91.46	0.015						

Number of female staff	4.89	7.46	0.010						
Proportion of Board members who are female	5.1%	8.4%	0.027						
Proportion of all staff who are female	23.6%	32.9%	0.003						
Number of managers							4.4	2.5	0.020
Number of full-time staff	7.3	10.3	0.004						
Number of part-time staff	3.4	6.2	0.002						
Number of seasonal staff	7.3	5.4	0.034	9.83	4.17	0.002			
Number of Board members per sq.km land in production				0.37	0.69	0.035			
Number of managers per sq.km land in production				0.16	0.35	0.033			
Number of full-time staff per sq.km land in production				0.37	0.91	0.007			
Number of part-time staff per sq.km land in production	0.142	0.540	<0.001	0.21	0.80	0.006			
Number of seasonal staff per sq.km land in production	0.382	0.231	0.034						
Number of members per sq.km land in production	35.0	46.8	0.030						
Number of active members per sq.km land in production	34.5	45.8	0.033	34.1	60.6	0.044			

Production

All information below relates to the production of cocoa unless otherwise stated. The median amount of land was 2020 hectares. For Group 1, the amount of land used to produce cocoa ranged from 120 to 6000 (and one cooperative with 32,800 hectare). For Group 1, the median was 1720 hectares and for Group 2, 2050 hectares. There is no noticeable difference in obtaining a loan by amount of land use to produce cocoa.

Average yield varied from 305 to 1000 kg/hectare. The median was 600 kg/hectare. For Group 1 the median was 633 kg/hectare (36% of organisations gave a value of 600) while for Group 2 it was 600

kg/hectare. For those organisations which obtained a loan, the average yield was 623 kg/hectare, compared to 603 kg/hectare for those which did not.

80% of organisations recorded exactly the same volumes of produce purchased and sold, with 6% recording more purchased than sold and 14% more sold than purchased. The average volume purchased was 1,670 tonnes. The average price paid was 784 XOF per kg, in the range 500 to 905 XOF. Group 1 organisations purchased on average at 762 XOF while Group 2 purchased at an average price of 808 XOF, a statistically significant difference. The proportion of produce purchased that was certified was on average 69%. For all these measures of produce purchased, there was no significant difference between those who obtained loans and those who did not, and very little difference between Groups 1 and 2.

The average volume sold was 1,740 tonnes, and the average price achieved 847 XOF per kg, with a range from 580 to 1180 (with 35% of organisations recording exactly 830 and 40% exactly 905 XOF). For 80% of organisations, the sale price recorded was exactly 80 XOF higher than the purchase price (i.e., the Government regulated cooperative margin). The proportion sold that was certified was on average 71% with 37% of organisations recording 100%. The average proportion exported was 11%, largely through 21 organisations which exported 100% while 167 organisations did not export at all. For all of these measures of produce sold, there was no significant difference between those who obtained loans and those who did not. In Group 2, 28% of organisations exported 100% of their produce, while Group 1 did not export at all.

Only 11 organisations in this dataset were dealing in another crop as well as cocoa, and this was mostly coffee. For these organisations, a slightly higher proportion had obtained a loan (55%) but this was not statistically significant.

Scores

The SCOPEinsight assessment generates a Total Score, built on eight Dimension scores which are in turn built on 92 (SCOPE Basic version 2.0.1) Sub-Dimension scores.

In the table below, those p-values less than 0.01 are highlighted in red (highly significant) and those less than 0.05 in yellow (significant). Where the difference in mean score is lower for organisations which have obtained a loan compared to those that have not (i.e., where there is an inverse relationship), the numbers are set out in red. Where the p-values are high, approaching 1, the differences in mean score are small and effectively meaningless. Where the p-value is small, showing statistical significance, it matters which score is larger. On the first table below, scores for all 8 Dimensions are shown for completeness, but only a few differences are statistically significant.

It is clear that whether organisations obtained a loan is related to the Total Score and more closely to the scores for Internal Management and Financial Management. It was also related to the change in those scores since the previous assessment, particularly for Internal Management.

Whether organisations obtained a loan is also significantly related to many of the Sub-Dimension scores as shown in the further table below, especially many Sub-Dimension scores for Internal Management and some for Financial Management. Other scores include "pregnant women"[18], strength of production base, competition for members and marketing strategy.

[18] This field relates to whether the cooperative offers maternity benefits to pregnant female staff.

Score	All			Group 1			Group 2		
	Mean score			Mean score			Mean score		
	No loan	Have loan	p	No loan	Have loan	P	No loan	Have loan	P
Total Score	3.7848	3.9714	0.033	4.4263	4.4870	0.294	3.6101	3.7191	0.420
Internal Management	3.7246	4.0106	<0.001	4.4208	4.4594	0.609	3.5522	3.9143	0.020
Financial Management	3.4359	3.8621	0.001	4.4508	4.5415	0.450	3.1178	3.5685	0.062
Sustainability	4.1793	4.1653	0.826	4.2954	4.3539	0.222	4.1524	4.1418	0.948
Operations	4.1111	4.1769	0.472	4.6333	4.6737	0.502	3.9381	3.6928	0.169
Production Base	3.9717	3.9577	0.853	4.3738	4.3569	0.791	3.9134	3.8374	0.541
Market	3.2230	3.4832	0.061	4.1752	4.3902	0.034	2.9191	2.6037	0.177
External Risk	4.2421	4.3005	0.627	4.7836	4.8500	0.303	4.1073	4.1575	0.837
Enabling	4.3841	4.3332	0.506	4.7055	4.6621	0.511	4.3167	4.3097	0.962
Change since last assessment									
Total Score	0.4854	0.7009	0.024	0.9969	1.0297	0.786	0.2423	0.3783	0.475
Internal Management	0.5498	0.9052	0.003	1.1507	1.2408	0.592	0.3194	0.5881	0.169
Financial Management	0.6581	1.0083	0.035	1.5852	1.3912	0.395	0.2586	0.7181	0.107
Sustainability	0.3753	0.4797	0.286	0.4683	0.6955	0.016	0.2358	0.2463	0.962
Operations	0.1952	0.4050	0.094	0.5554	0.7270	0.189	0.0141	0.0233	0.971
Production Base	0.3574	0.4343	0.485	0.8016	0.7028	0.394	0.0747	0.0841	0.963
Market	0.6617	0.8097	0.298	1.3381	1.3217	0.913	0.4423	0.1584	0.200
External Risk	0.8715	0.8715	0.551	1.0274	1.3972	0.188	0.6618	0.7243	0.890
Enabling	0.2978	0.2859	0.917	0.4817	0.5092	0.824	0.1314	0.1235	0.974

Sub-Dimension Scores Note that only scores with significant differences are included here. 42 of the 92 Sub-Dimension categories are shown.

Score	All			Group 1			Group 2		
	Mean score			Mean score			Mean score		
	No loan	Have loan	p	No loan	Have loan	P	No loan	Have loan	P
1.1.1 Management	3.3027	3.8737	<0.001						

1.1.3 Quality of management staff	3.299	4.022	<0.001				2.881	3.400	0.026
1.1.4 Objectives of management	3.4761	4.2930	<0.001				3.1744	4.3225	0.004
1.1.7 Continuity of management	3.4543	3.8684	0.032						
1.1.8 General assemblies	4.5663	4.7675					4.5128	4.9444	<0.001
1.1.10 Division of responsibility	3.7673	3.2663	0.008				4.4808	4.9167	0.013
1.2.2 Human resource risk	3.1986	3.8158	<0.001						
1.2.3 Human resources	3.6717	3.8237		4.4444	3.8103	0.031	3.3654	4.2667	0.022
1.2.4 Performance of management	2.9493	3.5904	0.002						
1.2.6 Availability of documentation	3.9558	4.4361	<0.001				3.6731	4.1667	0.045
1.3.1 Mission and vision	3.8200	4.3947	0.001				3.5384	4.5000	0.006
1.3.3 Business objectives	4.1333	4.6061	<0.001				3.9179	4.6333	0.016
1.3.4 Business planning	2.8343	3.6474	<0.001						
1.3.5 Business performance monitoring	2.4965	2.8513	<0.001						
2.1.1 Accounting system	3.7619	4.3245	<0.001						
2.1.2 Asset register	3.5186	3.9237	0.027				3.2615	4.2667	0.003
2.1.3 Responsible for daily financials	3.5899	4.1973	<0.001						
2.1.5 Cash handling	2.8072	3.2778	0.022				2.7789	3.4167	0.050
2.2.1 Budgets	2.8657	3.9116					2.2692	3.7223	0.020

2.2.2 Finance strategy	4.0661	4.1354	<0.001						
2.2.3 Business surplus	3.6460	4.0658	0.018						
2.2.5 External finance	3.0275	3.5952	<0.001				3.0037	3.7459	<0.001
2.2.6 Reserves	2.53	2.78					2.4000	3.3333	0.038
2.3.2 Cost & sales prices	2.723	2.111	0.033						
2.3.3 Cashflow, income and expenditure	2.812	3.200					3.0000	4.0000	0.040
2.4.2 Monitoring financial services	3.8868	3.3056	0.027						
3.1.5 Diversity	1.9735	1.7023	0.031						
3.1.7 Pregnant women	4.3510	4.8599	<0.001						
3.1.8 Occupational health & safety	4.0717	4.2872		4.6528	4.9310	0.011			
3.2.4 Protection of nature	4.689	4.333	0.035						
4.1.1 Storage	3.6979	4.0901	0.044						
4.2.3 Outbound logistics	4.469	4.353		4.7500	4.5690	0.014			
4.3.2 Technology & equipment	4.1416	3.8001	0.019						
5.1.2 Quality procedures for inputs	3.6932	3.9631		3.0444	4.4207	0.002			
5.1.3 Quality of inputs	4.2330	3.4429	0.002						
5.2.1 Produce yield	3.79	4.17	0.003						
5.3.1 Strength of production base	4.034	3.295	<0.001						

5.3.2 Competition for members	2.6148	3.1679	0.009						
5.3.3 Economic value to members	3.5424	3.9024	0.025						
6.1.2 Mitigation of market risks	3.1069	3.5651	0.017						
6.2.2 Marketing strategy	2.5815	3.5197	<0.001						
8.2.1 Relationship with the community	4.637	4.426	0.012						

SCOPE Basic (documents checked as noted in Annex 2 of the assessment form)

Those documents most significantly related to whether organisations obtained a loan were the Business Plan, the Cash Flow Forecast, Administrative Policy, HR policy and Financial policy.

Document		**All**			**Group 1**			**Group 2**		
		% obtained loan			**% obtained loan**			**% obtained loan**		
	% have doc	**don't have**	**have**	**P**	**don't have**	**have**	**p**	**don't have**	**have**	**p**
Administrative policy	53%	22%	56%	<0.001	N=0	62%	N/A	18%	22%	0.539
Articles of association	92%	14%	42%	0.038	N=0	62%	N/A	20%	13%	0.450
Business plan	60%	16%	56%	<0.001	N=0	62%	N/A	7%	47%	<0.001
Cash flow forecast	54%	25%	53%	<0.001	50%	63%	0.418	12%	32%	0.057
Contract with suppliers	78%	41%	40%	0.553	100%	53%	0.007	5%	25%	0.053
Credit reference bureau report	22%	42%	47%	0.354	78%	56%	0.133	12%	50%	0.014
Financial policy	57%	21%	57%	<0.001	N=0	62%	N/A	15%	36%	0.114

HR policy	49%	22%	60%	<0.001	N=0	62%	N/A	18%	100%	0.187
List of outgrowers	27%	38%	61%	0.016	60%	77%	0.250	10%	29%	0.223

Document		**All**			**Group 1**			**Group 2**		
		% obtained loan			**% obtained loan**			**% obtained loan**		
	% have doc	**don't have**	**have**	**P**	**don't have**	**have**	**p**	**don't have**	**have**	**p**
Offer letters of past loans / loan agreements	38%	38%	56%	0.016	73%	72%	0.613	11%	36%	0.023
Ownership documents / titles	67%	30%	44%	0.049	59%	64%	0.478	11%	20%	0.279
Resolution of right to borrow	28%	40%	55%	0.058	100%	52%	0.001	11%	54%	0.002

Documents with no significant results

Document	**% had document**
AGM minutes	98%
Annual accounts for most recent year	89%
Annual accounts for most recent year 1	96%
Annual accounts for most recent year 2	94%
Asset valuation documents	65%
Bank statements past year	85%
Business licence	99%
Certificate of registration / incorporation	100%
Constitution / Bylaws	100%
Contract with customer	97%
Contract with partner	61%

Insurance policies	76%
List of members	99%
Proof of Certification	92%
Register of production volumes	96%
Register of purchases/inputs	80%
Resume of executive managers	88%
Tax / PIN certificate	99%
Trading licence	100%

Summary

Below is a summary of the variables available in the dataset which have the strongest statistical relationship with whether an organisation obtained a loan.

- A number of measures of numbers of people were statistically correlated to whether an organisation obtained a loan. Amongst these, the relationship was strongest for the number of part-time staff per square kilometre, then the number of part-time staff, the number of full-time staff and the proportion of all staff who are female.
- A number of measures of seasonal staff were highly related with obtaining a loan, but negatively (i.e., a higher value is related to a lower probability of having obtained a loan).
- It is clear that whether organisations obtained a loan is related to the Total Score and more closely to the scores for Internal Management and Financial Management. It was also related to the change in those scores since the previous assessment, particularly for Internal Management.
- Whether organisations obtained a loan is also significantly related to many of the Sub-Dimension scores, especially many Sub-Dimension scores for Internal Management and some for Financial Management. Other scores include for pregnant women, strength of production base, competition for members and marketing strategy.
- Those documents whose availability most significantly related to whether organisations obtained a loan were the Business Plan, the Cash Flow Forecast, Administrative Policy, HR policy and Financial policy.

ANNEX 5: Bankability Metrics

This section looks at the "bankability metrics" proposed in a report published by the Alliance for a Green Revolution in Africa (AGRA) and explores overlap with the findings from the analysis of the more limited dataset for the case study on the Côte d'Ivoire cocoa associations. The AGRA report, Mobilizing Agricultural Finance: Towards a Common Language between Lenders and Agri-SMEs in Sub-Saharan Africa (Eda Dokle and Johanna Farrell, February 2021) aimed:

> "…to create a standardized set of bankability metrics that can serve as a common language between lenders and agri-SMEs. Lenders can use the metrics to gain a clear overview of the state of an agri-SME's business that is robust enough for the lender to make an informed decision of whether to continue with due diligence, reducing the amount of time it takes to conduct a pre-screening and initial assessment. In addition, agri-SMEs and the service providers that support them can use the metrics to understand the expectations of lenders, so they can better prepare for the financing assessments." (Ibid, p3).

SCOPEinsight and the Center for Financial Inclusion, in partnership with AGRA, conducted research with 90 lenders and industry experts, analysed datasets from the Council on Smallholder Agricultural Finance (CSAF) members and SCOPEinsight, and conducted desk research to develop a set of bankability metrics for agri-SMEs. The authors report receiving data from seven CSAF members, on their portfolio and client information, for 142 clients and 246 loans, totalling $83m (approx. 74m Euros) in disbursements in 2019. The average and median loan approved amounts reported were $723k and $400k (approx. 646,000 and 357,000 Euros), respectively. Seven African countries were represented in those data.

In the present research for AMEA, we examine data provided by SCOPEinsight from 189 assessments conducted in 2020 (start date) of farmers' organisations dealing in cocoa, in Côte d'Ivoire. From these, 76 organisations received 105 loans totalling 7.76bn XOF (approx. 11.8m Euros). The average loan was 73.9m XOF (approx. 112,700 Euros) and the median was 35.5m XOF (approx. 54,100 Euros) - so much smaller than the size of loans considered in the bankability metrics study.

In making this comparison, the objective is to see whether the metrics are confirmed as applicable using the Côte d'Ivoire case study dataset. This data is specific to particular organisations, in a specific place for a specific time period, and, like all data, has some limitations. Moreover, data was extracted and prepared for statistical analysis relevant to the main purposes of the research, including investigating changes to scores and access to finance, and does not include all the data available from SCOPEinsight assessments. This means that it is unlikely that all findings can be confirmed. However, where they are, it is perhaps a signal that these findings are likely to be more robust and transferable.

The table below shows:

- the Bankability metrics, name and description
- statistical metric: whether this is a measurable quantity, which can be analysed statistically. This might be a scalar quantity, such as money, number of people, weight or area, an ordinal value such as a level of satisfaction, or a category with just two possible values.
- whether this data item, or something similar, is available in the SCOPEinsight dataset used in this research project
- where appropriate, the p-value obtained in examining the relationship between the variable and whether or not an organisations obtained a loan. The p-value is the probability that any relationship found is the result of chance, when there was no real difference in this variable between organisations which did and did not obtain loans. If the probability is less than 0.01, the result is considered highly statistically significant; if less than 0.05, it is still statistically significant. As the p-value increases, we are less certain that the difference is not simply the result of chance, and as it approaches a maximum of 1, any relationship found is almost certainly co-incidental.
- Notes, including e.g., whether or not there is sufficient differentiation in the sample, to test for a statistically significant relationship with an organisation having received a loan.

Summary of Results

The Bankability Metrics which were available in the dataset used in this research and were found to be correlated to a statistically significant degree with whether an organisation obtained a loan were:

- cash flow forecast available
- ownership documents / titles
- number of employees. Amongst a range of measures of the number of different types of employees, those with the most significant relation to obtaining loans were the number of part-time employees per square kilometre of land used for production and the proportion of all employees who were women
- Score 1.1.1 “Management” and score 2.1.3 “Responsibility for daily financials” (these both relate to a single metric in the AGRA report “dedicated manager for each business function”)
- Score 1.1.3 “Quality of management staff”
- Score 1.1.10 “Division of responsibility”.

SECTION A1: Company information					
Metric name	**Description**	**Statistical metric?**	**Available in SCOPE Basic?**	**p-value**	**Notes**
Business ID/Registration number	Unique identifier provided by the relevant national company registration authority	Yes	Yes, certificate of registration, business licence	N/A	100% of assessments show Certificate of Registration present, 99.5% of assessments show business licence present => no differentiation
Tax ID/Tax account	Unique identifier provided by the national tax and revenue authority	Yes	Yes, Tax/PIN certificate	N/A	99.5% of assessments show Tax / PIN certificate present => inadequate differentiation
Organization type (by legal ownership)	Ownership structure as registered with relevant national authority	Yes	Yes, Legal status	N/A	97.5% of assessments show Legal Status is Cooperative => inadequate differentiation
Business description	The purpose of the company	No	No	N/A	
Organizational structure	Overview of any divisions and their reporting lines within the company	No	No	N/A	
Primary activities of business	Primary activities in the context of the relevant value chains	No	Yes, Services/ Activities	N/A	
Financial statements and auditing status and history	If financial statements have been audited by a registered accounting firm, auditing status and number of years this has been the case	Yes	No	N/A	

SECTION A2: Contact information					
Metric name	**Description**	**Statistical metric?**	**Available in SCOPE Basic?**	**p-value**	
Address		No	Yes	N/A	
Region		Yes	Yes		Regional effects are described in Annex 3 but are generally not significant.
Country		Yes	Yes	N/A	This project examined data only for Côte d'Ivoire
Legal name	Full name as registered with the relevant national company registration authority	No	Yes	N/A	Information that might identify the PO was not included in this analysis
Commercial or trade name	Common name, if different from legal name	No	Yes	N/A	Information that might identify the PO was not included in this analysis
Website, phone number	General contact information	No	Yes	N/A	Information that might identify the PO was not included in this analysis
Primary contact name, title and email	Contact information of primary point of contact	No	Yes	N/A	Information that might identify the PO was not included in this analysis
SECTION A3: Finance request					
Metric name	**Description**	**Statistical metric?**	**Available in SCOPE Basic?**	**p-value**	This section is based on the financing request to the CSAF member. The Côte d'Ivoire dataset included some loan information but was not based on a specific lending request.
Loan amount requested	Target value of loan and if this is flexible	Yes	Yes, Loan history.	N/A as ability to obtain a loan is the key target variable	Loan history includes, for each loan, amount of loan, type of financier, name of financier,

					annual interest rate and repayment status. However, loan specifics cannot be used as a useful predictor of access to finance for other organisations.
Currency requirement	Local, foreign, or either currency required	No	Yes, currency of loan	N/A	
Date loan is required	Target date to receive loan	No	Yes, date loan started	N/A	
Loan purpose	Relevant categories of loan purpose	No	Yes	N/A	
Specifics of loan use	Specific activities or items to be financed by this loan	No	Partial	N/A	Comments sometimes include information about the use of the loan.
Length of loan	Target loan term in years	Yes	Yes	N/A	
Repayment intentions of the loan	Specifics of how the loan will be repaid	No	Partial	N/A	Comments sometimes include how the organisation intends to repay the loan.
SECTION A4: Documents					
Metric name	**Description**	**Statistical metric?**	**Available in SCOPE Basic?**	**p-value**	
Registration	Documents, including constitutional and registration documents, created when the company was established	Yes	Partial		100% of assessments show constitution present => no differentiation
				p=0.049, significant	Ownership documents/titles were present in 67% of assessments. This was found to

					have a statistically significant relationship with whether an organisation had obtained a loan.
Management CVs	For current managers	Yes	Partial	p=0.269, not significant	Resume of executive managers were present in 88% of assessments. However, this was not found to have a statistically significant relationship with whether an organisation had obtained a loan
Fiscal year-end financial statements	Balance sheet, income statement, and cash flow statement for the previous three fiscal years	Yes	Partial		Annual accounts for the most recent two years were present in 96% and 94% of assessments, and thus provide inadequate differentiation
				p= 0.446, not significant	Asset valuation documents were present in 65% of assessments. This was not found to have a statistically significant relationship with whether an organisation had obtained a loan.
Year-to-date financial statements	Balance sheet, income statement, & cash flow statement through most recent fiscal quarter end	Yes	No	N/A	

Financial statement projections	Balance sheet and income statement for the first 12 months of the requested loan with quarterly projections beyond one year, if applicable	Yes	Partial	p= <0.001, highly significant.	A cash flow forecast was present in 54% of assessments. This was found to have a statistically significant relationship with whether an organisation had obtained a loan. 25% of organisations without a cash flow forecast had obtained a loan compared to 53% of those which did have a cash flow forecast.
Tax clearance certificate	As submitted to the relevant national tax and revenue authority	Yes	Yes	N/A	99% of assessments show Tax / PIN certificate present => inadequate differentiation.
Technical certificates	As may be required for the company to handle food, produce seed, sell agrochemicals, etc.	No	Proportion of product purchased and/or sold that is certified	N/A	No significant relationship between the proportion of product purchased or sold which was certified and obtaining a loan was found.
SECTION B1: Business activity					
Metric name	**Description**	**Statistical metric?**	**Available in SCOPE Basic?**	**p-value**	
Year founded	Year the organization was founded (GIIN IRIS OD3520)	Yes	Yes, Year of Incorporation & In operation since (Year)	p=0.484, not significant.	The year when the organisation started operating ranged from 1975 to 2015 with a median of 2008. There was no significant relation between the year in which the organisation started operating and whether or not an organisation received a loan.

				p=0.269, not significant.	The year of incorporation ranged from 1999 to 2019 with a median of 2012 (although 41% of values were missing). There was no significant relation between the year of incorporation and whether or not an organisation obtained a loan.
Number of employees	Number of all employees in the business, including full-time, part-time, and temporary employees	Yes	Yes, Numbers of full-time, part-time and seasonal employees	p=0.039, significant.	The number of employees varies from zero to 119 with a median of 16. This was found to have a statistically significant relationship with whether an organisation had obtained a loan
				P=0.001, highly significant.	The best correlation found amongst measures of staff numbers was with the number of part-time staff per square kilometre of land used for production. Organisations with loans had an average of 67 part-time staff per square kilometre while for those without loans the figure was 15. For organisations in Group 1, the corresponding numbers were 80 and 21.
				p=0.001, highly significant.	There was also a positive correlation with the proportion of all employees who were

					women. This was 21% for organisations which had not obtained a loan and 33% for those that had.
Top three commodities/products (by share of sales)	Top three commodities/products of the business by share of sales (value)	No	Partial. Volume and price of sales by product available.	N/A	This study examined assessments only where cocoa was a product. Of the 189 assessments started in 2020, only 11 organisations also dealt with another crop, in these cases either coffee or cashew nuts. Of these organisations, a slightly higher proportion had obtained a loan (55%) but this was not statistically significant.
Top three clients (by share of sales)	Top three clients by share of sales (value), preferably for the past two years. For each, include: client type (by place in value chain), years of relationship, current contracts	No	No	N/A	

Disclosure of financial obligations and donations	All outstanding debts, donations or grants. For each, include: provider, total amount, amount outstanding, security, purpose, start date, end date	Yes	Partial. For grants and pre-finance, amount, provider, start date, duration (pre-finance only). Only available in SCOPE Basic v2.0.0 and later.	N/A	Data not available for all assessments.
Current contracts specify pricing	Current contracts clearly define pricing for the products sold	Yes	Partial: Contract with customers	N/A	Contract with customers 98% present => inadequate differentiation
SECTION B2: Governance					
Metric name	**Description**	**Statistical metric?**	**Available in SCOPE Basic?**	**p-value**	
Dedicated manager for each business function	Separate manager dedicated to each of: finance, operations, human resources. For each, include: name, qualifications, experience	Yes	Yes	Score 1.1.1: p=<0.001, highly significant.	Within the Internal Management dimension, questionnaire responses under 1.1.1 “Management” relate to the Financial Manager and under 1.1.3 “Quality of management” to their educational background and experience.
				Score 2.1.3: p=<0.001, highly significant.	Within the Financial management dimension, under 2.1.3 “Responsibility for daily financials” responses relate to

					the qualifications and experience of the financial administrator.
Experience of the key business managers in the business and industry	Number of years and positions held	Yes (Experience in years)	Yes	Score 1.1.3: p=<0.001, highly significant.	Under Internal Management, 1.1.2 has a response about the selection of the general manager being based on experience. 1.1.3 "Quality of management staff" has a number of responses about the experience of the manager, financial manager, marketing and any additional officer/managers. The score for 1.1.3 is related to whether or not an organisation has obtained a loan. This relationship holds good looking at Group 2 alone.
Recent changes in management	Recent changes in management and reasons why	No	No	N/A	
Level of commitment of the business manager to the business	Commitment level of the business manager to business through indications of other current professional occupations	No	No	N/A	
Clear division of authority between management and board	Level of independence and consensus in the management team's	No	No	Score 1.1.6: p=0.429, not significant.	Under Internal Management, 1.1.6 "Independence of management" has a response about consensus in decision

	decision-making process				making. However, no significant relationship was found.
				Score 1.1.10: p=0.008, highly significant.	1.1.10 "Division of responsibility" has responses about the division of responsibility between Board and management, and this score was found to be related to whether or not an organisation had obtained a loan. This is also significant when examining just Group 2
Shareholders and their individual share of capital	Top 10 shareholders by share of capital. Exception: For cooperatives or producer associations with more than 30 members, only shareholders holding 20% or more of total shares	No	No		
SECTION B3: Financials					
Metric name	**Description**	**Statistical metric?**	**Available in SCOPE Basic?**	**p-value**	

Sales revenue	Value of the revenue from sales of the organization's products/services during the reporting period, for the past three years, if applicable (GIIN IRIS PI1775)	Yes	Partial. Produce sales volume and price.	p=0.568, not significant	There was no evidence in this dataset of a relation with revenue from sales.
Cost of goods sold	Value of direct expenditures attributable to the production of the goods sold by the organization during the reporting period, for the past three years, if applicable (GIIN IRIS FP9049)	Yes	Partial. Produce purchase volume and price.	p=0.445, not significant	There was no evidence in this dataset of a relation with the cost of produce purchased.
			Inputs purchased volume, volume units, price per unit.		The cost of inputs has not been analysed.
Net income (Net profit)	Value of the organization's net profit, calculated as total income minus total expenses, taxes, and cost of goods sold during the reporting period, for the past three years, if applicable (GIIN IRIS FP1301)	Yes	Yes, net profit, latest year, if completed.		In the SCOPEinsight dataset, net profit is calculated in two different ways, depending on the version of the SCOPEinsight tool used, where it can be calculated at all. There is no evidence of a difference in net profit between those organisations which obtained a loan and the rest. There is a difference in average net profit per hectare for those with loans (7784 XOF/hectare)

					against those without (6195 XOF). However, due to the level of missing data, differences in calculation, unexplained outliers, and the high variability of the net profit figures, this is not a robust finding.
Total assets	Value, at the end of the reporting period, of all of the organization's assets, for the past three years, if applicable (GIIN IRIS FP5293)	Yes	Data does not include asset valuation, but does include whether an asset valuation document is available.	N/A	There was no significant relationship between the availability of an asset valuation and whether an organisation had obtained a loan.
Total liabilities	Value of organization's liabilities at the end of the reporting period, for the past three years, if applicable (GIIN IRIS FP1996)	Yes	No	N/A	
Total equity	Value of the residual interest, at the end of the reporting period, in the assets of the organization after deducting all its liabilities, for the past three years, if applicable. Net assets is equivalent to total	Yes	No	N/A	

	assets minus total liabilities. (GIIN IRIS FP5317)				
Current ratio (*calculated*)	=Current assets/Current liabilities	Yes	No	N/A	
Leverage ratio (*calculated*)	=Total liabilities/Total equity	Yes	No	N/A	
Return on assets (*calculated*)	=Net income/Total assets	Yes	No	N/A	
Cash flow coverage ratio (*calculated*)	=Cash flows from operating activities/Total debt	Yes	No	N/A	

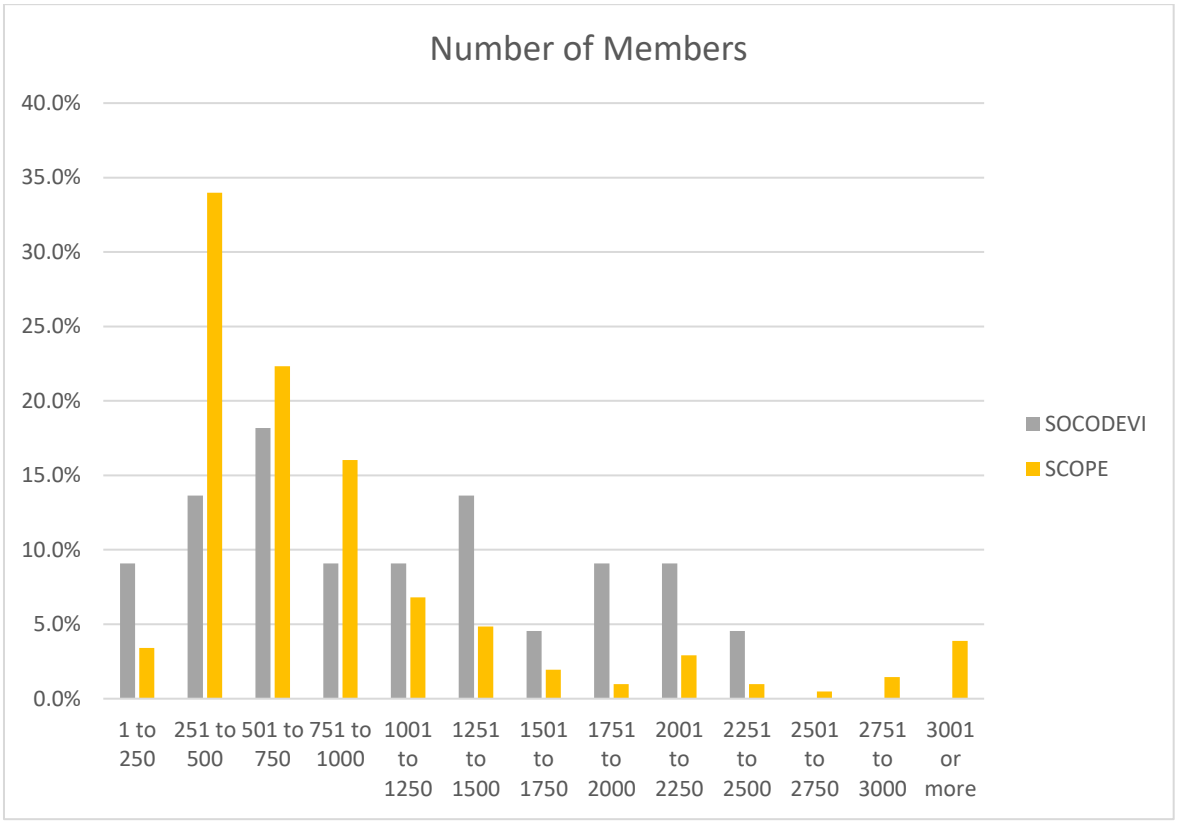
ANNEX 6: Comparison of producer organisations covered by SOCODEVI and SCOPEinsight data

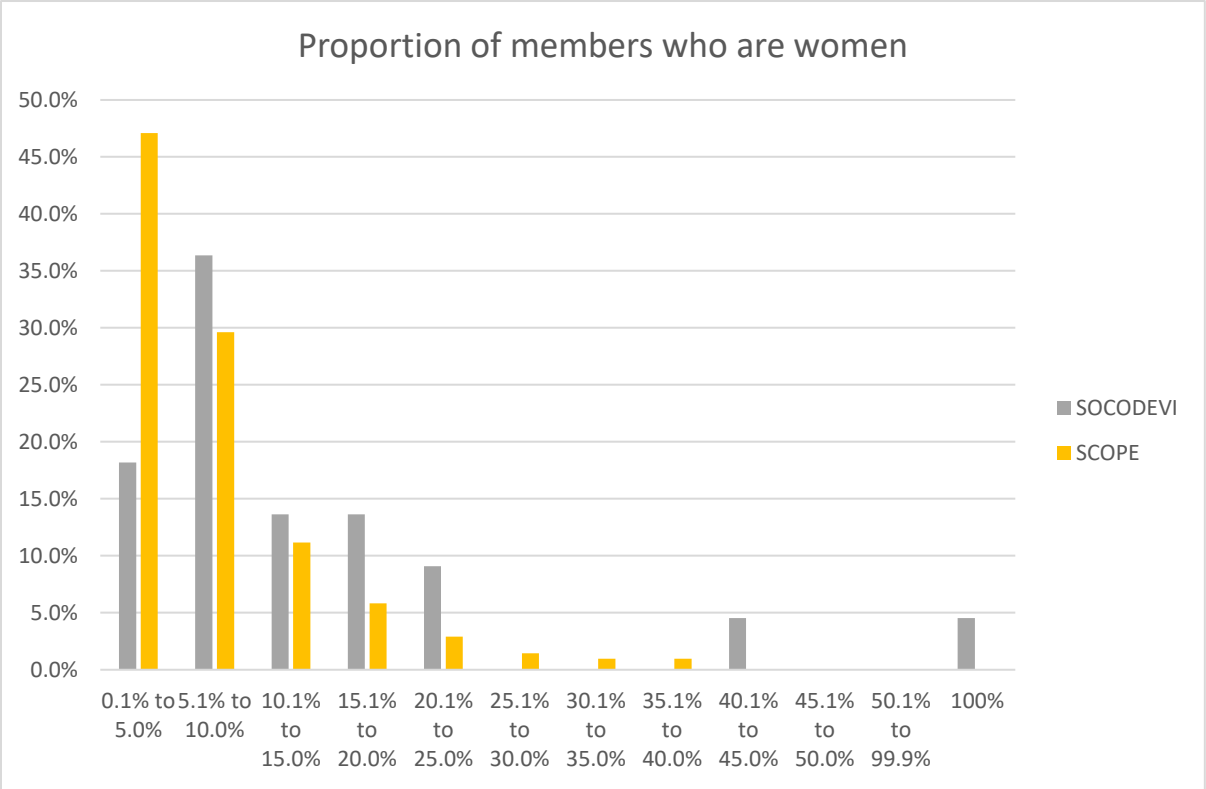
SOCODEVI provided anonymised data on 22 organisations, about numbers of people (Board members, members, and staff) and financial performance (turnover, operating costs, net profit, assets and liabilities, etc). The data related to the years 2018 through to 2021. This allows a comparison with the data collected by SCOPEinsight and in particular with the 206 assessments which started in 2020 and which form a large part of the analysis in this report.

Members

For the SOCODEVI data, member numbers ranged from 216 to 2,303 with a median of 958, while for the SCOPEInsight data, the number of members went from 119 to 5,683 with a median of 620.

The proportion of members who were women ranged from 1.0% to 100% (the only case more than 50%) with a median of 9.4% for the SOCODEVI data, while for the SCOPEinsight assessments, the range was 0.2% to 37.2% with a median of 5.2%.

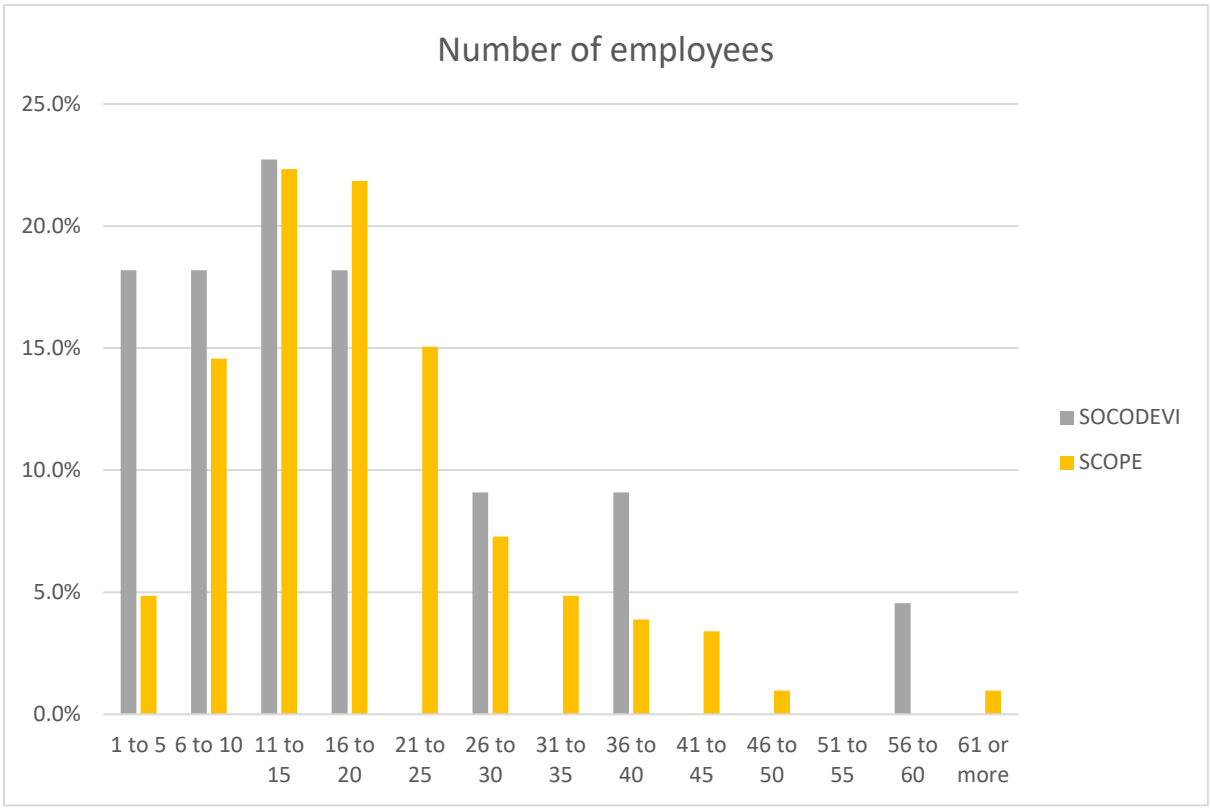


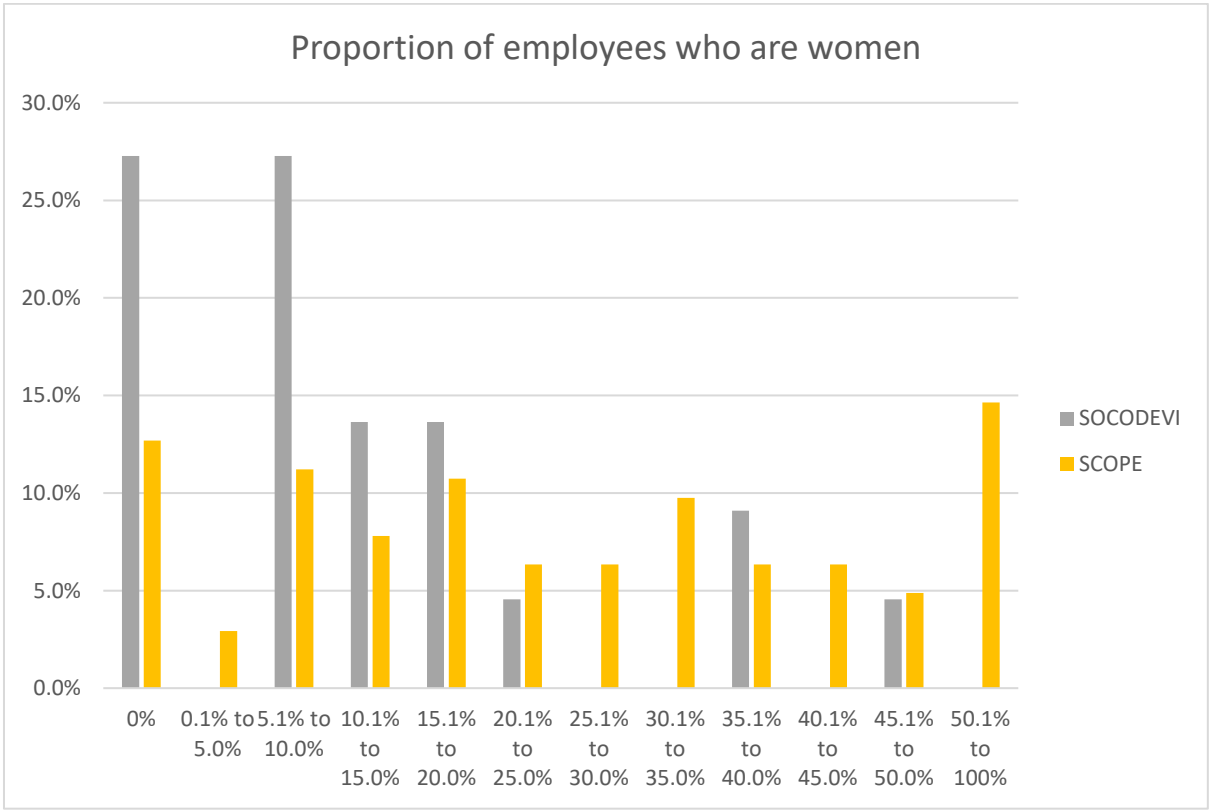


Employees

For the SOCODEVI data, the number of employees ranged from 4 to 57 with a median of 12.5, while for the SCOPEinsight data, the number of members went from zero to 119 with a median of 16.

The proportion of employees who were women ranged, in the SOCODEVI data, from zero to 50% with a median of 10%, while for the SCOPEinsight assessments, the range was 0% to 84% with a median of 24%, considerably higher.


Number of employees
25.0%
20.0%
15.0%
10.0%
5.0%
0.0%
1 to 5
6 to 10
11 to 15
16 to 20
21 to 25
26 to 30
31 to 35
36 to 40
41 to 45
46 to 50
51 to 55
56 to 60
61 or more
SOCODEVI
SCOPE


Proportion of employees who are women
30.0%
25.0%
20.0%
15.0%
10.0%
5.0%
0.0%
0%
0.1% to 5.0%
5.1% to 10.0%
10.1% to 15.0%
15.1% to 20.0%
20.1% to 25.0%
25.1% to 30.0%
30.1% to 35.0%
35.1% to 40.0%
40.1% to 45.0%
45.1% to 50.0%
50.1% to 100%
SOCODEVI
SCOPE

Financial Information

In both sets of data, there was a significant amount of missing data for financial information, and it is not clear that definitions were exactly the same, thus limiting comparability. For SOCODEVI dataset, turnover ranged from 0.7 million XOF to 2.25 billion XOF with a median of about 590 million XOF (N=11). For SCOPEinsight, the figures were 13.8 million XOF to 2.06 billion XOF with a median of about 146 million XOF (N=72).

For the SOCODEVI data, net profit ranged from minus 61 million XOF to plus 18.6 million XOF (N=12), and as a ratio to turnover, this ranged from minus 232% to plus 16% . For the SCOPEinsight assessments, net profit ranged from minus 1.60 billion XOF to 169 million XOF with a median of plus 8.7 million XOF and, as a ratio to turnover, from 0.2% to 65.5% (N=72).

The net profit for these organisations is the difference between two large numbers with small margins between them, and exhibits a great deal of variation. The figures are for one year only. (As previously mentioned, a considerable proportion of the financial data was missing).