

# RETURNS TO SUPPORTING AGRIFOOD MSMEs

A GLOBAL COST-BENEFIT ANALYSIS OF BUSINESS SUPPORT  
SERVICES IN LOW- AND MIDDLE-INCOME COUNTRIES



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### SUMMARY

Micro, small, and medium enterprises (MSMEs) are the backbone of economic development in many low- and middle-income countries (LMICs). Their role is particularly important since they are estimated to make up the vast majority of food system businesses and play a critical role in achieving food security and supporting nutrition, as well as providing employment. To function optimally, business-support programmes and interventions are often developed based on the assumption that institutional constraints impede MSMEs from maximising their potential. Support services can be broadly grouped into financial assistance (e.g., grants, loans) and technical assistance (e.g., business development services, training, networking). There is evidence of positive impacts from implementing some of these interventions but also important evidence gaps, including the returns to investing in MSME business support services.

This paper examined the benefit-cost-ratios from investing in six broad business support interventions for agrifood MSMEs across 90 LMICs in six World Bank regions. These interventions include: (1) a low-cost intensive mentoring and training for female managers of micro and small enterprises; (2) low-cost business development services for agrifood MSMEs; (3) peer-to-peer networking; (4) inter-firm relationship building and networking; (5) matching grants for obtaining management consulting services; and (6) grants for capital expenditure complemented with technical assistance. Benefits vary by firm size and across regions, with the sixth intervention, in particular, showing lower average benefit-to-cost for many firm types. Overall, however, the results indicate that most interventions produced enough benefits in improved sales to offset implementation costs, suggesting that most of the interventions can be economically viable under the right conditions, with net positive returns.

### KEY MESSAGES

- Supporting MSMEs can have large potential benefits for food security and nutrition in low- and middle-income countries, since these companies play critical roles throughout food supply chains.
- However, to ensure effective use of resources, it is also important to make sure that such support yields sufficient benefits to justify the costs.
- This analysis examined the benefit-cost ratios from investing in six broad business support interventions for agrifood MSMEs across 90 LMICs in six World Bank regions. The interventions included low-cost intensive training for female managers; low-cost business development services; business networking for enterprises; interfirm business associations; matching grants for obtaining management consulting services; and financial assistance for capital expenditures complemented with technical assistance.
- Results show some variation in benefits by firm size and regions but suggest that most interventions produced positive benefit-cost ratios – i.e., had sufficient benefits to justify their costs. Exceptions to this appeared to be mostly due to very costly interventions, as opposed to a lack of reported benefits.

## **BACKGROUND AND OBJECTIVE**

Micro, small, and medium enterprises (MSMEs) are responsible for most employment generation in both high-income and low- and-middle-income countries (LMICs) (1,2). Consequently, they play a central role in socio-economic policies and are the bedrock of rural development in many LMICs (1). Their role is particularly important when it comes to achieving food security and improving nutrition, since they are estimated to make up the vast majority of food system businesses, depending on the context and stage of the value chain (3–5). In this position, they play a critical role in achieving food security and supporting nutrition, as well as employment (6).

In many LMICs, business-support programmes and interventions are developed based on the assumption that institutional constraints impede MSMEs from maximising their potential (7). This explains the significant financial resources that governments and development organisations allocate to programmes that target the MSME sector in an attempt to address institutional constraints and allow organisations to operate more efficiently, leading to productivity gains (6,8). These MSME-support interventions include matching grants/credit, training, development of local production systems, and fostering innovations (2,8). They target different components of MSME value chains. Recent studies and systematic reviews and meta-analysis of these business support interventions in LMICs indicate positive effects from implementation and scale up, with effect sizes as high as a 21% improvement in productivity (8). If the performance of agrifood MSMEs in LMICs can be improved by implementing these types of support interventions and programmes, the resulting strengthened value chains could also lead broader benefits – such as improved nutrition outcomes, new or stronger livelihoods, and economic growth.

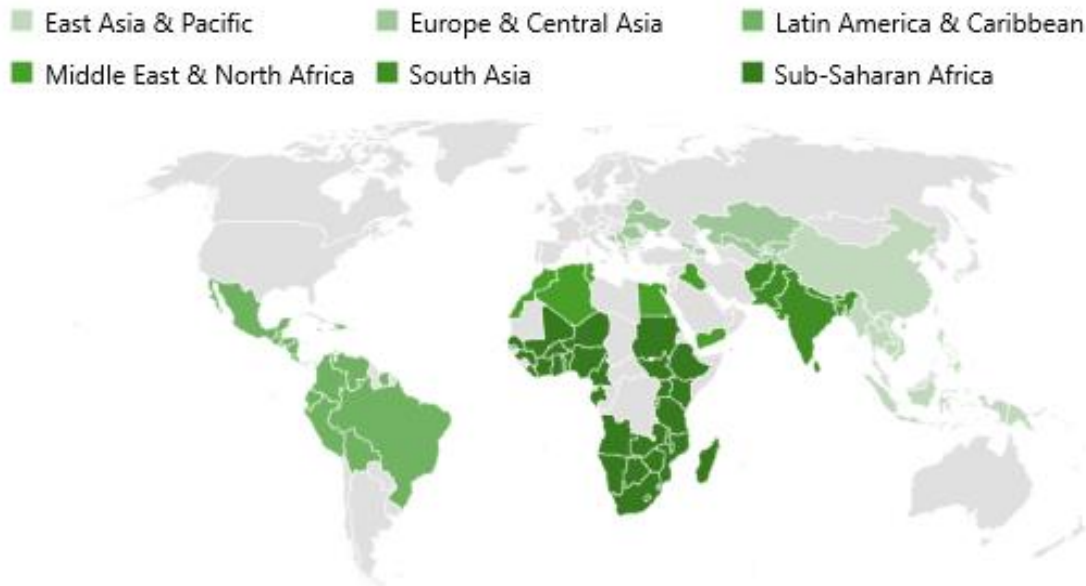
However, these interventions come at a cost, and there is limited evidence of the financial or economic returns from investing in MSME support services, especially in the context of agrifood value chains. Generating such evidence is important, given resource constraints in the development sector and the need to ensure that every dollar spent yields meaningful benefits. A comparison of the costs and benefits (in improved business productivity and related outcomes) would help determine if introducing new interventions or increasing the scale/coverage of existing interventions would create good financial and economic returns.

This study aims to (1) identify business productivity constraints facing agrifood MSMEs; (2) identify MSME support interventions that show positive effects on firms' productivity and other related outcomes; (3) identify the implementation cost of identified interventions; and (4) model the returns (cost-benefit ratios) from implementing identified interventions.

## **METHODOLOGY**

### **STUDY POPULATION**

This global benefit-cost analysis (BCA) focuses on agrifood MSMEs operating in 90 LMICs across six World Bank regions (Figure 1). These countries cut across three income groups, with about 50% belonging to the lower middle-income group, 30% belonging to the upper middle-income group, and about 20% being low-income countries. A full list of countries included in the analysis is listed in Annex 1.



**Figure 1. Countries included in the analysis, by region.**

The study relied on multiple data sources for extracting data on agrifood MSMEs. We extracted data for the agrifood sector from the World Bank’s Enterprise Surveys (2009 – 2023) (9). These surveys cover private-sector businesses using nationally representative samples of MSMEs disaggregated by sector (including agrifood) and firm size. The survey focuses on formally registered MSMEs and larger enterprises (meaning the informal sector is excluded from the analysis). Since up to 90% of employees work in the private sector in LMICs, the survey data provided the needed input parameters for model building (10). Extracted data include estimates of annual sales, number of employees, firm size, labour productivity, gender of managers, and operational environment and constraints. The survey data also provide insights into many business environment topics, such as access to finance, corruption, infrastructure, and performance.

The enterprise survey data were used to estimate the share of national formalised MSMEs that engaged in agrifood; the share of formalised agrifood businesses that were small, medium, and large enterprises; annual sales per firm; and business constraint parameters including access to finance, technology, electricity, and waste. Enterprises were disaggregated by size and categorised as micro (less than 10 employees), small (11-50 employees), medium (50-250 employees), and large (250+ employees). Most firms in the analysis were micro, small, and medium enterprises (see Annex 1, Table A1). About 27% of firms were micro enterprises, 75% were small and medium enterprises, and only about 8% were large enterprises. This distribution persisted when estimates were disaggregated by region.

To aggregate estimates obtained from the enterprise surveys into national and regional numbers, we applied the proportions from the surveys to national estimates of the number of operational formal MSMEs per country, disaggregated by enterprise size (See Table 1). The national estimates were obtained from the 2019 MSMEs Economic Indicators Database prepared by the World Bank through the SME Finance Forum (11).

**Table 1. Population parameters**

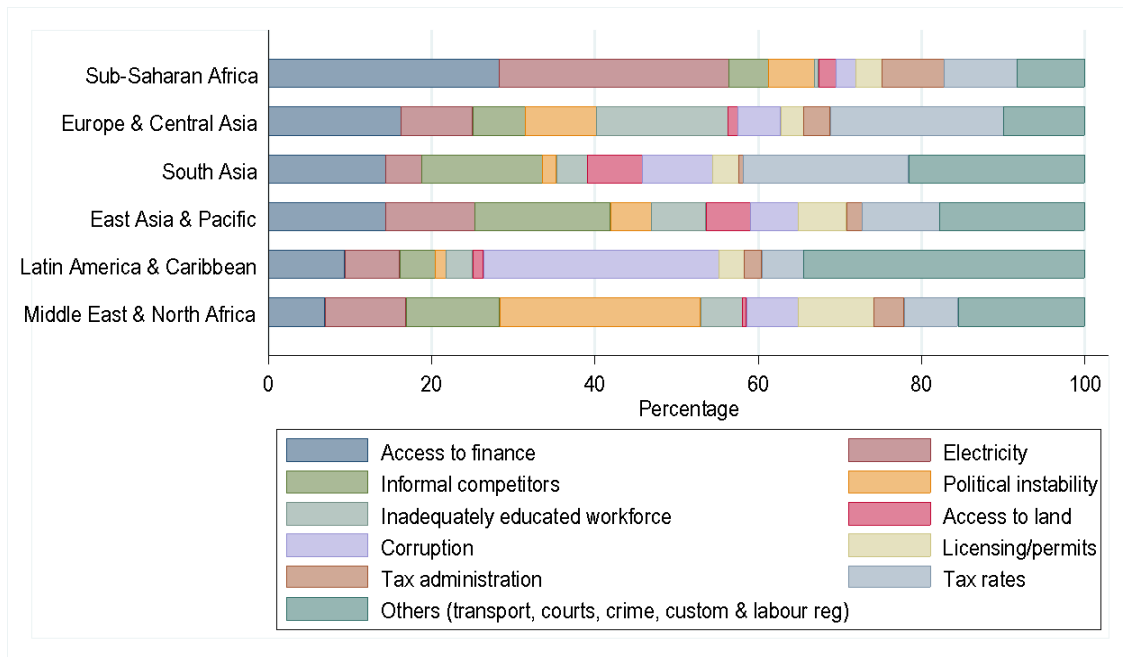
| Parameter                      | Description   | Source  |
|--------------------------------|---|---|
| Annual sales                   | Total annual sales per agrifood firm disaggregated by size;   | WB Enterprise Surveys (9)                             |
| Total employee                 | Total full-time employees disaggregated by firm size  |   |
| Labour productivity            | Amount of goods and services produced by a group of workers in a given time; $LP = \frac{A_r}{W_r}$ ( $A_w$ : Annual sales; $W_r$ : Num of workers) |   |
| Lifetime working years         | 40 years (used to estimate economic value of employment creation)   | Analyst's estimates                                   |
| National aggregate estimates   | Total number of agrifood MSMEs per country disaggregated by size, income group, and region  | 2019 MSME Economic Indicators Database (11)           |
| Exchange rate                  | Conversion of total sales in local currency units to US\$   | World Development Indicators (12)                     |
| Discount rate                  | 5% discount rate applied to future benefits (i.e., the Net Present Value [NPV])   | Analyst's assumption                                  |
| Time horizon                   | 10-year time horizon for estimating future benefits   |   |
| Inflation rate                 | We utilised nominal dollars in estimating future benefits.  |   |
| Intervention baseline coverage | 10% current coverage of identified intervention per country included in the analysis  | Estimated from the WB Enterprise surveys <sup>a</sup> |
| Scale-up target                | 50% scale up scenarios per intervention included in the model   | Analyst's assumption                                  |

Notes: WB – World Bank; MSME – Micro, Small and Medium Enterprise <sup>a</sup> Estimate was based on a subset of countries with available data

**MODELLING CONSIDERATIONS AND INTERVENTION SELECTION**

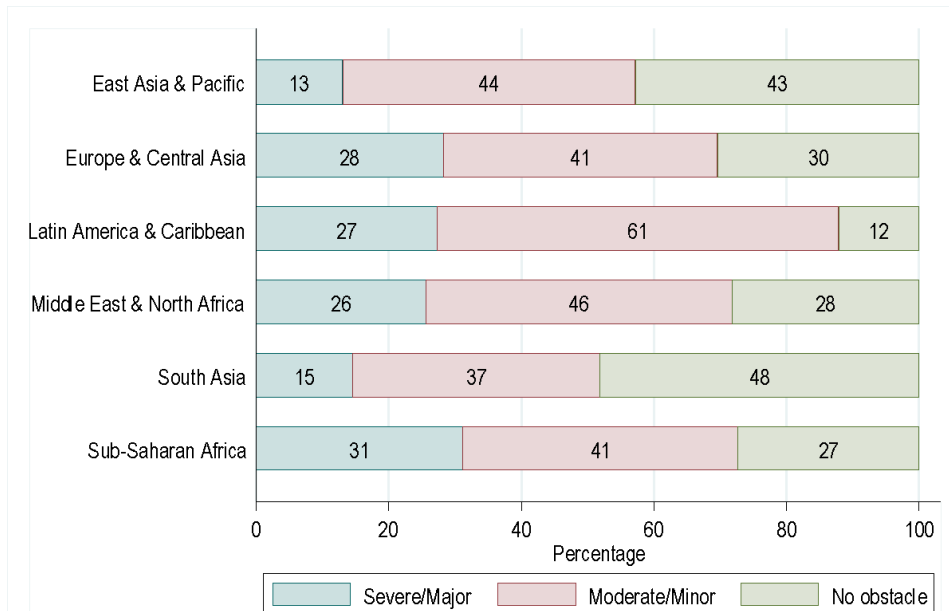
For the cohort of agrifood MSMEs in operation in 2019, we estimated the effect of identified business support services interventions. We assumed that the benefits of interventions accrue over 10 years. Unlike interventions that target individuals and apply a lifecycle time horizon in quantifying benefits (e.g. 30 years), we used a 10-year time horizon to avoid overestimation of benefits since the lifespan of MSMEs tends to be shorter (13). This approach has been used in similar BCA studies focused on MSMEs (14).

Our analysis of the enterprise survey data suggests that access to finance is ranked as the biggest constraint to agrifood MSMEs business operations in most regions included in our estimates (Figure 2). In Sub-Saharan Africa (SSA), about 28% of firms attribute access to finance as the biggest constraint affecting operations. About 16% of MSMEs in East and Central Asia (ECA), 14% in South Asia (SA) and East Asia and Pacific (EAP) ranked access to finance as the biggest constraint to operations. Access to electricity was the second most ranked constraint to business operations (27% in SSA, 10% in EAP and Middle East and North Africa (MENA) regions). In the MENA region, political instability was a significant constraint to operations (12%). This ranking also persists when firms are group based on their size (Annex 1, Figure A1).



**Figure 2. Ranking of constraints to agrifood MSME business operations by region**

There are also important variations in the severity of access to finance as a constraint to agrifood MSME operations. About 87% of MSMEs in Latin America and the Caribbean (LAC), 72% in SSA, 71% in MENA, and 55% in EAP considered access to finance as a minor or moderate to severe or major constraint on their business operations (Figure 3). Access to financial capital is vital for a firm’s ability to access factors of production, including technology, equipment, and consulting services, that enhance productivity (15–17).



**Figure 3. Severity of constraints to agrifood MSME business operations by region**

To identify support interventions that confer positive benefits to the operations of agrifood MSMEs and in turn improve their productivity, we conducted targeted literature reviews. The reviews searched common databases including PubMed/Medline via Ovid, Cochrane Systematic Review, Scopus, Web of Science, EconLit, National Bureau of Economic

Research working papers, and Google Scholar. Search terms included “MSME” OR “Firms” OR “Enterprises” AND “Interventions” OR “programmes” OR “support services” AND “cost-effectiveness” OR “Cost” OR “Effectiveness” OR “Economic evaluation” AND “low-income countries” OR “low-and middle-income countries” OR “developing countries”.

Combinations and variations of key terms was included in the search using the wildcard operator and supplemented using the references of located studies, as well as the citations of these studies obtained from Google Scholar. The aim was to understand the state of evidence on the cost and effectiveness of MSME support services, with a focus on agrifood MSMEs. In addition, we sought to identify interventions that address constraints to MSME operations, as identified in the enterprise surveys.

Most identified interventions cut across agrifood and broader MSMEs. Six interventions had evaluations with sufficient data to include in the analysis (Table 2). One intervention provided low-cost non-financial business development services (BDS) to agrifood MSMEs, one intervention provided low-cost general training for female entrepreneurs, two interventions supported networking, and two interventions supported access to finance via matching grants for procurement of consulting services or as resources for capital expenditures. Identified interventions used a provider perspective and included only the implementation costs of proposed interventions (excluding economic costs (e.g. opportunity costs) to the enterprise).<sup>1</sup> One of the interventions (VI) was implemented by GAIN, but it was externally evaluated.

**Table 2. Intervention parameters**

| Number          | Interventions   | Location                          | Findings  | Source |
|-----------------|---|-----------------------------------|---|--------|
| Intervention I  | A more intensive one-on-one personalised mentoring and consulting involving general training (GT) and technical assistance (TA) for female managers | Peru (LAC region)                 | GT-treated increased their sales by 15%<br>The training component was budgeted at US\$ 341 per beneficiary. | (18)   |
| Intervention II | Impact of BDS including acceleration, incubation, technical assistance, coaching, consulting, and other forms of nonfinancial support.              | East and West Africa (SSA region) | 19% increase in annual revenue growth among agrifood SMEs<br>US \$2,742 to service an SME with intervention | (19)   |

<sup>1</sup> In addition to these individual-intervention studies, we identified four systematic reviews and meta-analysis. The reviews collated data from low-income and middle-income countries. Results suggested that only matching grants showed a statistically significant pooled impact on MSME productivity. Interventions including innovation, training, and consulting services did not produce significant pooled effects. Conclusions drawn from the systematic reviews and meta-analysis suggest a broad variation in the implementation of interventions, even among interventions with similar definitions (e.g., matching grants from technical services). Hence using estimates from a meta-analysis would not adequately capture the heterogeneity of interventions and implementation processes (and would be prohibitively expensive to cost). Finally, the effect size from the only significant intervention in the meta-analysis (matching grants) is similar to that of the individual intervention that was modelled in the present study. Hence, we focused on interventions in an LMIC and made country-specific adjustments to the implementation cost.

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|                  |   |                      |  |      |
|------------------|---|----------------------|--|------|
| Intervention III | Peer-to-peer business networks for mentorship and support   | Senegal (SSA region) | 25.8% increase in revenue after intervention.<br>US \$8,357 implementation cost per firm per year over 10 years  | (20) |
| Intervention IV  | Business association intervention with intensive monthly meetings for managers of MSMEs   | China (EAP region)   | 8.9% increase in sales post intervention<br>US \$179,336 per annum per firm  | (21) |
| Intervention V   | Impact of matching grants for access to 1 year of management consulting services on total factor productivity and return on assets <sup>a</sup> | Mexico (LAC region)  | 40% increase in number of employees even 5 years after intervention.<br>Market cost of US\$11,856 per MSME (MSMEs contributed 10% - 40% of the cost, depending on firm size) | (22) |
| Intervention VI  | GAIN's consulting <sup>b</sup> services and financial assistance to agri-food SMEs averaging 12 employees                                       | Kenya (SSA region)   | 48% increase in employees<br><br>US \$75,000 in financial assistance solely for business purposes including equipment <sup>c</sup>   | (23) |

<sup>a</sup> Topics covered include; mission and vision statements; accounting and record keeping; organisational structure; sales strategy and advertising; select location and number of sales points; quality control; access to credit or alternative financing solutions; human resources management and hiring practices, etc. <sup>b</sup> Consulting services included assistance for new product development, support in modifying product formulas to make them more nutritious, and support in market research and product development, etc. <sup>c</sup> Equipment purchase represented the bulk of the financial assistance

**Intervention I** – was a low-cost time-intensive mentoring and general training, focused on women, that included 36 three-hour group sessions delivered three times a week over a year (18). The intervention was included in the modelling since evidence suggests that women face broader constraints to business operations relative to men, including stereotypes about women-owned enterprises and gender norms (24). The general training included the identification and explanation of best practices associated with successful microentrepreneurs and was organised in three modules: personal development, business development and management and productivity improvements. The intervention was supported by the World Bank and the UN Development Fund for Women as part of a joint effort to promote the economic empowerment of women in LMICs. The intervention was implemented in 2008 – 2009 in Peru among female-led microenterprises and was estimated to improve sales by 15% 1–3 years after implementation. The implementation cost per microenterprise was US \$341. We modelled the intervention for female-led micro and small enterprises only, in line with its focus.

Limitations to the modelling of the intervention include: (1) the intervention was not provided solely to agrifood MSMEs, hence effectiveness and implementation cost may vary for agrifood MSMEs; (2) the time between the end of support and endline data collection was short, hence the long-term impact is not known; and (3) generalisability of the intervention's benefits to other jurisdictions outside Peru and the LAC region and to lower-income countries is unclear.

**Intervention II** – was a low-cost non-financial business development services (BDS) for agrifood SMEs in east and west Africa (19). The BDS included business acceleration, incubation, technical assistance, coaching, consulting, and other forms of nonfinancial support. The study was conducted on a sample of 15 providers representing 509 agrifood MSMEs. The intervention partners included Argidius, AGRA, AMEA, Agriterra, SAFIN, and Small Foundation (19). The study focused on comparing BDS effectiveness across contexts in a like-for-like manner rather than directly assessing the contribution or additionality of BDS (e.g., using counterfactuals). The intervention improved revenues for agrifood SMEs by 15%. We utilise effectiveness estimates for firms that did not cover a portion of the implementation cost of the intervention. The median implementation cost was US\$2,742 for micro enterprises, US\$3,500 for small enterprises, US\$22,800 for medium enterprises, and US\$22,924 for large enterprises.

Limitations for modelling for this intervention include: (1) the evidence comes from grey literature (i.e., not peer-reviewed), hence we cannot verify the rigour of the evaluation methodology used and the duration of the intervention; and (2) unclear generalisability of the intervention's benefits to other jurisdictions outside SSA.

**Intervention III** – was a networking intervention implemented by Enablis Senegal with the aim to stimulate wealth and job creation by identifying and empowering promising, aspiring, and emerging entrepreneurs through networking. The intervention provided peer-to-peer business networks and was evaluated by the Aspen Network of Development Entrepreneurs to improve micro and small enterprise revenue by 25.9% (20) with an annual implementation cost per firm of US \$8,357 over 10 years. The intervention was modelled for micro and small enterprises.

Limitations to modelling for this intervention include: (1) the intervention was not provided solely to agrifood enterprises, hence effectiveness and implementation cost may vary for agrifood enterprises; (2) evidence is from the grey literature, hence we cannot verify the rigour of the evaluation methodology used; (3) the time between the end of support and endline data collection was short, hence the long-term impact is not known; and (4) unclear generalisability of the intervention's benefits beyond Senegal and SSA.

**Intervention IV** – was an interfirm business association intervention to encourage building relationships and networking for MSMEs; participating MSMEs had an average age of 2.3 years and size of 36.19 employees (21). The intervention was implemented in China, and 2,820 firms were randomised to treatment and control groups. Treatment groups participated in monthly intensive meetings during which meeting managers visited the firm of a group member, took a tour, and spent hours discussing business-relevant issues. The programme lasted for one year. The intervention was evaluated to increase participating firms' sales by 8.9% at an annual implementation cost of US \$179,336 per firm. The intervention was modelled for MSMEs.

Limitations to modelling for this intervention include: (1) the intervention was not provided solely to agrifood MSMEs, hence effectiveness and implementation cost may vary for agrifood MSMEs; (2) the time between the end of support and endline data collection was short, hence the long-term impact is not known; and (3) unclear generalisability of the intervention's benefits to other jurisdictions outside China and the EAP region.

**Intervention V** – was an intervention that provided matching grants, which could be used to provide management consulting services to SMEs in Mexico (22). The intervention was funded and implemented by the government of the State of Puebla, the Knowledge for Change trust fund of the World Bank, and the Bill and Melinda Gates Foundation via the Financial Access Initiative. The intervention aimed to alleviate the constraints on managerial capital for SMEs, with the goal of improving firms' performance and growth. The study used a randomised control trial to test effectiveness, and estimates suggested a 40% increase in the number of employees even five years after implementation. The market cost per matching grant per firm was estimated at US\$11,856 (700 Mexican Pesos per hour; 4 hours per week; 52 weeks per month). Firms contributed 10% - 40% of the cost depending on their size (10% micro; 20% small; 30% medium; 40% large).

Limitations to modelling this intervention include: (1) the intervention was not provided solely to agrifood MSMEs, hence effectiveness and implementation cost may vary for agrifood MSMEs; and (2) unclear generalisability of the intervention's benefits to other jurisdictions outside Mexico and the LAC region.

**Intervention VI** – was a financial and technical assistance intervention provided to agrifood MSMEs in Kenya. The aim of the intervention was to provide a capital infusion into SMEs, complemented with technical assistance services. The intervention was implemented by GAIN between 2018 and 2020 with the aim to improve the supply side of food systems. Its aim was to increase the consumption of nutritious foods among low-income populations by making such foods more available and affordable (23). The intervention targeted SMEs with an average of 12 employees. Sampled intervention SMEs received grants of an average of US\$75,000 (max of US\$90,000) for investments in their business plans, including equipment purchases. In addition, SMEs received technical assistance (TA) in the form of consulting services, primarily related to market research and product development. The financial assistance (FA) was provided solely for business purposes. While the delivery of the TA varied across enterprises, average implementation cost was US \$8,074 per enterprise. The intervention was evaluated to increase employment creation by 48% one-year post intervention.

Limitations to modelling the economic returns include; (1) grants were significant, and affordability might be a significant constraint to scale up; (2) unclear generalisability of the intervention's benefits to other jurisdictions outside Kenya and SSA; (3) the time between the end of support and endline data collection was short, hence long-term impact is not known; and (4) the last months of project implementation and the endline survey overlapped with the COVID-19 pandemic, which may have negatively influenced firm performance.

### **MODELLING CONSIDERATIONS**

We structured our analyses to produce a generally conservative set of estimates. Firstly, as the annual sales data from the enterprise surveys contained outliers that skewed the data, impacting our estimate of labour productivity, we performed a 5% winsorisation of the data (25). We replaced the lowest 5% of data points by the value at the 5th percentile, and the highest 5% by the value at the 95th percentile, reducing the effect of outliers.

Since evidence suggests a gradual appreciation in intervention effectiveness before maturity (at which full benefits accrue), we adjusted our estimation of benefits for

**Intervention III** (14,22). We estimated a zero immediate increase in an intervention's benefits at implementation, with a 10% gradient increase in effectiveness over time. Hence, we modelled a zero benefit in year 1 (implementation year), a 10% cumulative increase in benefits per year from years 2–5, and linear growth in effect size from years 6-10. This was done in part because while the intervention did not achieve statistically significant impact in the short and medium terms, it created employment in the long term (five years post intervention). For **interventions I, II, IV, and VI** we did not apply a gradient for the increase in effectiveness, as they were only evaluated in the short and medium terms (1-2 years). For **intervention I**, to estimate the share of micro and small enterprises with a woman as a top manager, we relied on the enterprise surveys, which show important variations across regions (Annex 1, Table A4). In total, about 18% (range; 5% - 35%) of formal agrifood business reported having a woman in top management. This estimate was used in determining the number of micro and small enterprises for inclusion in the modelling per country and region.

For each intervention, implementation cost was first converted to the local currency unit (LCUs) of the implementation country. We then adjusted the unit cost from the implementation country's LCU to LCUs of each of the 90 countries included in our analysis. To do this, we utilised the University of London CCEMG–EPPI Centre Cost Converter (26).<sup>2</sup> All implementation costs were inflated/deflated to 2019 US dollars, and future benefits are expressed in 2019 US dollars using a 5% discount rate. For each modelled intervention, we assumed a 10% baseline coverage, in part based on our analysis of the enterprise survey data. This means that the current business constraints affect 90% of businesses, with only about 10% of the firms already accessing identified interventions. We then modelled a 50% (i.e., 40 percentage-point incremental coverage) scale-up target across existing MSMEs. The modelling of benefits was intervention specific. For interventions that were shown to increase the number of employees, we utilised labour productivity estimates to model the benefits in sales from employing additional full-time staff (see Table 1). For interventions that directly increased sales, the proportions obtained were directly applied to sales per firm (disaggregated by size) to obtain benefits in increased sales.

Across all interventions, implementation costs and effectiveness were not disaggregated by enterprise maturity (early, growth, or late stage) due to data limitations. This might impact the model outcomes, since there might be significant variations in an intervention's benefits and costs depending on the firm's age and maturity stage.

We tested the impact of altering some of the key modelling assumptions, focused these sensitivity analyses on the implementation countries for the identified interventions. First, we used national discount rates (from national reserve or central banks) as alternative

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<sup>2</sup> The cost converter is used for adjusting estimates of cost expressed in one currency and price year to a specific target currency and price year. It uses two steps; it first adjusts the original estimate of cost from the original price year to a target price year, using a Gross Domestic Product (GDP) deflator index; and then converts the price-year adjusted cost estimate from the original currency to a target currency, using conversion rates based on Purchasing Power Parities for GDP. Due to data limitations in collecting primary implementation cost data for each modelled intervention per country, we felt this approach produces the closest estimates that reflect the true implementation costs in LCUs per country before conversion to US\$.

discount rates (27–31). Second, for interventions that showed a positive impact on employment creation, we used labour as a share of GDP from the ILO (32) to adjust labour productivity estimates. Labour as a share of GDP was used since it measures the relative share of output paid as compensation to employees, compared to the share paid to capital. Analysis was performed in Stata and Microsoft Excel.

### RESULTS

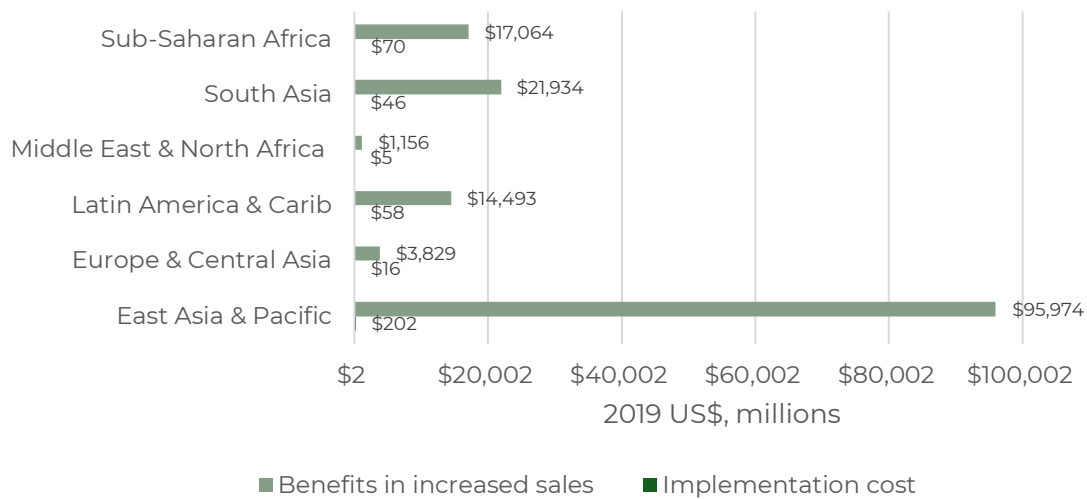
Our analysis of the benefit-cost ratios (BCRs) from implementing the identified business support services suggests large returns from investing at 50% scale and with benefits accruing over 10 years. While the magnitude of benefits varies across regions, estimates suggest that modelled MSME support services are largely economically viable. The following sections discuss the results by modelled intervention.

#### INTERVENTION I

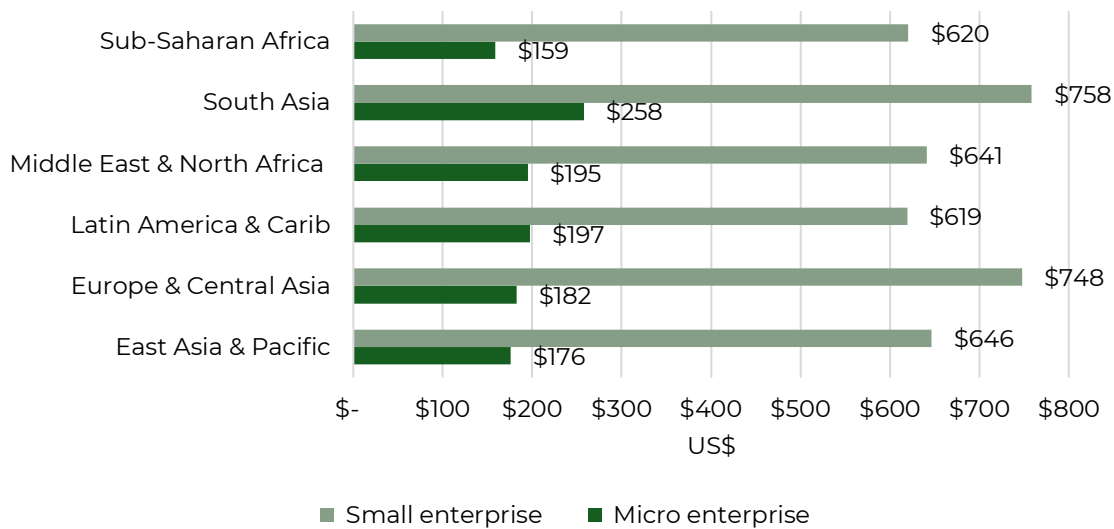
This low-cost intensive training of female managers provided broader business support services and gender-specific services including strengthening of women's self-esteem, social skills, and tools for life planning. The average cost of intervention I was US \$ 341 per agrifood MSME in Peru. Adjusting the cost to other countries indicates that a similar intervention, on average, would cost as high as US \$900 in Venezuela and as low as US \$183 in India (see Annex 1, Table A5). This results in variations in the total implementation cost across the six modelled LMIC regions. The total implementation cost and net present value (NPV) of 10-year benefits are presented in Figure 4. Total implementation cost was highest in the EAP region (US\$ 202 million) and lowest in the MENA region (US\$ 5 million), partly because these regions had the highest (EAP; 35%) and lowest (MENA; 5%) shares of females as top managers among agrifood enterprises. Likewise, the NPV of benefits was highest in the EAP region (US\$ 95,974 million) and lowest in the MENA region (US\$ 1,156 million).

The BCRs per region from implementing intervention I are presented in Figure 5. The BCRs ranged between US\$159 to US\$758 per US\$1 invested for female-managed agrifood enterprises. Targeting microenterprises, the BCRs were highest in the SA region (US\$ 258) and lowest in SSA region (US \$159) per dollar invested. For small enterprises, BCRs were highest in the ECA region (US\$ 758) and lowest in LAC region (US \$619) per dollar invested.

Our estimates suggest that implementing this type of low-cost intensive general training for female-owned micro and small enterprises produces large returns to make investments very profitable with high value for money.



**Figure 4. Implementation cost across and NPV of benefits in increased sales by region (2019 – 2028) – Intervention I**



**Figure 5. Benefit-cost ratios by region – Intervention I**

**INTERVENTION II**

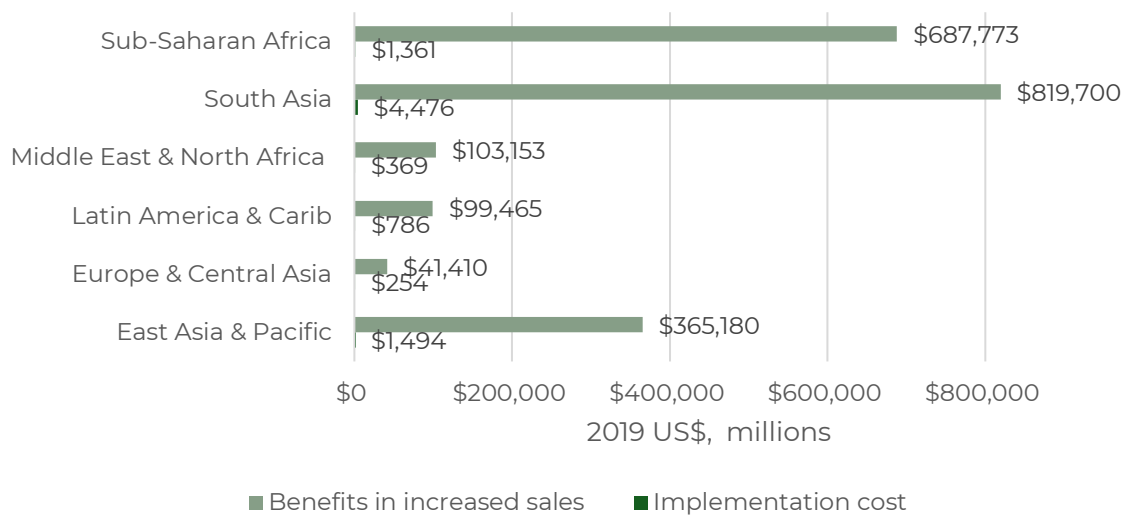
This intervention provided low-cost non-financial BDS to MSMEs and large enterprises. The average cost of the intervention varied across MSMEs due to enterprise size. We did not adjust the implementation costs to each country included in the study because cost estimates combined data from East and West Africa. Hence, implementation costs might vary by focal country and region. The total implementation cost and NPV of 10-year benefits are presented in Figure 6. Total implementation cost was highest in the SA region (US\$ 4,476 million) and lowest in the ECA region (US\$ 254 million). Likewise, the NPV of benefits were highest in the SA region (US\$ 819,700 million) and lowest in the ECA region (US\$ 41,410 million).

The BCRs per region from implementing intervention II are presented in Figure 7. The BCRs ranged between US\$44 to US\$1,349 per US\$1 invested for agrifood enterprises. Targeting

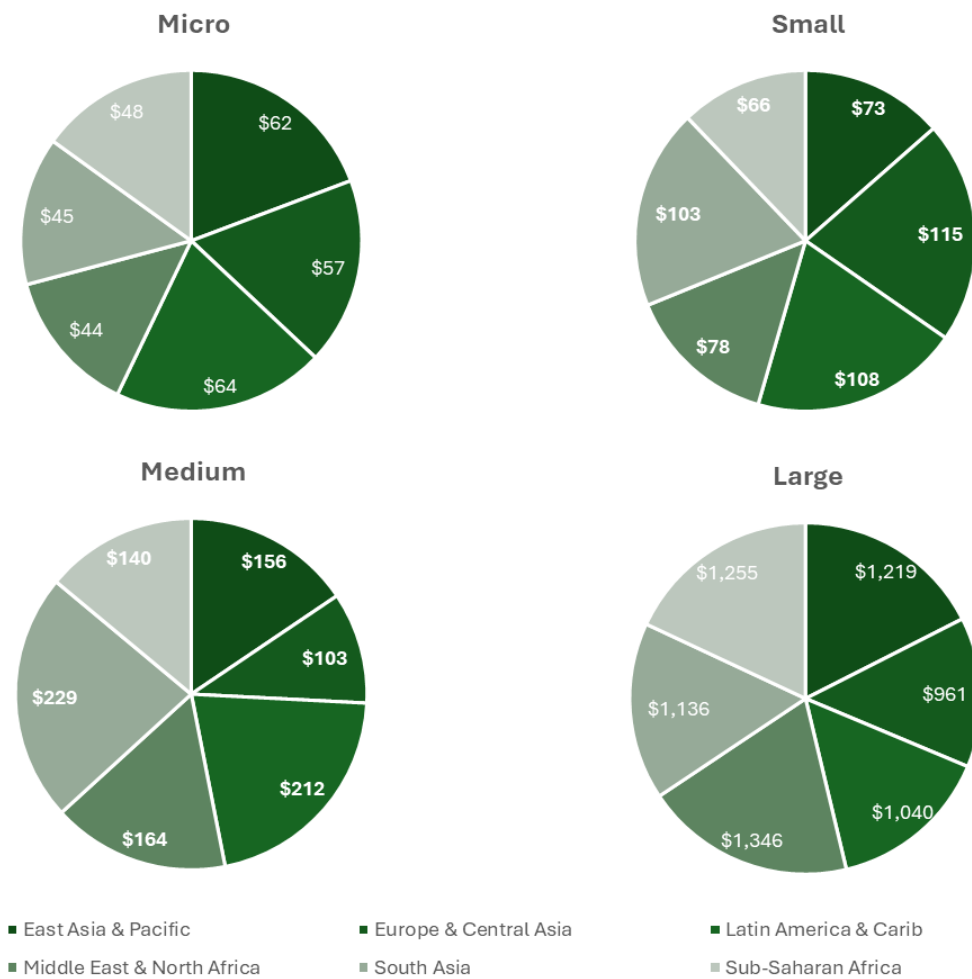
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microenterprises, the BCRs were highest in the LAC region (US\$ 64) and lowest in MENA region (US \$44) per dollar invested. For small enterprises, BCRs were highest in the ECA region (US\$ 115) and lowest in MENA region (US \$44) per dollar invested. For medium enterprises, BCRs were highest in the SA region (US\$ 229) and lowest in ECA region (US \$103) per dollar invested. For large enterprises, BCRs were highest in the MENA region (US\$1,346) and lowest in ECA region (US \$961) per dollar invested.

Our estimates suggest that implementing this type of low-cost non-financial BDS for MSMEs and large enterprises produces enough returns to make investments very profitable, with high value for money.



**Figure 6. Implementation cost across all MSMEs and NPV of benefits in increased sales by region (2019 – 2028) – Intervention II**



**Figure 7. Benefit-cost ratios by region and enterprise size – Intervention II**

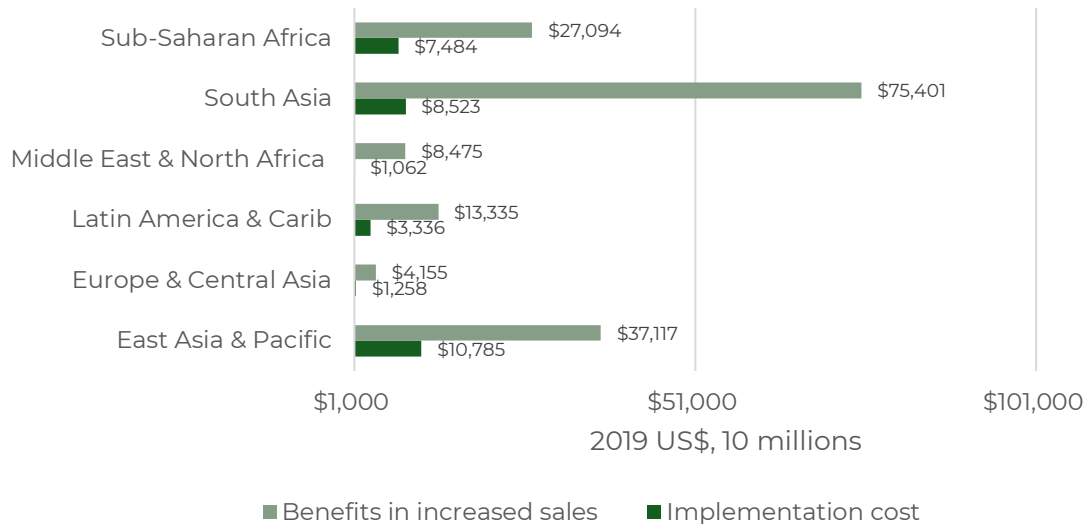
**INTERVENTION III**

Intervention III matched enterprises with peers with the goal to stimulate wealth and job creation through networking. The unit implementation cost of intervention III was US \$ 8,357 per firm per year over 10 years for micro and small enterprises. Adjusting the unit cost to other countries indicates that a similar intervention, on average, would cost as little as US \$4,040 in Myanmar and as high as US \$14,510 in Papua New Guinea (see Annex, Table A6). This results in variations in the total implementation cost across the six modelled regions. The NPV of the 10-year implementation cost and benefits are presented in Figure 8. The NPV of total implementation cost was highest in the EAP region (US\$ 10,785 million) and lowest in the MENA region (US\$ 1,062 million). Likewise, the NPV of benefits were highest in the EAP region (US\$ 75,401 million) and lowest in the MENA region (US\$ 8,475 million).

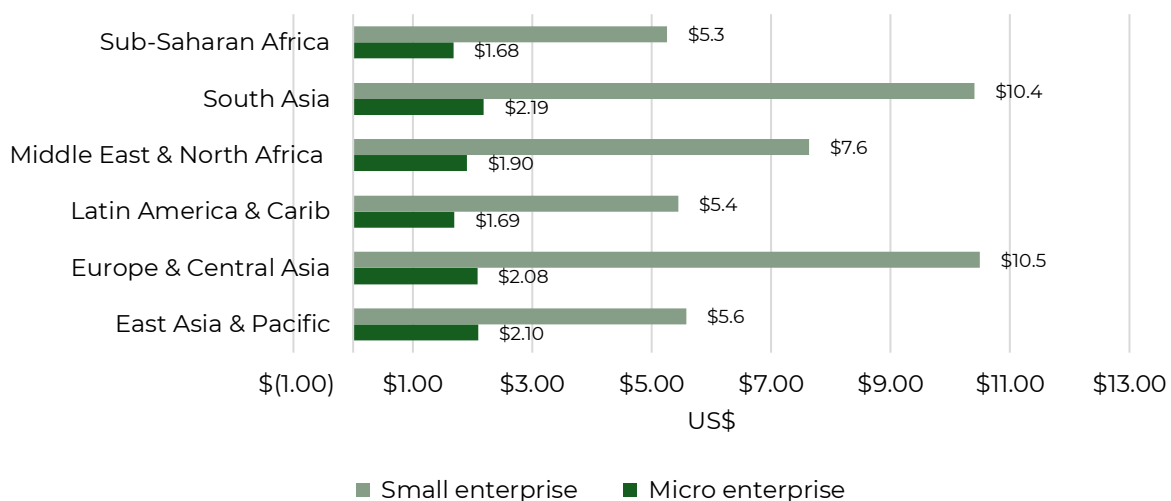
The benefit cost ratios (BCRs) per region from implementing intervention III are presented in Figure 9. The BCR is highest among small enterprises relative to microenterprises. This is largely due to differences in annual sales between the two enterprise categories. For each US\$1 invested per annum in providing peer-to-peer networking to microenterprises, expected benefits ranges from US\$1.68 in SSA region to US\$2.19 in the South Asia region. For small enterprises, BCRs ranges between US \$5.3 (SSA region) to US \$10.5 (ECA region) per US\$1 invested across regions.

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Our estimates suggest that implementing this peer-to-peer networking intervention for improving access to mentoring and broader value chain networks for micro and small enterprises produces enough returns to make investments good value for money.



**Figure 8. NPV of implementation cost and benefits in increased sales by region (2019 – 2028) – Intervention III**



**Figure 9. Benefit-cost ratios by region – Intervention III**

### INTERVENTION IV

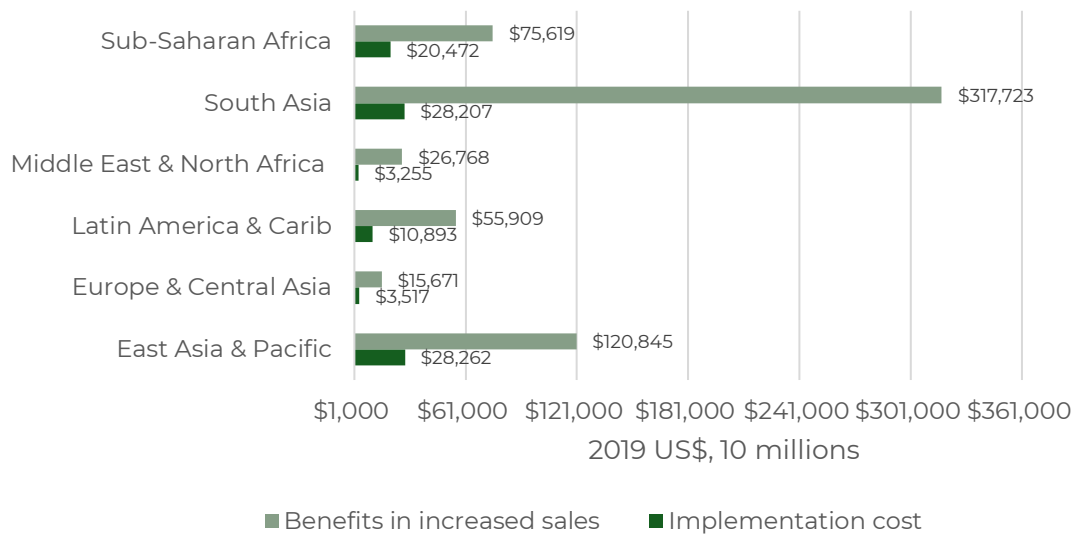
Intervention IV created networking environments for MSMEs by forming business associations for MSME managers in which firms formed small groups and met monthly to exchange business-relevant ideas. Enterprises were matched to nonrival counterparts. We modelled the intervention since evidence suggest that MSMEs get around market failures by creating private governance systems in the form of long-term business relationships and networks (33). The annual unit implementation cost in China was US \$ 179,336. Adjusting the unit cost to other countries indicates that a similar intervention, on average, would cost as little as US \$74,087 in Pakistan and as high as US \$240,358 in Costa Rica (see

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Annex 1, Table A7). This results in variations in the total implementation cost across the six modelled regions. The implementation cost and NPV of the 10-year benefits are presented in Figure 10. Due to population size, the total implementation cost was highest in the EAP region (US\$ 28,262 million) and lowest in the MENA region (US\$ 3,255 million). Likewise, the NPV of benefits was highest in the EAP region (US\$ 317,723 million) and lowest in the MENA region (US\$ 26,768 million).

The benefit-cost ratios (BCRs) per region from implementing intervention IV are presented in Figure 11. The BCR is highest among medium-sized enterprises, followed by small and micro enterprises. This is because while implementation costs were the same for these firms, annual sales and thus benefits were larger for bigger enterprises. For each US\$1 invested in integrating microenterprises into business associations, expected benefits range from US\$0.26 in the SSA region to US\$0.35 in the South Asia region. For small enterprises, BCRs range between US \$2.5 (SSA region) to US \$5.0 (SA region) per US\$1 invested across regions. For medium enterprises, BCRs range between US \$15.2 (SSA region) to US \$23.6 (MENA region) per US\$1 invested across regions (Figure 11).

Our estimates suggest that targeting high-growth enterprises, especially SMEs, with networking opportunities through business associations produces enough returns to make investments good value for money. However, such interventions do not necessarily pay off for microenterprises.



**Figure 10. Implementation cost and benefits in increased sales by region (2019 – 2028) – Intervention IV**

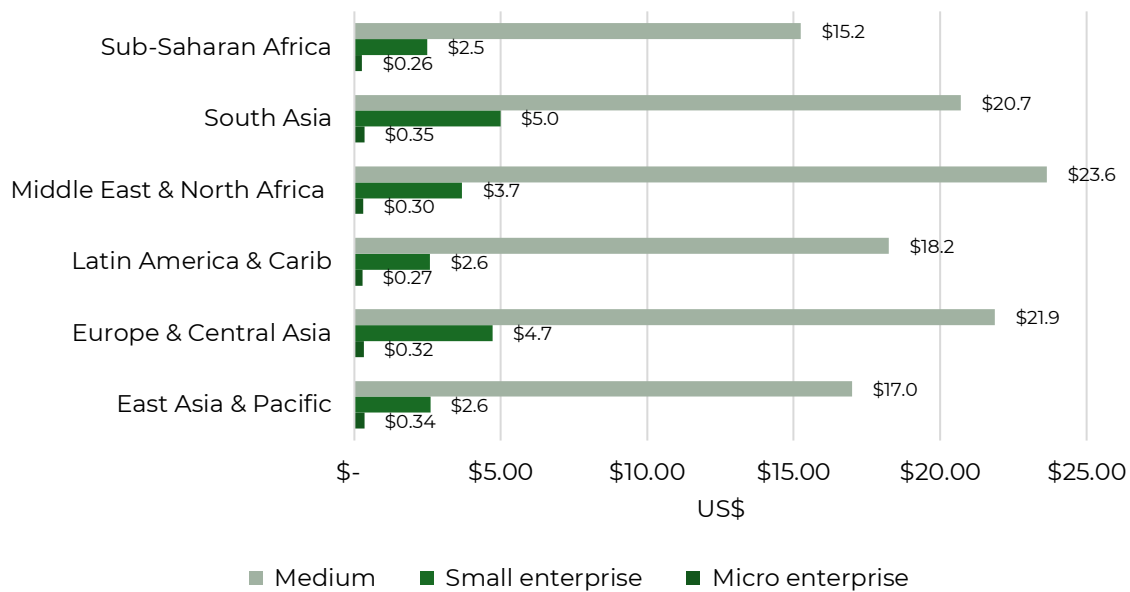


Figure 11. Benefit-cost ratios by region – Intervention IV

### INTERVENTION V

Intervention V targeted a key constraint to MSME business development: access to finance as a resource for obtaining technical production inputs. Empirical studies of MSME business operations indicate financial capital is key for MSMEs’ ability to purchase, access, and consume important technical inputs that could potentially drive productivity (6,8,22). These technical inputs include access to training, networking, and research and development. Intervention V provides needed financial capital to be used in accessing and obtaining technical inputs through consulting services for improving business productivity. The intervention included a broad range of services, from training on pricing strategy and quality control, to leadership trainings.<sup>3</sup>

The unit implementation cost of intervention V was US \$ 11,845.31 per MSME in Mexico, and firms paid between 10% to 40% of the unit costs, based on size. Adjusting the unit cost to focal countries indicates that a similar intervention on average would cost as little as US \$4,411 in Uzbekistan and as high as US \$16,717 in Costa Rica (see Annex 1, Table A2). This results in variations in the total implementation cost across the six modelled regions (Figure 12). The total implementation cost and NPV of 10-year benefits are presented in Figure 4. Total implementation cost was highest in the EAP region (US\$ 10,510 million) and

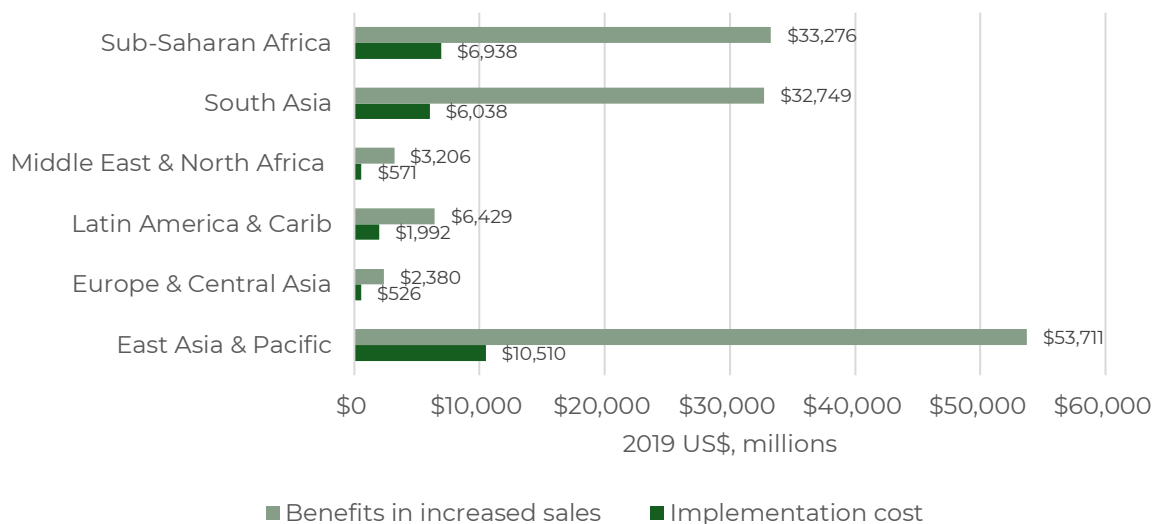
<sup>3</sup> Other components of the consulting services included; definition of mission and vision statements; accounting and record keeping (training and/or new software); clarifying organisational structure, clearly assigning responsibilities; sales strategy and advertising (marketing); strategically selecting location and number of sales points; quality control; access to credit or alternative financing solutions; human resources management and hiring practices; mediating family problems in family firms; pricing strategy; reducing costs (e.g., negotiating with suppliers, finding alternative suppliers); determining which products were most profitable and focusing on these; teamwork and communications training for employees; leadership training for firm owners.

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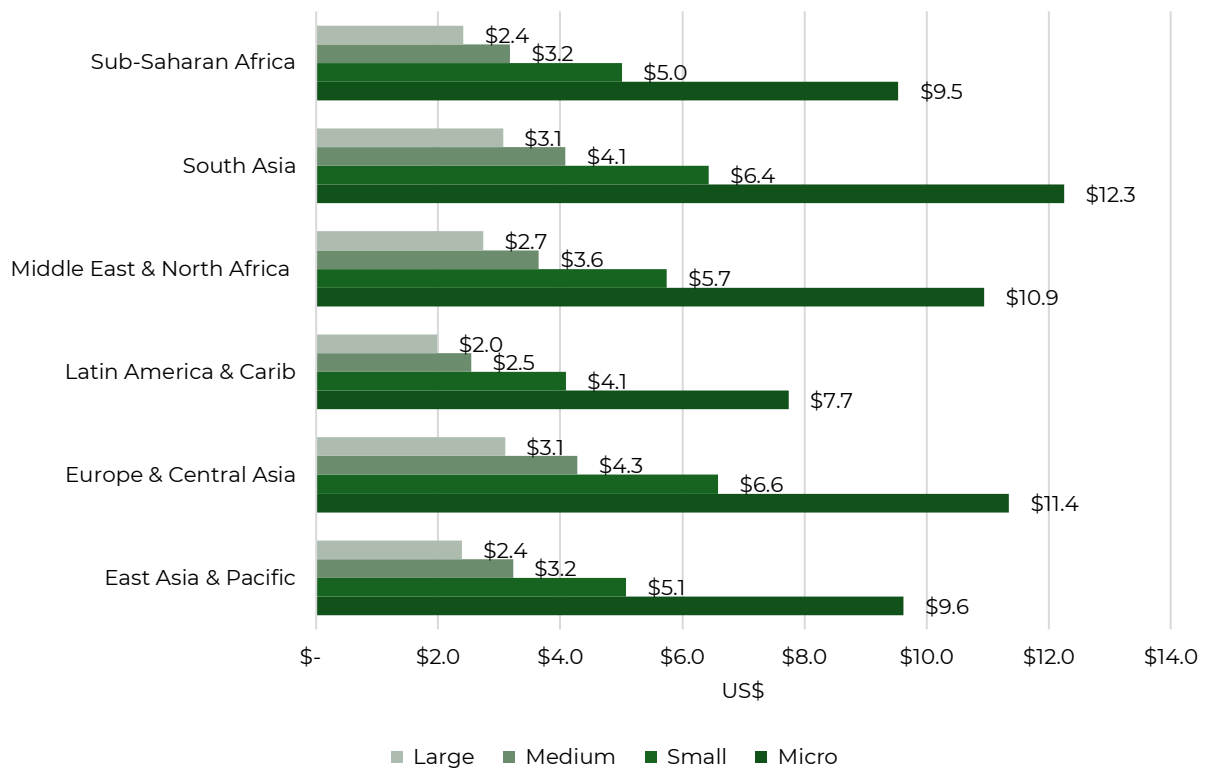
lowest in the MENA region (US\$ 571 million). Likewise, the NPV of benefits was highest in the EAP region (US\$ 53,711 million) and lowest in the MENA region (US\$ 3,206 million).

The BCRs per region from implementing intervention V are presented in Figure 13. The BCR is highest among agrifood microenterprises followed by small, medium, and large enterprises, respectively. Micro enterprises contributed 10% of the total implementation cost per enterprise. For each US\$1 invested in providing matching grants for obtaining management consulting services, expected benefits ranges from US\$7.7 in LAC region to US\$12.3 in SA Small enterprises contributed about 20% of the intervention implementation costs, and BCRs ranged between US \$4.1 to US \$6.4 per US\$1 invested across regions (Figure 9). Medium-sized enterprises contributed about 30% of the intervention implementation costs, and BCRs ranged between US \$2.5 to US \$4.3 per US\$1 invested across regions. For large enterprises, BCRs ranged between US \$2.0 to US \$3.1 per US\$1 invested across regions.

Our estimates suggest that implementing this grant-matching intervention for improving access to consulting services for MSMEs and large enterprises produces enough returns to make investments value for money.



**Figure 12. Implementation cost across all MSMEs and NPV of benefits in increased sales by region (2019 – 2028) – Intervention V**



**Figure 13. Benefit-cost ratios by region – Intervention V**

**INTERVENTION VI**

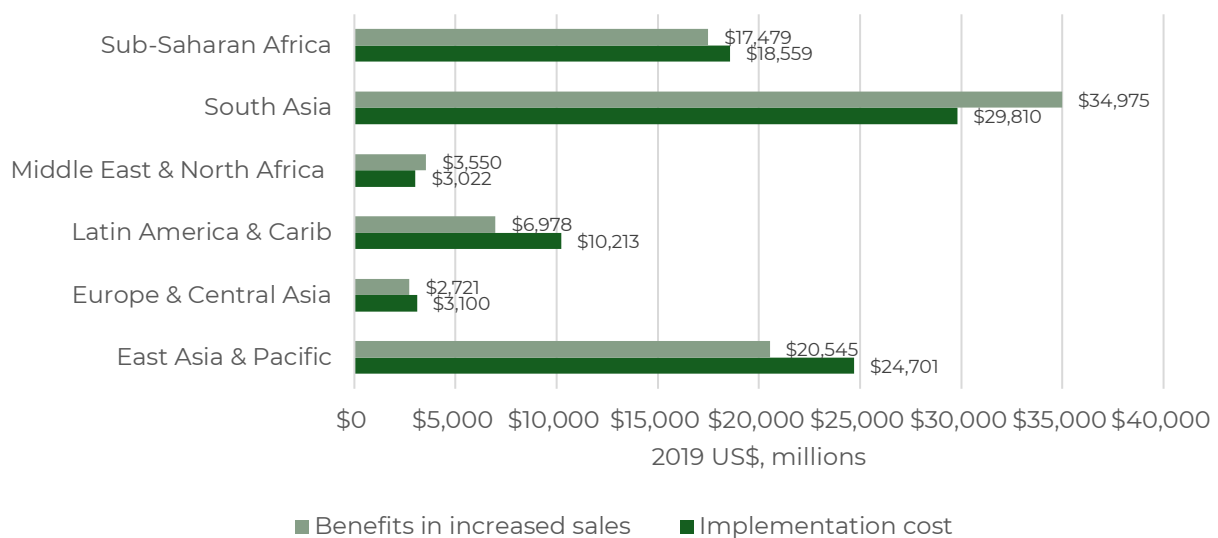
Intervention VI also targeted a key constraint to MSME business development: access to finance as a resource for obtaining capital and technical production inputs. The intervention provided a capital infusion to firms, complemented by technical support services. Capital expenditures targeted expanding production and accelerating innovation. Components of the technical services included training and support for product formulation, quality control, and market expansion.

The average cost of the capital infusion for intervention VI was US \$ 75,000 per agrifood MSME in Kenya. Adjusting the cost to other countries indicates that a similar intervention, on average, would cost about US \$36,233 in Afghanistan and US \$94,269 in Vanuatu (see Annex 1, Table A3). The average cost if the technical assistance was US \$8,074 in Kenya (Figure 14). A similar technical assistance intervention would cost as low as US \$2,792 in Uzbekistan and as high as US \$9,798 in Lebanon (see Annex 1, Table A3). This results in variations in the total implementation cost across the six modelled LMIC regions. The total implementation cost and NPV of 10-years benefits are presented in Figure 10. Total implementation cost was highest in SA (US\$ 34,975 million) and lowest in ECA (US\$ 2,721 million). Likewise, the NPV of benefits were highest in SA (US\$ 29,810 million) and lowest in ECA (US\$ 3,022 million).

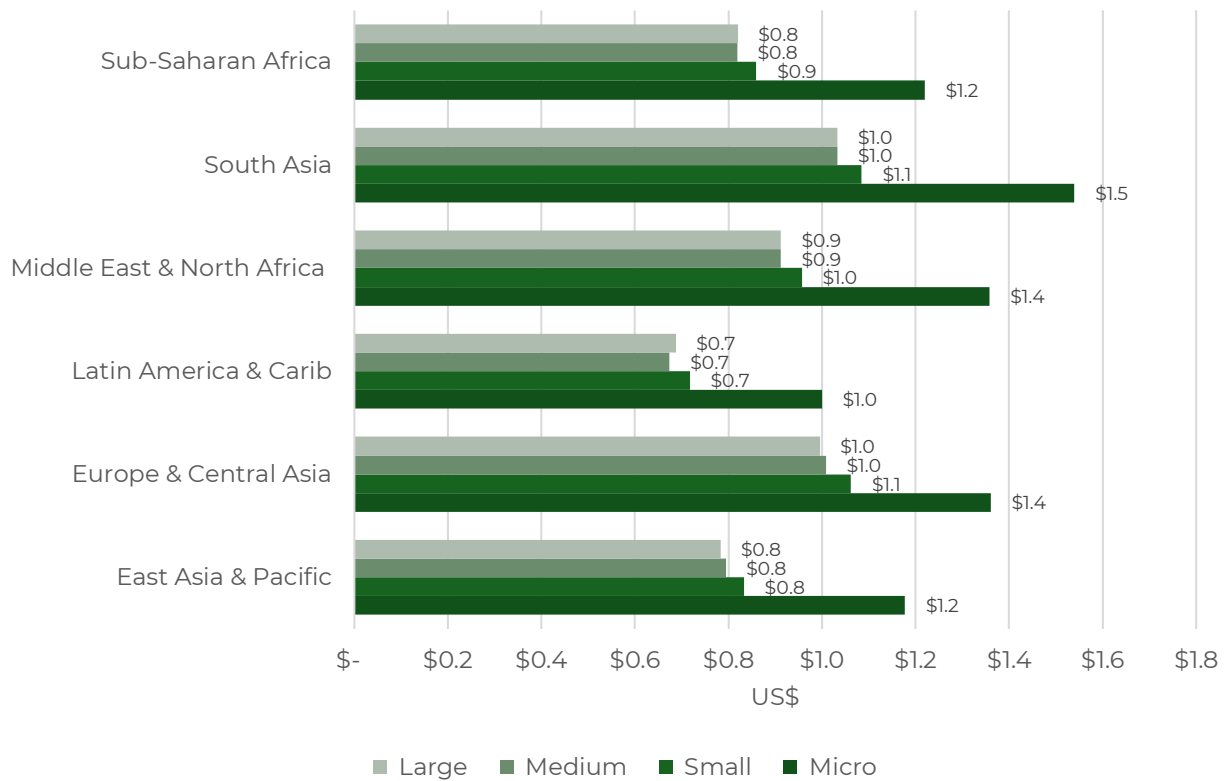
The BCRs per region from implementing intervention VI are presented in Figure 15. The BCRs were similar across MSMEs disaggregated by size and ranged between US\$0.8 to US\$1.5 per US\$1 invested. Across regions, BCRs were consistently highest among microenterprises, followed by small, medium, and large enterprises, respectively. Microenterprises contributed 10% of the total FA cost per firm. For each US\$1 invested in

providing TA and FA, expected benefits range from US\$1.0 in the LAC region to US\$1.5 in SA. Small enterprises contributed about 20% of the FA costs, and BCRs ranged between US \$0.7 to US \$1.1 per US\$1 invested across regions. Medium-sized enterprises contributed about 30% of the intervention FA costs, and BCRs ranges between US \$0.8 to US \$1.1 per US\$1 invested across regions. For large enterprises, BCRs ranges between US \$0.7 to US \$1.0 per US\$1 invested across regions.

Our estimates suggest that implementing this financial and technical support intervention for MSMEs and large enterprises produces marginally high enough returns to make investments viable and value for money (i.e., BCRs of more than US\$1 per US\$1 invested). The intervention could potentially yield larger returns if implementation costs and amount of financial assistance were reduced without compromising impact.



**Figure 14. Implementation cost across all MSMEs and NPV of benefits in increased sales by region (2019 – 2028) – Intervention VI**



**Figure 15. Benefit-cost ratios by region – Intervention VI**

**SENSITIVITY ANALYSES**

The analysis was based on the best available parameters for cost-benefit-analysis and plausible assumptions for forecasting future benefits. Cost-benefit analyses are sensitive to key parameters/assumptions used in modelling, including discount rate, effect sizes, implementation costs, and time horizon. The extent to which these parameters reflect country contexts will determine the accuracy of our estimates. We utilised a 5% discount rate and a 10-year time horizon. A lower discount rate and a longer time horizon would increase the estimated benefits and the benefit-cost ratios. Cheaper interventions with high effectiveness would also produce lower implementation costs viz-a-viz benefits, which would increase the BCRs. In addition, the impact pathways through which effectiveness is established can also impact the magnitude of benefits and modelled BCRs. Interventions that were evaluated to increase productivity through creation of additional jobs would produce lower returns compared to those that were modelled to directly increase sales or revenue. This is because increasing sales through increased labour productivity (number of employees relative to total sales) is not equal to a direct increase in sales. Interventions that scale the implementation costs to enterprise sizes (e.g., matching grants) produce a better distribution of implementation costs and benefits. Since benefits were established through improved sales, smaller enterprises generally reported lower annual sales relative to larger enterprises. This effected the size of expected benefits. Hence, where implementation costs were the same for micro, small, and medium enterprises, BCRs become larger as firm size and sales increased.

Altering some of the key assumptions in the modelling illustrated how sensitive our estimates are to changes in the discount rate (Table 4) and assumptions of labour share of production cost (Table 5). We focused the sensitivity analysis on the matching grant for consulting services intervention in Mexico, the technical and financial assistance to MSMEs in Kenya, the business training for female managers of MSMEs in Peru, the peer-to-peer business networks for mentorship and support in Senegal, and the business association intervention for managers of MSMEs in China. Focusing on implementation countries of identified interventions, findings suggest that changes in the discount rate produced significant changes in expected benefits from implementing identified interventions. In Mexico, a change in the assumed discount rate, from 5% to the national rate of 10.75%, yielded a reduction in expected benefits from \$1.92-\$7.7 per \$1 invested to \$1.37-\$5.49. In China, a change from 5% discount rate to the national rate of 2.9% yielded an increase in expected benefits from \$0.46-\$7.7 per \$1 invested, to \$0.51-\$8.59 across different enterprises. While the discount rate changed the magnitude of expected benefits, the interventions still represented good value for money. In Mexico, adjusting the labour productivity estimates to reflect labour share of GDP produced a reduction in expected benefits from \$1.92-\$7.7 per \$1 invested to \$0.67-\$2.62. This suggests that changing the methodology for estimating labour productivity has a significant impact of the magnitude of expected benefits, with the implication that the intervention produced good value for money only for micro and small enterprises. The BDS to MSMEs in east and west Africa consistently showed high expected benefits, even after adjusting for labour share of production (Table 5).

### SUMMARY AND CONCLUSION

This paper has sought to analyse the costs and benefits of various types of interventions to support MSMEs in agri-food value chains, in order to suggest which may be the best investments for supporting these companies in the future. Due to data limitations, the report's analysis are based on just one study per intervention, extrapolated to a larger context based on secondary data. As such, the results should be seen as indicative, not definitive.

The key results are summarised in Table 3. Overall, while there is some heterogeneity by intervention type and firm size, the picture is a positive one: nearly all interventions yield positive benefit-cost ratios, with the main exceptions to this being for the most expensive interventions.

For micro enterprises, training female managers produced the highest returns per dollar invested, with the caveat that this result is drawn from one study, in one middle-income country setting. This was because the intervention was low-cost, such that expected benefits significantly outweighed implementation costs (Table 3). Although the magnitude of BCRs varied across regions, returns were consistently higher than for other modelled interventions. This was followed by BDS to agrifood MSMEs and matching grants for technical assistance. The financial and technical assistance intervention showed marginal benefits for micro enterprises, and the inter-firm relationship intervention was not economically viable. For small enterprises, the trend persisted, with training for female managers of MSMEs producing the highest expected benefits, followed by BDS services (Table 3). However, the intervention that created networking organisations for SMEs produced more benefits per dollar invested relative to matching grants for technical

assistance. The technical and financial assistance intervention were largely not economically viable. While a smaller set of interventions was modelled for medium-sized enterprises, BDS services to agrifood SMEs produced the highest returns, followed by building inter-firm relationships, and matching grants (Table 3). The technical and financial assistance intervention was largely not economically viable.

There are many modalities for providing financial and technical assistance, and each mode would yield different returns across different-sized enterprises. Matching grants for the purchase of technical inputs appear to create enough impact to justify investments. Financial assistance for capital investments complemented with technical assistance for agrifood MSMEs appears to be too costly to create enough returns to offset implementation costs. The extent to which the cost of grants and complementary technical assistance can be scaled down without compromising the impact of the intervention would determine future scalability and economic or financial returns. There may also be options for replacing grants with lower-cost financial support, such as interest-free or low-interest loans. Low-cost business development services for MSMEs and large enterprises, networking interventions, and training for female managers of micro and small enterprises appear to produce high enough returns to justify supporting, based on the estimated BCRs.

There are some key caveats for consideration. This paper focuses on formal agrifood MSMEs due to data limitations on the informal sector. Productivity estimates of informal MSMEs would vary from those of formal enterprises, as would the key business constraints facing informal MSMEs, including business formalisation, tax registration and payment. As a result, the interventions used to support them would vary from those addressed to formal MSMEs. Since evidence suggests that a significant proportion of agrifood MSMEs in LMICs are informal, caution should be taken in extending modelled benefits to the informal sector, or to the food system as a whole. Overall, the analysis was also limited by data gaps in the effectiveness and implementation costs of MSME support services. As such, it focused on only six intervention types, drawing on only a handful of studies on effectiveness. More high-quality evaluations are needed to enable a more comprehensive analysis of returns to MSME support services.

With these caveats in mind, our estimates illustrate the size of expected benefits from implementing a broad set of MSME support services. The extent to which each modelled intervention can be implemented at scale could be determined by comparing interventions' implementation costs, benefits, and BCRs to each jurisdiction's budget and needs to enable informed priority setting for funders, governments, and development partners.

**Table 3. Summary BCR estimates per intervention**

| Interventions   | Descriptions   | Findings   | BCRs   | Comments   |
|---|--|--|--|--|
| Business training for female managers of micro/small enterprises                          | Low-cost intensive mentoring/general training - 36 3-hour group sessions delivered 3x per week for 1 year      | Improve sales by 15% 1 – 3 years after implementation.<br>Implementation cost - US \$341 per enterprise                              | Micro: \$159 – \$258 per US\$1 invested<br>Small: \$619 – \$758 per US\$1 invested   | Very low-cost intervention<br>High impact on sales   |
| Low-cost non-financial business development services (BDS) to MSMEs and large enterprises | BDS include acceleration, incubation, technical assistance, coaching, consulting, etc.                         | 19% increase in annual sales growth<br>US\$2,754 – US\$22,924 to service an enterprise   | Micro: \$44 – \$64 per \$1<br>Small: \$103 – \$229 per \$1<br>Medium: \$103 - \$229 per \$1<br>Large: \$961 - \$1,346 per \$1  | Variations in implementation cost due to firm sizes<br>High impact on sales                                      |
| Business network organisations for MSME inclusive growth                                  | Peer-to-peer business networks for mentorship and support  | 25.8% increase in sales.<br>US\$8,357 implementation cost per firm per year over 10 years  | Micro: \$1.68 – \$2.19 per \$1<br>Small: \$5.3 – \$10.5 per \$1  | Implementation cost is per year<br>sustainability/affordability could be a challenge<br>High impact on sales     |
| Interfirm relationship intervention for MSMEs   | Business association intervention with intensive monthly meetings for managers of MSMEs                        | 8.9% increase in sales<br>US\$179,336 implementation cost per annum per firm   | Micro: \$0.26 – \$0.35 per \$1<br>Small: \$2.5 – \$5.0 per \$1<br>Medium: \$15.2 - \$23.6 per \$1                              | High-cost intervention<br>Low impact on sales  |
| Matching grant for consulting services for small and medium enterprises                   | Matching grants for 1 year of management consulting services on total factor productivity and return on assets | 40% increase in employees 5years after intervention.<br>Market cost of US\$11,856 (MSMEs paid 10% - 40% of the cost based firm size) | Micro: \$7.7 - \$12.3 per \$1<br>Small: \$4.1 – \$6.4 per \$1<br>Medium: \$2.5 – \$4.3 per \$1<br>Large: \$2.0 - \$3.1 per \$1 | Variations in implementation cost due to differences in grant contribution<br>High impact on labour productivity |
| Technical and financial assistance to MSMEs   | GAIN's consulting services and financial assistance to agri-food SMEs avg 12 employees                         | 48% increase in employees<br>US\$75,000 in FA and US\$7,562 for TA   | Micro: \$1.0 – \$1.5 per \$1<br>Small: \$0.7 – \$1.1 per \$1<br>Medium: \$0.8 - \$1.1 per \$1<br>Large: \$0.7 - \$1.0 per \$1  | High-cost intervention<br>High impact on labour productivity   |

**Table 4. Benefit-cost ratio sensitivity analysis – main and alternative discount rates**

| Intervention  | Country | Main Assumption - 5% discount rate |          |         |         | Alternative assumption - National discount rate |          |          |         |         |
|---|---------|------------------------------------|----------|---------|---------|---|----------|----------|---------|---------|
|   |         | Micro                              | Small    | Medium  | Large   | Rate  | Micro    | Small    | Medium  | Large   |
| Matching grant for consulting services for SMEs   | Mexico  | \$ 7.66                            | \$ 4.02  | \$ 2.55 | \$ 1.92 | 10.75%  | \$ 5.49  | \$ 3.04  | \$ 1.83 | \$ 1.37 |
| GAIN Technical and financial assistance to MSMEs  | Kenya   | \$ 0.91                            | \$ 0.61  | \$ 0.60 | \$ 0.58 | 12%   | \$ 0.61  | \$ 0.44  | \$ 0.39 | \$ 0.39 |
| Business training for female managers of MSMEs  | Peru    | \$ 140.3                           | \$ 533.9 |         |         | 3%  | \$ 154.4 | \$ 587.8 |         |         |
| Peer-to-peer business networks for mentorship and support                               | Senegal | \$ 2.5                             | \$ 5.2   |         |         | 4.25%   | \$ 2.54  | \$ 5.44  |         |         |
| Business association intervention with intensive monthly meetings for managers of MSMEs | China   | \$ 0.46                            | \$ 1.01  | \$ 7.7  |         | 2.9%  | \$ 0.51  | \$ 1.12  | \$ 8.59 |         |

**Table 5. Benefit-cost ratio sensitivity analysis – main and alternative assumptions for labour share of production**

| Intervention  | Country  | Main assumption<br><i>Labour productivity = Total sales / Total employee</i> |         |         |          | Alternative assumption<br><i>Labour productivity = (Total sales × Labour share of GDP) / Total employee</i> |         |         |         |          |
|---|----------|--|---------|---------|----------|---|---------|---------|---------|----------|
|   |          | Micro  | Small   | Medium  | Large    | Labour share  | Micro   | Small   | Medium  | Large    |
| Matching grant for consulting services for SMEs           | Mexico   | \$ 7.66  | \$ 4.02 | \$ 2.55 | \$ 1.92  | 34.2%   | \$ 2.62 | \$ 1.42 | \$ 0.90 | \$ 0.67  |
| Low-cost non-financial BDS to MSMEs and large enterprises | Nigeria  | \$ 37.2  | \$ 114  | \$ 118  | \$ 2,700 | 69.2%   | \$ 25.7 | \$ 79.0 | \$ 81.5 | \$ 1,868 |
|   | Tanzania | \$ 30.4  | \$ 125  | \$ 170  | \$ 3,452 | 53.3%   | \$ 16.2 | \$ 66.4 | \$ 90.6 | \$ 1,840 |

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ANNEX 1. SUPPLEMENTAL FIGURES AND TABLES

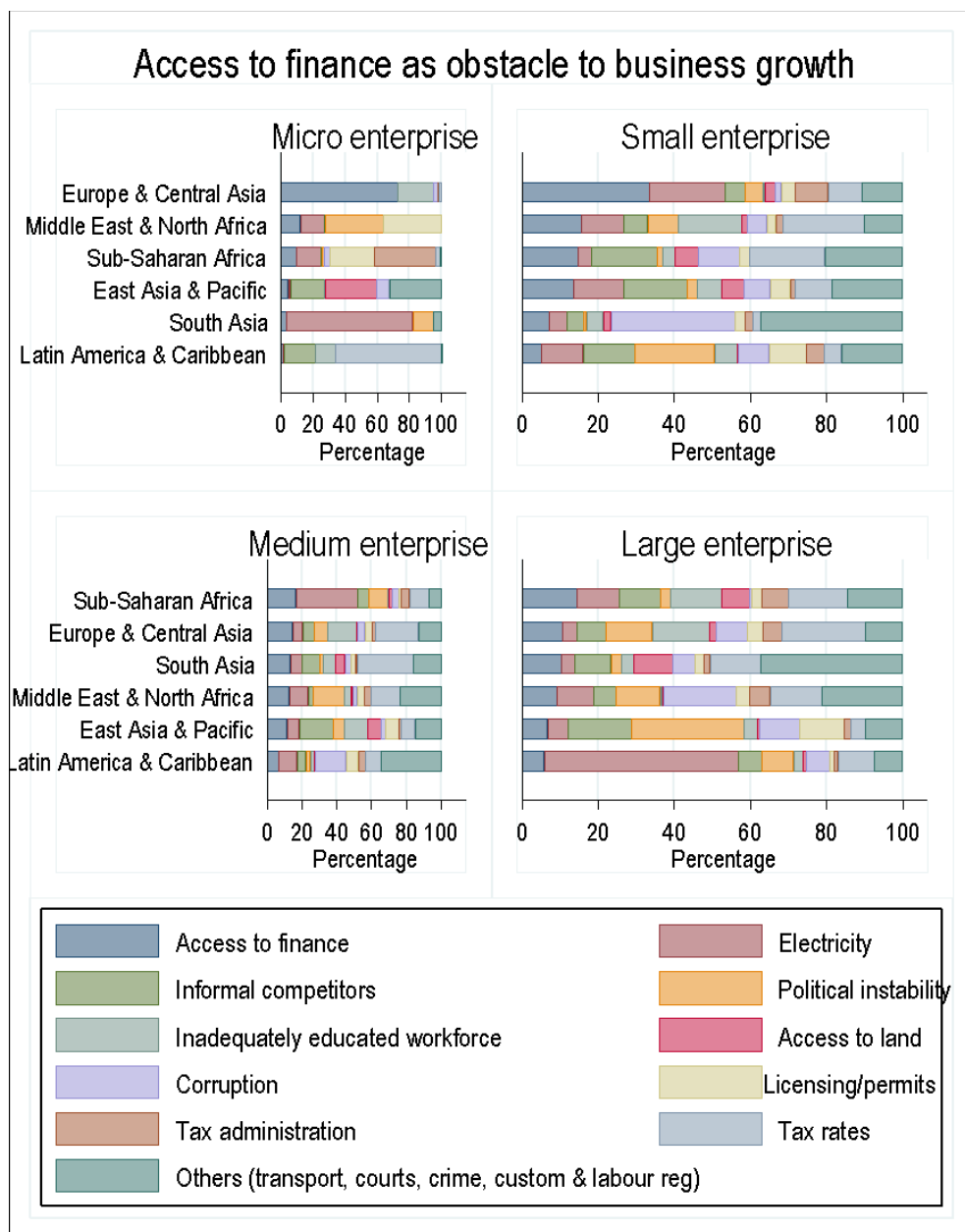


Figure A1. Ranking of constraints to agrifood MSME business operations by region and firm size

Table A1. Percentage distribution of agrifood enterprises by region

| Region                     | Micro | Small | Medium | Large |
|----------------------------|-------|-------|--------|-------|
| East Asia & Pacific        | 33%   | 35%   | 23%    | 9%    |
| Europe & Central Asia      | 22%   | 43%   | 26%    | 9%    |
| Latin America & Carib      | 25%   | 39%   | 23%    | 13%   |
| Middle East & North Africa | 27%   | 45%   | 22%    | 6%    |
| South Asia                 | 20%   | 39%   | 31%    | 10%   |
| Sub-Saharan Africa         | 30%   | 43%   | 22%    | 6%    |

**Table A2. Intervention V - Implementation cost by country**

| Country       | 2019 LCU per hr | 4hr/wk | 52wk/yr | in 2019 US\$ |
|---------------|-----------------|--------|---------|--------------|
| Afghanistan   | 3902.73         | 4      | 52      | 10,443.43    |
| Algeria       | 4740.31         | 4      | 52      | 8,261.29     |
| Angola        | 17885.89        | 4      | 52      | 10,197.54    |
| Armenia       | 23941.88        | 4      | 52      | 10,365.31    |
| Azerbaijan    | 47.94           | 4      | 52      | 5,865.60     |
| Bangladesh    | 3856.45         | 4      | 52      | 9,498.42     |
| Belarus       | 78.56           | 4      | 52      | 7,818.41     |
| Benin         | 24587.59        | 4      | 52      | 8,728.08     |
| Bhutan        | 2730.17         | 4      | 52      | 8,064.12     |
| Bolivia       | 396.59          | 4      | 52      | 11,937.88    |
| Bosnia & Herz | 81.86           | 4      | 52      | 9,785.56     |
| Botswana      | 557.13          | 4      | 52      | 10,779.82    |
| Brazil        | 243.7           | 4      | 52      | 12,865.38    |
| Burkina Faso  | 23925.39        | 4      | 52      | 8,493.45     |
| Burundi       | 94970.58        | 4      | 52      | 10,703.11    |
| Cambodia      | 167,596.12      | 4      | 52      | 8,583.77     |
| Cameroon      | 26203.5         | 4      | 52      | 9,312.18     |
| China         | 413.78          | 4      | 52      | 12,473.37    |
| Colombia      | 158321.61       | 4      | 52      | 10,034.95    |
| Costa Rica    | 47202.84        | 4      | 52      | 16,717.79    |
| Cote d'Ivoire | 28203.5         | 4      | 52      | 10,012.34    |
| Dominican Rep | 2518.63         | 4      | 52      | 10,213.98    |
| Ecuador       | 61.96           | 4      | 52      | 12,887.68    |
| Egypt         | 453.36          | 4      | 52      | 5,623.07     |
| El Salvador   | 60              | 4      | 52      | 12,480.00    |
| Eswatini      | 629.22          | 4      | 52      | 9,057.28     |
| Ethiopia      | 1291.88         | 4      | 52      | 9,256.32     |
| Gabon         | 28240.5         | 4      | 52      | 10,025.47    |
| Gambia        | 1581            | 4      | 52      | 6,569.08     |
| Georgia       | 116.73          | 4      | 52      | 8,640.51     |
| Ghana         | 193.76          | 4      | 52      | 7,735.52     |
| Guatemala     | 492.82          | 4      | 52      | 13,329.85    |
| Guinea        | 449630.11       | 4      | 52      | 10,183.40    |
| Haiti         | 4055.16         | 4      | 52      | 9,497.50     |
| Honduras      | 1405.9          | 4      | 52      | 11,935.80    |
| India         | 2185.29         | 4      | 52      | 6,454.70     |
| Indonesia     | 507186.49       | 4      | 52      | 7,456.69     |
| Iraq          | 44522.25        | 4      | 52      | 7,834.71     |
| Jamaica       | 8871.56         | 4      | 52      | 13,842.06    |
| Kazakhstan    | 13908.59        | 4      | 52      | 7,558.62     |
| Kenya         | 6253.99         | 4      | 52      | 12,754.48    |
| Kosovo        | 37.69           | 4      | 52      | 8,808.45     |
| Kyrgyz Rep.   | 2686.36         | 4      | 52      | 8,007.49     |
| Lao PDR       | 337906.04       | 4      | 52      | 8,097.85     |
| Lebanon       | 112176.02       | 4      | 52      | 15,477.69    |
| Lesotho       | 672.33          | 4      | 52      | 9,684.53     |
| Liberia       | 11158.66        | 4      | 52      | 12,450.39    |
| Madagascar    | 115978.64       | 4      | 52      | 6,667.06     |
| Malawi        | 26689.96        | 4      | 52      | 7,446.30     |
| Mali          | 25505.62        | 4      | 52      | 9,054.58     |
| Mauritius     | 1920.75         | 4      | 52      | 11,263.49    |
| Mexico        | 1096.83         | 4      | 52      | 11,845.31    |
| Morocco       | 414.14          | 4      | 52      | 8,963.70     |
| Mozambique    | 2737.24         | 4      | 52      | 9,103.71     |
| Myanmar       | 32992.13        | 4      | 52      | 4,522.90     |
| N. Macedonia  | 2388.95         | 4      | 52      | 9,044.44     |
| Namibia       | 825.8           | 4      | 52      | 11,895.18    |

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|             |           |   |    |           |
|-------------|-----------|---|----|-----------|
| Nepal       | 4241.38   | 4 | 52 | 7,834.18  |
| Nicaragua   | 1424.51   | 4 | 52 | 8,946.20  |
| Niger       | 25749.79  | 4 | 52 | 9,141.26  |
| Nigeria     | 14019.78  | 4 | 52 | 9,501.22  |
| Pakistan    | 3716.87   | 4 | 52 | 5,153.03  |
| Papua NG    | 263.96    | 4 | 52 | 16,243.69 |
| Peru        | 191.64    | 4 | 52 | 11,945.20 |
| Philippines | 2197.66   | 4 | 52 | 8,833.11  |
| Romania     | 220.03    | 4 | 52 | 10,743.25 |
| Rwanda      | 36041.62  | 4 | 52 | 8,335.64  |
| S. Africa   | 749.95    | 4 | 52 | 10,802.60 |
| S. Sudan    | 9038.21   | 4 | 52 | 11,899.16 |
| Senegal     | 26409.63  | 4 | 52 | 9,375.51  |
| Serbia      | 4940.32   | 4 | 52 | 9,764.22  |
| Solomon Is. | 515.6     | 4 | 52 | 13,126.66 |
| Sri Lanka   | 5972.96   | 4 | 52 | 6,950.74  |
| Sudan       | 2324.98   | 4 | 52 | 10,568.09 |
| Suriname    | 492.65    | 4 | 52 | 13,754.52 |
| Tajikistan  | 270.44    | 4 | 52 | 5,902.57  |
| Tanzania    | 89887.5   | 4 | 52 | 8,170.88  |
| Thailand    | 1454.31   | 4 | 52 | 9,745.38  |
| TimorOLeste | 51.35     | 4 | 52 | 10,680.80 |
| Togo        | 25252.02  | 4 | 52 | 8,964.55  |
| Tunisia     | 90.34     | 4 | 52 | 6,413.22  |
| Uganda      | 130224.8  | 4 | 52 | 7,312.76  |
| Ukraine     | 1116.73   | 4 | 52 | 8,989.16  |
| Uzbekistan  | 187424.3  | 4 | 52 | 4,411.59  |
| Vanuatu     | 14565.96  | 4 | 52 | 26,407.39 |
| Venezuela   | 442       | 4 | 52 | 9,267.74  |
| Vietnam     | 927583.17 | 4 | 52 | 8,370.29  |
| Yemen       | 27382.54  | 4 | 52 | 11,701.70 |
| Zambia      | 487.4     | 4 | 52 | 7,864.95  |
| Zimbabwe    | 2435.57   | 4 | 52 | 9,869.44  |

**Table A3. Intervention VI - Implementation cost by country**

| Country       | 2019 US\$ - FA | 2019 US\$ - TA |
|---------------|----------------|----------------|
| Afghanistan   | \$ 36,234      | \$ 3,901       |
| Algeria       | \$ 38,331      | \$ 4,127       |
| Angola        | \$ 59,964      | \$ 6,456       |
| Armenia       | \$ 60,951      | \$ 6,562       |
| Azerbaijan    | \$ 34,491      | \$ 3,713       |
| Bangladesh    | \$ 55,853      | \$ 6,013       |
| Belarus       | \$ 45,977      | \$ 4,950       |
| Benin         | \$ 51,324      | \$ 5,526       |
| Bhutan        | \$ 47,419      | \$ 5,105       |
| Bolivia       | \$ 70,198      | \$ 6,834       |
| Bosnia & Herz | \$ 57,543      | \$ 6,195       |
| Botswana      | \$ 63,388      | \$ 6,824       |
| Brazil        | \$ 75,652      | \$ 8,145       |
| Burkina Faso  | \$ 49,944      | \$ 5,377       |
| Burundi       | \$ 62,937      | \$ 6,776       |
| Cambodia      | \$ 50,475      | \$ 5,434       |
| Cameroon      | \$ 54,758      | \$ 5,895       |
| China         | \$ 73,348      | \$ 7,897       |
| Colombia      | \$ 59,008      | \$ 6,353       |
| Costa Rica    | \$ 98,305      | \$ 5,475       |
| Cote d'Ivoire | \$ 54,666      | \$ 5,206       |
| Dominican Rep | \$ 60,061      | \$ 6,466       |
| Ecuador       | \$ 75,778      | \$ 7,158       |

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|              |           |          |
|--------------|-----------|----------|
| Egypt        | \$ 33,065 | \$ 3,560 |
| El Salvador  | \$ 69,727 | \$ 7,507 |
| Eswatini     | \$ 53,259 | \$ 5,734 |
| Ethiopia     | \$ 54,430 | \$ 5,860 |
| Gabon        | \$ 58,953 | \$ 6,347 |
| Gambia       | \$ 52,366 | \$ 4,160 |
| Georgia      | \$ 26,124 | \$ 5,470 |
| Ghana        | \$ 45,487 | \$ 4,897 |
| Guatemala    | \$ 80,259 | \$ 8,439 |
| Guinea       | \$ 54,110 | \$ 6,447 |
| Haiti        | \$ 58,235 | \$ 6,013 |
| Honduras     | \$ 70,186 | \$ 7,556 |
| India        | \$ 37,956 | \$ 4,086 |
| Indonesia    | \$ 43,847 | \$ 4,721 |
| Iraq         | \$ 46,070 | \$ 4,960 |
| Jamaica      | \$ 81,395 | \$ 8,763 |
| Kazakhstan   | \$ 44,447 | \$ 4,785 |
| Kenya        | \$ 75,000 | \$ 8,075 |
| Kosovo       | \$ 51,798 | \$ 5,577 |
| Kyrgyz Rep.  | \$ 47,086 | \$ 5,069 |
| Lao PDR      | \$ 47,618 | \$ 5,127 |
| Lebanon      | \$ 91,013 | \$ 9,799 |
| Lesotho      | \$ 56,947 | \$ 6,131 |
| Liberia      | \$ 41,368 | \$ 5,245 |
| Madagascar   | \$ 39,204 | \$ 4,221 |
| Malawi       | \$ 43,786 | \$ 4,714 |
| Mali         | \$ 53,243 | \$ 5,732 |
| Mauritius    | \$ 66,232 | \$ 7,131 |
| Mexico       | \$ 69,654 | \$ 7,499 |
| Morocco      | \$ 52,709 | \$ 5,675 |
| Mozambique   | \$ 53,532 | \$ 5,763 |
| Myanmar      | \$ 47,291 | \$ 2,863 |
| N. Macedonia | \$ 53,184 | \$ 5,726 |
| Namibia      | \$ 69,947 | \$ 7,531 |
| Nepal        | \$ 46,067 | \$ 4,960 |
| Nicaragua    | \$ 52,606 | \$ 5,664 |
| Niger        | \$ 53,753 | \$ 5,787 |
| Nigeria      | \$ 55,870 | \$ 6,015 |
| Pakistan     | \$ 46,298 | \$ 3,262 |
| Papua NG     | \$ 95,517 | \$ 5,550 |
| Peru         | \$ 70,241 | \$ 7,562 |
| Philippines  | \$ 51,941 | \$ 5,592 |
| Romania      | \$ 63,172 | \$ 6,801 |
| Rwanda       | \$ 49,016 | \$ 5,277 |
| S. Africa    | \$ 63,522 | \$ 6,839 |
| S. Sudan     | \$ 48,345 | \$ 3,161 |
| Senegal      | \$ 55,131 | \$ 5,935 |
| Serbia       | \$ 57,416 | \$ 5,830 |
| Solomon Is.  | \$ 72,461 | \$ 6,246 |
| Sri Lanka    | \$ 40,872 | \$ 4,400 |
| Sudan        | \$ 57,268 | \$ 3,813 |
| Suriname     | \$ 57,897 | \$ 6,233 |
| Tajikistan   | \$ 34,709 | \$ 3,737 |
| Tanzania     | \$ 48,047 | \$ 5,173 |
| Thailand     | \$ 57,306 | \$ 6,170 |
| TimorOleste  | \$ 62,812 | \$ 6,762 |
| Togo         | \$ 52,714 | \$ 5,675 |
| Tunisia      | \$ 47,951 | \$ 4,060 |
| Uganda       | \$ 43,001 | \$ 4,630 |

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|            |           |          |
|------------|-----------|----------|
| Ukraine    | \$ 52,859 | \$ 5,691 |
| Uzbekistan | \$ 48,574 | \$ 2,793 |
| Vanuatu    | \$ 94,270 | \$ 8,873 |
| Venezuela  | \$ 40,097 | \$ 4,343 |
| Vietnam    | \$ 49,220 | \$ 5,299 |
| Yemen      | \$ 68,809 | \$ 7,408 |
| Zambia     | \$ 46,248 | \$ 4,979 |
| Zimbabwe   | \$ 44,577 | \$ 4,423 |

**Table A4. Share of MSMEs with female as top manager**

| Region                | Yes | No  | Total |
|-----------------------|-----|-----|-------|
| East Asia & Pacific   | 35% | 65% | 100%  |
| Europe & Central Asia | 21% | 79% | 100%  |
| Latin America & Carib | 22% | 78% | 100%  |
| Middle East & North A | 5%  | 95% | 100%  |
| South Asia            | 16% | 84% | 100%  |
| Sub-Saharan Africa    | 16% | 84% | 100%  |
| Total                 | 19% | 81% | 100%  |

**Table A5. Intervention I- Implementation cost by country**

| Country       | 2019 LCU | 2019 US \$ |
|---------------|----------|------------|
| Afghanistan   | 23585    | \$303      |
| Algeria       | 39166    | \$328      |
| Angola        | 105518   | \$289      |
| Armenia       | 141246   | \$294      |
| Azerbaijan    | 399      | \$235      |
| Bangladesh    | 27751    | \$329      |
| Belarus       | 493      | \$236      |
| Benin         | 145055   | \$248      |
| Bhutan        | 16107    | \$229      |
| Bolivia       | 2340     | \$339      |
| Bosnia & Herz | 483      | \$278      |
| Botswana      | 3287     | \$306      |
| Brazil        | 1438     | \$365      |
| Burkina Faso  | 141149   | \$241      |
| Burundi       | 560283   | \$304      |
| Cambodia      | 988740   | \$243      |
| Cameroon      | 154589   | \$264      |
| China         | 2441     | \$354      |
| Colombia      | 934024   | \$285      |
| Costa Rica    | 278475   | \$474      |
| Cote d'Ivoire | 144589   | \$247      |
| Dominican Rep | 14859    | \$290      |
| Ecuador       | 366      | \$366      |
| Egypt         | 3675     | \$219      |
| El Salvador   | 336      | \$336      |
| Eswatini      | 3712     | \$257      |
| Ethiopia      | 7622     | \$263      |
| Gabon         | 166606   | \$284      |
| Gambia        | 9331     | \$186      |
| Georgia       | 689      | \$245      |
| Ghana         | 1143     | \$219      |
| Guatemala     | 2907     | \$378      |
| Guinea        | 2652610  | \$289      |
| Haiti         | 23924    | \$269      |
| Honduras      | 8294     | \$339      |
| India         | 12892    | \$183      |
| Indonesia     | 2992167  | \$211      |

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|              |         |       |
|--------------|---------|-------|
| Iraq         | 262661  | \$222 |
| Jamaica      | 52338   | \$393 |
| Kazakhstan   | 82054   | \$214 |
| Kenya        | 36896   | \$362 |
| Kosovo       | 222     | \$250 |
| Kyrgyz Rep.  | 15848   | \$227 |
| Lao PDR      | 1993490 | \$230 |
| Lebanon      | 661787  | \$439 |
| Lesotho      | 3966    | \$275 |
| Liberia      | 51346   | \$275 |
| Madagascar   | 984221  | \$272 |
| Malawi       | 157458  | \$211 |
| Mali         | 150471  | \$257 |
| Mauritius    | 11332   | \$319 |
| Mexico       | 6471    | \$336 |
| Morocco      | 2443    | \$254 |
| Mozambique   | 16148   | \$258 |
| Myanmar      | 394638  | \$260 |
| N. Macedonia | 14094   | \$257 |
| Namibia      | 4872    | \$337 |
| Nepal        | 25022   | \$222 |
| Nicaragua    | 8404    | \$254 |
| Niger        | 151912  | \$259 |
| Nigeria      | 82710   | \$269 |
| Pakistan     | 33928   | \$226 |
| Papua NG     | 1557    | \$461 |
| Peru         | 1131    | \$339 |
| Philippines  | 12965   | \$251 |
| Romania      | 1298    | \$305 |
| Rwanda       | 212629  | \$236 |
| S. Africa    | 4424    | \$306 |
| S. Sudan     | 39371   | \$249 |
| Senegal      | 155805  | \$266 |
| Serbia       | 29146   | \$277 |
| Solomon Is.  | 5638    | \$690 |
| Sri Lanka    | 39238   | \$220 |
| Sudan        | 11817   | \$258 |
| Suriname     | 2080    | \$279 |
| Tajikistan   | 1995    | \$209 |
| Tanzania     | 530295  | \$232 |
| Thailand     | 8580    | \$276 |
| TimorOleste  | 303     | \$303 |
| Togo         | 148975  | \$254 |
| Tunisia      | 1133    | \$387 |
| Uganda       | 768266  | \$207 |
| Ukraine      | 6588    | \$255 |
| Uzbekistan   | 1905717 | \$216 |
| Vanuatu      | 41932   | \$365 |
| Venezuela    | 8932    | \$900 |
| Vietnam      | 5472313 | \$237 |
| Yemen        | 161544  | \$332 |
| Zambia       | 2875    | \$223 |
| Zimbabwe     | 11390   | \$222 |

**Table A6. Intervention III- Implementation cost by country**

| Country     | 2019 LCU | 2019 US \$ |
|-------------|----------|------------|
| Afghanistan | 427855   | \$ 5,504   |
| Algeria     | 694963   | \$ 5,823   |
| Angola      | 3323263  | \$ 9,109   |

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|               |          |           |
|---------------|----------|-----------|
| Armenia       | 4448489  | \$ 9,259  |
| Azerbaijan    | 8907     | \$ 5,240  |
| Bangladesh    | 716542   | \$ 8,485  |
| Belarus       | 14597    | \$ 6,984  |
| Benin         | 4568463  | \$ 7,797  |
| Bhutan        | 507276   | \$ 7,204  |
| Bolivia       | 73687    | \$ 10,664 |
| Bosnia & Herz | 15210    | \$ 8,741  |
| Botswana      | 103517   | \$ 9,629  |
| Brazil        | 45280    | \$ 11,492 |
| Burkina Faso  | 4445425  | \$ 7,587  |
| Burundi       | 17645879 | \$ 9,561  |
| Cambodia      | 31139967 | \$ 7,668  |
| Cameroon      | 4868706  | \$ 8,318  |
| China         | 76883    | \$ 11,142 |
| Colombia      | 29416729 | \$ 8,964  |
| Costa Rica    | 8770459  | \$ 14,934 |
| Cote d'Ivoire | 4568706  | \$ 7,798  |
| Dominican Rep | 410473   | \$ 8,003  |
| Ecuador       | 11512    | \$ 11,512 |
| Egypt         | 84236    | \$ 5,023  |
| El Salvador   | 10592    | \$ 10,592 |
| Eswatini      | 116911   | \$ 8,091  |
| Ethiopia      | 240037   | \$ 8,269  |
| Gabon         | 5247188  | \$ 8,956  |
| Gambia        | 293874   | \$ 5,870  |
| Georgia       | 21688    | \$ 7,718  |
| Ghana         | 36001    | \$ 6,910  |
| Guatemala     | 91568    | \$ 11,907 |
| Guinea        | 83542907 | \$ 9,097  |
| Haiti         | 753463   | \$ 8,484  |
| Honduras      | 261221   | \$ 10,662 |
| India         | 406036   | \$ 5,766  |
| Indonesia     | 94237092 | \$ 6,661  |
| Iraq          | 8272396  | \$ 6,999  |
| Jamaica       | 1648369  | \$ 12,365 |
| Kazakhstan    | 2584266  | \$ 6,752  |
| Kenya         | 1162015  | \$ 11,393 |
| Kosovo        | 7003     | \$ 7,869  |
| Kyrgyz Rep.   | 499135   | \$ 7,153  |
| Lao PDR       | 62784169 | \$ 7,234  |
| Lebanon       | 20842711 | \$ 13,826 |
| Lesotho       | 124921   | \$ 8,651  |
| Liberia       | 990899   | \$ 5,315  |
| Madagascar    | 21549252 | \$ 5,956  |
| Malawi        | 4959091  | \$ 6,652  |
| Mali          | 4739036  | \$ 8,088  |
| Mauritius     | 356881   | \$ 10,061 |
| Mexico        | 203795   | \$ 10,581 |
| Morocco       | 76948    | \$ 8,007  |
| Mozambique    | 508589   | \$ 8,132  |
| Myanmar       | 6130058  | \$ 4,040  |
| N. Macedonia  | 443875   | \$ 8,079  |
| Namibia       | 153437   | \$ 10,626 |
| Nepal         | 788063   | \$ 6,998  |
| Nicaragua     | 264679   | \$ 7,992  |
| Niger         | 4784404  | \$ 8,166  |
| Nigeria       | 2604926  | \$ 8,487  |
| Pakistan      | 690608   | \$ 4,603  |

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|             |           |           |
|-------------|-----------|-----------|
| Papua NG    | 49045     | \$ 14,510 |
| Peru        | 35607     | \$ 10,670 |
| Philippines | 408333    | \$ 7,891  |
| Romania     | 40881     | \$ 9,597  |
| Rwanda      | 6696664   | \$ 7,446  |
| S. Africa   | 139343    | \$ 9,650  |
| S. Sudan    | 704571    | \$ 4,460  |
| Senegal     | 4907005   | \$ 8,375  |
| Serbia      | 917930    | \$ 8,722  |
| Solomon Is. | 87554     | \$ 10,717 |
| Sri Lanka   | 1109797   | \$ 6,209  |
| Sudan       | 246186    | \$ 5,380  |
| Suriname    | 65524     | \$ 8,795  |
| Tajikistan  | 50248     | \$ 5,273  |
| Tanzania    | 16701424  | \$ 7,299  |
| Thailand    | 270216    | \$ 8,705  |
| Timor-Leste | 9542      | \$ 9,542  |
| Togo        | 4691917   | \$ 8,008  |
| Tunisia     | 16786     | \$ 5,729  |
| Uganda      | 24196240  | \$ 6,532  |
| Ukraine     | 207493    | \$ 8,030  |
| Uzbekistan  | 34824115  | \$ 3,941  |
| Vanuatu     | 2706407   | \$ 23,589 |
| Venezuela   | 71110     | \$ 7,168  |
| Vietnam     | 172348321 | \$ 7,477  |
| Yemen       | 5087776   | \$ 10,453 |
| Zambia      | 90561     | \$ 7,026  |
| Zimbabwe    | 443770    | \$ 8,645  |

**Table A7. Intervention IV - Implementation cost by country**

| Country       | 2019 LCU  | 2019 US \$ |
|---------------|-----------|------------|
| Afghanistan   | 6886292   | \$ 88,592  |
| Algeria       | 11185381  | \$ 93,719  |
| Angola        | 53487648  | \$ 146,614 |
| Armenia       | 71598065  | \$ 149,026 |
| Azerbaijan    | 143362    | \$ 84,330  |
| Bangladesh    | 11532691  | \$ 136,562 |
| Belarus       | 234944    | \$ 112,413 |
| Benin         | 73529043  | \$ 125,487 |
| Bhutan        | 8164572   | \$ 115,941 |
| Bolivia       | 1185992   | \$ 171,634 |
| Bosnia & Herz | 244807    | \$ 140,694 |
| Botswana      | 1666095   | \$ 154,986 |
| Brazil        | 728785    | \$ 184,971 |
| Burkina Faso  | 71548752  | \$ 122,114 |
| Burundi       | 284009009 | \$ 153,883 |
| Cambodia      | 501195267 | \$ 123,412 |
| Cameroon      | 78361427  | \$ 133,885 |
| China         | 1237419   | \$ 179,336 |
| Colombia      | 473459893 | \$ 144,276 |
| Costa Rica    | 141159829 | \$ 240,358 |
| Cote d'Ivoire | 74361427  | \$ 126,916 |
| Dominican Rep | 7531948   | \$ 146,850 |
| Ecuador       | 185278    | \$ 185,278 |
| Egypt         | 1355772   | \$ 80,845  |
| El Salvador   | 170484    | \$ 170,484 |
| Eswatini      | 1881666   | \$ 130,219 |
| Ethiopia      | 3863369   | \$ 133,082 |
| Gabon         | 84453063  | \$ 144,140 |

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|              |            |            |
|--------------|------------|------------|
| Gambia       | 4729879    | \$ 94,484  |
| Georgia      | 349070     | \$ 124,224 |
| Ghana        | 579435     | \$ 111,216 |
| Guatemala    | 1473772    | \$ 191,648 |
| Guinea       | 1344616386 | \$ 146,411 |
| Haiti        | 12126920   | \$ 136,549 |
| Honduras     | 4204337    | \$ 171,606 |
| India        | 6535109    | \$ 92,802  |
| Indonesia    | 1516738432 | \$ 107,208 |
| Iraq         | 133143553  | \$ 112,643 |
| Jamaica      | 26530365   | \$ 199,013 |
| Kazakhstan   | 41593557   | \$ 108,673 |
| Kenya        | 18702536   | \$ 183,376 |
| Kosovo       | 112717     | \$ 126,648 |
| Kyrgyz Rep.  | 8033538    | \$ 115,127 |
| Lao PDR      | 1010506159 | \$ 116,426 |
| Lebanon      | 275461763  | \$ 182,728 |
| Lesotho      | 2010586    | \$ 139,237 |
| Liberia      | 28175416   | \$ 151,139 |
| Madagascar   | 346833479  | \$ 95,855  |
| Malawi       | 79816175   | \$ 107,058 |
| Mali         | 76274404   | \$ 130,181 |
| Mauritius    | 5743978    | \$ 161,939 |
| Mexico       | 3280059    | \$ 170,304 |
| Morocco      | 1238476    | \$ 128,874 |
| Mozambique   | 8185706    | \$ 130,888 |
| Myanmar      | 198662784  | \$ 130,936 |
| N. Macedonia | 7144132    | \$ 130,035 |
| Namibia      | 2469555    | \$ 171,022 |
| Nepal        | 12683810   | \$ 112,635 |
| Nicaragua    | 4259991    | \$ 128,623 |
| Niger        | 77004597   | \$ 131,427 |
| Nigeria      | 41926072   | \$ 136,603 |
| Pakistan     | 11115286   | \$ 74,087  |
| Papua NG     | 389370     | \$ 115,198 |
| Peru         | 573094     | \$ 171,739 |
| Philippines  | 6572094    | \$ 126,997 |
| Romania      | 657984     | \$ 154,456 |
| Rwanda       | 107782272  | \$ 119,845 |
| S. Africa    | 2242712    | \$ 155,312 |
| S. Sudan     | 21340015   | \$ 135,072 |
| Senegal      | 78977847   | \$ 134,795 |
| Serbia       | 14774003   | \$ 140,384 |
| Solomon Is.  | 857723     | \$ 104,984 |
| Sri Lanka    | 17862091   | \$ 99,933  |
| Sudan        | 3962348    | \$ 86,590  |
| Suriname     | 1054607    | \$ 141,558 |
| Tajikistan   | 808743     | \$ 84,863  |
| Tanzania     | 268808081  | \$ 117,476 |
| Thailand     | 4349107    | \$ 140,113 |
| TimorOleste  | 153577     | \$ 153,577 |
| Togo         | 75516031   | \$ 128,887 |
| Tunisia      | 270168     | \$ 92,208  |
| Uganda       | 389436547  | \$ 105,138 |
| Ukraine      | 3339588    | \$ 129,241 |
| Uzbekistan   | 960491339  | \$ 108,692 |
| Vanuatu      | 13559409   | \$ 118,185 |
| Venezuela    | 1000760    | \$ 100,883 |
| Vietnam      | 2773932391 | \$ 120,343 |

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|          |          |            |
|----------|----------|------------|
| Yemen    | 81887348 | \$ 168,240 |
| Zambia   | 1457569  | \$ 113,078 |
| Zimbabwe | 5704480  | \$ 111,133 |

**ANNEX 2. COUNTRIES INCLUDED IN THE ANALYSIS, BY REGION AND INCOME GROUP**

**East Asia and the Pacific**

Cambodia (LI)  
China (UMI)  
Indonesia (LMI)  
Laos (LMI)  
Myanmar (LMI)  
Papua New Guinea (LMI)  
Philippines (LMI)  
Solomon Islands (LMI)  
Thailand (UMI)  
East Timor (LMI)  
Vanuatu (LMI)  
Vietnam (LMI)

**Europe and Central Asia**

Armenia (UMI)  
Azerbaijan (UMI)  
Belarus (UMI)  
Bosnia and Herzegovina (UMI)  
Georgia (UMI)  
Kazakhstan (UMI)  
Kosovo (LMI)  
Kyrgyzstan (LMI)  
North Macedonia (UMI)  
Serbia (UMI)  
Tajikistan (LI)  
Ukraine (LMI)  
Uzbekistan (LMI)  
Romania (UMI)

**Latin America and the Caribbean**

Bolivia (LMI)  
Brazil (UMI)  
Colombia (UMI)  
Dominican Republic (UMI)  
Ecuador (UMI)  
El Salvador (LMI)  
Guatemala (UMI)  
Haiti (LI)  
Honduras (LMI)  
Jamaica (UMI)  
Nicaragua (LMI)  
Peru (UMI)  
Suriname (UMI)  
Venezuela (UMI)  
Mexico (UMI)  
Costa Rica (UMI)

**South Asia**

Afghanistan (LI)  
Bangladesh (LMI)  
India (LMI)  
Nepal (LI)  
Pakistan (LMI)  
Sri Lanka (LMI)  
Bhutan (LMI)

**Middle East and North Africa**

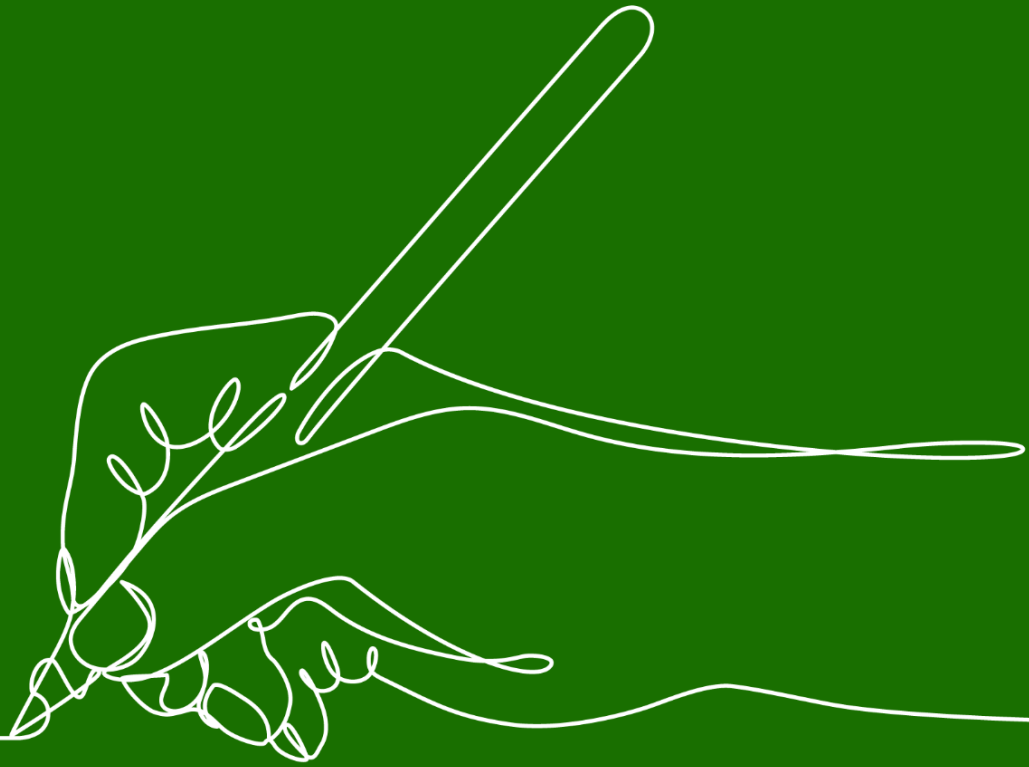
Algeria  
Egypt  
Iraq  
Lebanon  
Morocco  
Tunisia  
Yemen

**Sub-Saharan Africa**

Angola (LMI)  
Botswana (UMI)  
Burkina Faso (LI)  
Burundi (LI)  
Cameroon (LMI)  
Ivory Coast (LMI)  
Eswatini (LMI)  
Ethiopia (LI)  
Gabon (UMI)  
The Gambia (LI)  
Ghana (LMI)  
Guinea (LI)  
Kenya (LMI)  
Lesotho (LMI)  
Liberia (LI)  
Madagascar (LI)  
Malawi (LI)  
Mali (LI)  
Mauritius (UMI)  
Mozambique (LI)  
Namibia (UMI)  
Niger (LI)  
Nigeria (LMI)  
Rwanda (LI)  
Senegal (LI)  
South Africa (UMI)  
South Sudan (LI)  
Sudan (LMI)  
Tanzania (LI)  
Togo (LI)  
Uganda (LI)  
Zambia (LMI)  
Zimbabwe (LI)  
Benin (LI)

**\*\*\*Income Group**

LI – Low income  
LMI – Lower middle income  
UMI – Upper middle income



## ABOUT GAIN

The Global Alliance for Improved Nutrition (GAIN) is a Swiss-based foundation launched at the UN in 2002 to tackle the human suffering caused by malnutrition. Working with governments, businesses and civil society, we aim to transform food systems so that they deliver more nutritious food for all people, especially the most vulnerable.

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