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Micro, small, and medium enterprises (MSMEs) in fruit and vegetable value chains in Vietnam

Trang Nguyen, Hang Thai, Huong Pham, Sophie Galema, Daniel Mekonnen, Tho Pham, Anh Dao, Mai Nguyen and Ezra D. Berkhout

The CGIAR Research Initiative on Sustainable Healthy Diets through Food Systems Transformation (SHiFT) combines high-quality nutritional and social science research capacity with development partnerships to generate innovative, robust solutions that contribute to healthier, more sustainable dietary choices and consumption of sustainable healthy diets. We build on CGIAR's unparalleled track record of agricultural research for development, including ten years of work on food systems and nutrition under the CGIAR Research Program on Agriculture for Nutrition and Health (A4NH), particularly under the research flagship Food Systems for Healthier Diets.
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Cover photo: Vegetable vendor inside a wet market in Moc Chau, Son La, Vietnam. Photo by Ha Nguyen/Vietnam Academy of Agriculture Sciences (VAAS).

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Abstract

Stimulating nutritious diets features high on policy agendas, but designing effective interventions requires insights which are grounded in evidence and reflections on the food environment context and the needs of specific actors involved. This study focuses on micro, small and medium enterprises (MSMEs) which play a key role in Fruit and Vegetable (FV) supply, particularly in rural and peri-urban areas. Understanding the barriers that specific types of MSMEs face in expanding their FV businesses is pivotal for improving the delivery of FV.

The study surveyed 240 MSMEs involved in the FV value chains in the Moc Chau (rural) and Dong Anh (peri-urban) districts, including collectors, wholesalers, processors, and retailers. The survey, and complementing focus group discussions, documented the importance of FV trade in MSME business models, the willingness of MSMEs to expand their businesses, and their perceived barriers in doing so. Next, the study examined interfirm linkages and whether these are conducive to expanding FV trade. Finally, a review of national policies yielded an understanding of whether the barriers identified are actively being targeted by the government.

The findings illustrate how ambitions, constraints, and the function of interfirm linkages differ across firm types. A large share of surveyed enterprises are micro-enterprises, fruit and vegetables (FV) retailers within wet markets, with at most two employees. These vendors are typically exempt from the need to register formally. Very few of these retailers desire to expand their business in terms of staffing or turnover. On the contrary, a stronger orientation to grow their businesses emerges with private companies, cooperatives, wholesalers, and collectors. Surveyed MSMEs cite an unstable operating environment (unstable prices and supply) and difficulties identifying larger markets. Finally, about half of the MSMEs are engaged in joint activities with similar businesses. Wholesalers and collectors mostly do so to seek expansion across scales. For most wet market retailers, interfirm linkages are a means to govern the wet market itself, next to exchanging valuable business information.

The study highlights differences in the roles of key actors in the FV value chains and their specialization. The majority of surveyed MSMEs operate informally, with limited interest in expansion, but the need for improved social security coverage is evident, and the benefits of formalization are recognized by surveyed cooperatives and FV stores outside of wet markets. Moreover, the study underscores the potential for MSMEs to provide employment, particularly for women and young workers, and the importance of formalizing employment conditions. Key obstacles to increasing FV supply include price fluctuations and trust issues within the supply chain. The study suggests that group connections among businesses offer opportunities for information exchange and enhance the efficiency of FV provision at each step of the chain. Finally, the policy overview calls for a more comprehensive approach to empowering FV MSMEs, with a focus on crafting tailored policies to improve their competitiveness and contribution to nutritional outcomes in Vietnam.

Keywords: Fruits, vegetables, barriers, vendors, MSMEs, Vietnam

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About the authors

Trang Nguyen (trang.nguyen@wur.nl) is a medior researcher, at Wageningen University and Research based in The Hague, Netherlands.

Hang Thai (h.thai@cgiar.org) is a senior research associate, at the Alliance of Bioversity International and CIAT based in Hanoi, Vietnam

Huong Pham (p.huong@cgiar.org) is a senior research associate, at the Alliance of Bioversity International and CIAT based in Hanoi, Vietnam.

Sophie Galema (sophie.galema@wur.nl) is a junior researcher, at Wageningen University and Research based in Wageningen, Netherlands.

Daniel Mekonnen (daniel.mekonnen@wur.nl) is a medior researcher, at Wageningen University and Research based in The Hague, Netherlands.

Tho Pham (thoduypham@yahoo.com) is a vice director, at Center for Agrarian Systems Research and Development (CASRAD) based in Hanoi, Vietnam.

Anh Dao (daotheanh@gmail.com) is a vice president, at Vietnam Academy of Agricultural Sciences (VAAS) based in Hanoi, Vietnam.

Mai Nguyen (minhmai9267@gmail.com) is a principal researcher, at Agricultural Genetic Institute (AGI) based in Hanoi, Vietnam.

Ezra Berkhout (ezra.berkhout@wur.nl) is a senior researcher, at Wageningen University and Research based in Wageningen, Netherlands.

Abbreviations and acronyms

A4NH	Agriculture for Nutrition and Health
FV	Fruits and vegetables
FGD	Focus group discussion
MSMEs	Micro, small, and medium food-related enterprises and informal actors
SHiFT	Sustainable Healthy Diets through Food Systems Transformation
SNFs	Sustainable nutritious foods
VAAS	Vietnam Academy of Agricultural Sciences
WP2	Work Package 2

1. Introduction

The CGIAR Research Initiative on Sustainable Healthy Diets through Food Systems Transformation (SHiFT) seeks to identify innovative solutions and policies to transform the food system in order to secure sustainable and healthy diets for all. The initiative aims to enhance the capacity of stakeholders to make informed decisions and promote gender equity, social inclusiveness, improved livelihoods, and income. SHiFT focuses on three countries, namely Bangladesh, Vietnam, and Ethiopia, building on the CGIAR Research Program on Agriculture for Nutrition and Health (A4NH).

The program aims to stimulate the demand for, or consumption of, sustainable healthy diets from a consumer perspective. Since the food environment serves as the interface between consumers and the food system, promoting sustainable, healthy diets effectively necessitates a comprehensive understanding of it. Within SHiFT, Work Package 2 (WP2) seeks to increase the delivery of sustainable nutritious foods (SNFs) by midstream micro, small, and medium food-related enterprises, and informal actors (MSMEs). These midstream MSMEs have the potential to assume greater roles in the transformation of food systems by strengthening connections between small-scale farmers and markets, providing cost-effective food options to both urban and rural consumers, creating opportunities for employment, female entrepreneurship, and livelihoods, and promoting circular and sustainable food systems, provided that obstacles are effectively addressed (IFAD, 2021). WP2 intends to identify and promote evidence-based innovations and policies to support these actors while promoting decent employment for youth, men, and women. To achieve this objective, it is crucial to understand the essential characteristics of different types of MSMEs engaged in SNF production, along with identifying the barriers and opportunities that they encounter.

This case study focuses on MSMEs in the fruit and vegetables (FV) value chains. FV play a crucial role in a healthy diet, yet inadequate consumption of FV is a concern in many countries, including Vietnam. The country's FV sectors have experienced substantial growth over the past few decades, leading to an abundant supply of vegetables and, to a lesser extent, fruits at a national level, with a combined daily supply exceeding 500 gram per person (Harris et al., 2020). However, the average reported intake is around half of that (Harris et al., 2020), and the majority of people aged 25-64 years did not meet WHO recommendations for daily consumption (Bui et al., 2016; Nguyen and Hoang, 2016). In the literature, identified barriers to FV consumption include the low affordability for FV, especially fruits, among lower-income populations (Van et al., 2023; Vuong et al., 2015) and heightened risk perception of food safety for FAV (Asian Development Bank, 2023; Ha et al., 2020; Ngo et al., 2019).

Addressing these challenges can involve consideration of the role played by midstream MSMEs in the FV chain. Although the government has undertaken initiatives to modernize the retail environment, a significant share of consumers, particularly those with lower incomes, continue to purchase their FAV through traditional channels, such as wet markets (Harris et al., 2020; Wertheim-Heck et al., 2015). These markets often host informal vendors and collectors, and the produce available there typically lacks certification and traceability to farms (Asian Development Bank, 2023). Despite the government's efforts to foster a conducive policy environment, exemplified by policies to foster linkages in the value chains for MSMEs in the agricultural sector such as the "One commune One product" program, and financial support for the agricultural sector, the provision of safe FV is marred by challenges. Weak relationships among chain stakeholders due to lack of mutual trust, transparent information providing and information sharing was considered a major obstacle (Ngo et al., 2019).

Although an exact count of MSMEs in Vietnam's agrifood sector is impossible due to the significant amount of informal MSMEs, collectively, both formal and informal MSMEs constitute a substantial portion of the agri-food sector (Yasmeen et al., 2018). Approximately 57% of the workforce is engaged in the agricultural sector. The MSME sector has historically served as a significant driver of employment, representing about 51% of the overall formal corporate workforce. Retail channels in Vietnam encompass over 1.3 million small stores, predominantly informal businesses like wet markets and roadside shops, contributing to more than 85% of fast-moving consumer goods sales, according to Nelson Vietnam (Yasmeen et al., 2018). Facilitating the expansion of these businesses holds the potential to enhance not only consumer welfare but also informal livelihoods, another important food system outcome.

The main objective of this study was to understand the characteristics and functioning of FV MSMEs in selected locations in Vietnam. The case study was designed to:

1. Identify and characterize the most relevant set of actors and their roles in selected FV markets;
2. Understand key changes in the FV markets in recent years and major barriers that actors face;
3. Prioritize barriers (for specific actor typologies) that are most limiting in the supply of FV; and
4. Assess enabling opportunities for expansion of FV businesses.

The report is organized as follows. The next section describes the data, the survey design, and sampling strategy that were implemented. Section 3 presents results of both qualitative and quantitative data on value chain organization, business characteristics, and major opportunities and challenges in the supply of FV and business growth across actor typologies. Section 4 analyses the policy environment regarding food and nutrition and MSMEs and their contribution to delivering nutritious, safe, and affordable food to consumers. Section 5 summarizes the main results and concludes.

2. Methods

2.1. Literature review and eliciting expert knowledge

This study used both primary (see section 2.2) and secondary data collection. Secondary data collection entails a review of FV value chains based on pre-existing literature, followed by an update of this knowledge. Utilizing the existing diagrams of the value chain (Appendix A. Main FV chain organization in Vietnam) as a base, online meetings were conducted with scientists from the Vietnam Academy of Agriculture Sciences (VAAS) in September 2022 to determine the continued validity and relevance of the diagrams. These meetings served to:

- To update knowledge on how the FV chain is organized in two sites and the role of different actors in the chain.
- To explore the most relevant indicators to further characterize actors (typologies).
- To gain a preliminary understanding on inter-firm linkages in two study locations in Vietnam.

We also conducted a review of the current policy environment in which the MSMEs in the FV sectors are operating. We focus on two distinct policy domains in Vietnam to assess their impact on FV businesses: food-related and nutrition policy, and economic and MSME development policy. We assembled relevant food-related and nutrition policies at both national and local levels in Vietnam to evaluate the extent to which MSMEs within the FV sector are recognised as significant contributors to the provision and accessibility of safe and nutritious food. The gathering of economic and MSME development policies, also at national and regional levels, was followed by an observation of the degree to which these economic and MSME development policies align with the specific challenges of FV businesses and support the overarching national policy objectives.

2.2. Primary data collection

The study's geographic focus aligns with selected WP2 SHIFT study sites in Vietnam, Moc Chau (rural district) and Dong Anh (peri-urban district). These two study sites have equally been studies in the previous CGIAR Research Program "Agriculture for Nutrition and Health" (A4NH). Moc Chau District, located in the rural area of Son La province, is known for its ethnically diverse population, high rates of stunted growth among its residents, and significant agricultural production for both personal consumption and income generation. On the other hand, Dong Anh District in Hanoi is a peri-urban site that is experiencing rapid urbanization, intensive crop-livestock production, and food processing near the urban area. The district is home to a typical peri-urban population with a high number of migrants and a workforce that commutes to other areas (Huynh, Pham, Duong, Hernandez, et al., 2021).

Primary data was collected in these sites in collaboration with the Vietnam Academy of Social Sciences (VAAS), the Dong Anh Department of Economics and the Moc Chau Agriculture Service Center during the fourth quarter of 2022.Specific focus sites were established in the online meetings with experts from VAAS (see section 2.1).

Personal interviews were performed with the main value chain stakeholders in a rural district of Moc Chau, Son La province, and a peri-urban district of Dong Anh in Hanoi. A pre-test of data collection tools was carried out at both selected study sites, followed by a data collection in December 2022. The fieldwork was undertaken in five communes in each district, instead of three as initially planned in consultation with the local authorities in order to capture sufficient diversity of target stakeholders of the study. The majority of the selected communes/towns in the two studied districts (Farm Town, Dong Sang, Tan Lap in Moc Chau; Van Noi, Nguyen Khe, Bac Hong, Uy No in Dong Anh) have large areas devoted to fruit and vegetable production and constitutes an important source of income for local people. In Moc Chau, notably, all selected communes/towns are being prioritised by the local government for the development of fruit production.

Additionally, the study also purposefully targeted communes/towns with large retail or wholesale markets for data collection. In Moc Chau, Farm Town, and Moc Chau Town were selected because they have two large retail markets. In Dong Anh district, Dong Anh Town was included due to the large numbers of retail and semi-wholesale markets (e.g. To Market, Central Market) in the area, and Van Noi commune was selected because of the importance of the Van Noi Safe Vegetable Wholesale Market in supplying vegetables to urban Hanoi and surrounding provinces.

The total sample size of 240 respondents with roughly 120 per district (Table 1), being the main value chain stakeholders, included:

- Retailers/Household businesses in wet markets of the communes/district towns
- Wholesalers in the wholesale markets/locations
- Local collectors and outside-district collectors
- Specialist shops (selling domestic and imported fruits)
- Online sellers (wholesale and retail)
- Cooperatives producing and collecting fruit and vegetables

- Private companies trading agricultural products (including vegetables, tubers, and fruits)
- Retailers –combining fruit and vegetable production with tourism

Besides the well-established actors found in the literature (Huong et al., 2013; Vu et al., 2020) to play a role in the FV chains in two districts, two new types of actors were added to the survey in Dong Anh including, (1) Online sellers who have been playing an increasing role, especially due to changing purchase behaviour during and after the COVID-19 pandemic and (2) retailers that combine the sale of FV with tourism activities (e.g. strawberry farms with entry fees for visitors to pick their own fruits).

Table 1: Sample distribution

District	Commune/Town	Total Samples
Moc Chau	Farm Town (TT Nong Truong)	31
	Moc Chau Town	24
	Dong Sang commune	41
	Tan Hop commune	10
	Tan Lap commune	20
Dong Anh	Dong Anh Town	32
	Van Noi commune	36
	Nguyen Khe commune	6
	Bac Hong commune	13
	Uy No commune	27
Total		**240**

The survey questionnaire (external link) contains the following modules:

- Respondent's Demographic Characteristics
- Labour
- Products and Services
- Opportunities and constraints in the delivery of FVs
- Registration and Operations
- Environmental Considerations
- Interfirm Organization and Linkages

Focus Group Discussions (FGDs) with groups of different stakeholders were also conducted to discuss the opportunities and barriers to expanding businesses, as well as the broader environment conducive to hindering development. In total, 2 FGDs were conducted in Dong Anh and 2 FGDs in Moc Chau (Table 2).

Table 2: Focus group discussions

District	Location	Stakeholder composition
Dong Anh	Dong Anh town market	8 Retailers
	Bac Hong commune	6 Retailers, 1 cooperative, 1 private company
Moc Chau	Tan Hop commune	7 Collectors, 1 restaurant owner
	Dong Sang commune	6 Collectors, 2 cooperatives

3. Results

3.1. Value chain organization

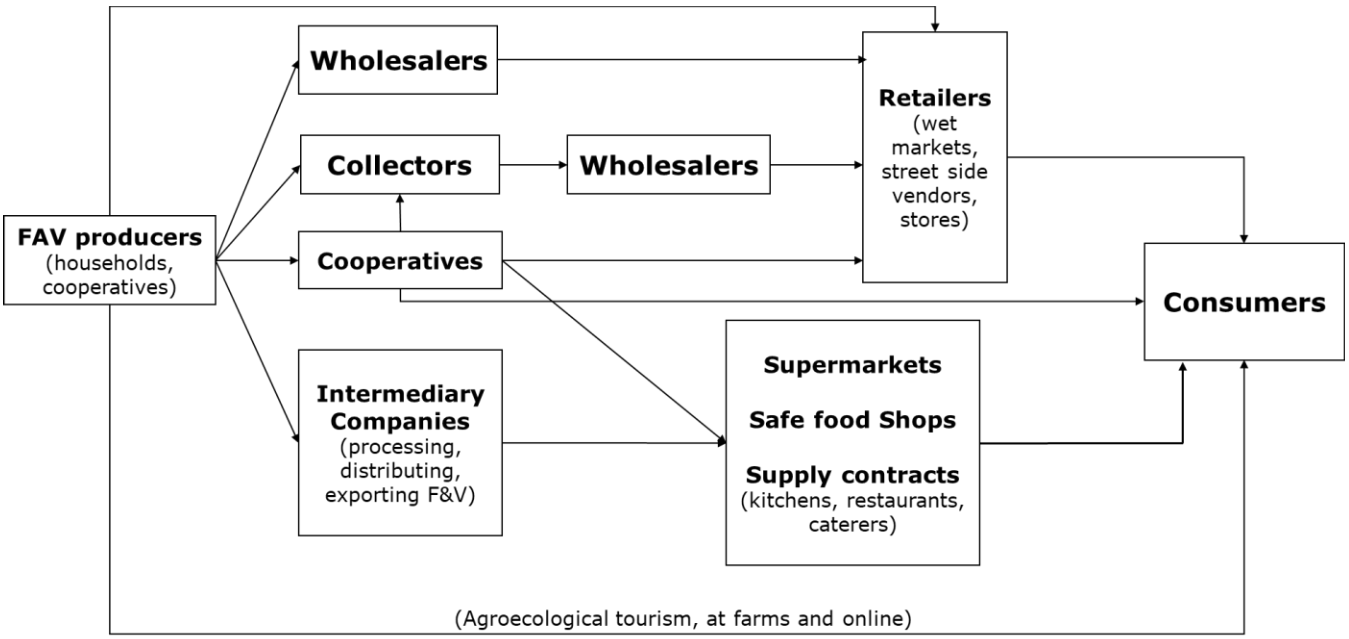
Results from discussions with experts show that there are two channels of vegetable trade: one from local farmers to markets outside the local area (e.g., from Moc Chau and Dong Anh to central Hanoi) and the second from other provinces to Moc Chau (e.g., seasonal products or products that cannot be produced locally). Respondents in our focus group discussions (FGDs) also confirmed the same pattern of FV trade for Hanoi and Moc Chau in which incoming horticulture products for local consumers are sourced from various locations across Vietnam, while products from local producers in Dong Anh and Moc Chau are also distributed to outside locations.

According to the experts consulted, most studies focus on the first flow, as they concentrate on producers, not tracing back from consumers. It has been little studied how such sales cater to local consumption. This is especially relevant for Moc Chau, where a large share of children under five are undernourished (Huynh, Pham, Duong, Haan, et al., 2021) and may benefit from better quality and a broader range of vegetables supplied. However, it appears that the share of FV volume serving local consumption remains limited. Primary data collected in this study suggests that FV available for local consumption are largely locally grown horticultural products. The variety of locally grown produce has improved significantly from the production of a limited range of green vegetables such as cabbages, peas, and zucchini to products with more nutritional values such as strawberry cabbages, tomato, peanut squash, and baby cauliflowers, according to FGD participants in Dong Sang Commune. Yet whether the change in the diversity of locally produced FV products improves the access to and the availability of nutritional FV products for the region's population remains less understood. The second flow has also been subject to limited study. Several informal flows, such as local collectors buying safe vegetables from farmers before they sell them to outside markets, have not been captured well in previous studies.

The supply chains of fruit and vegetables in surveyed locations are characterised by several actors and intermediaries and various distribution channels. Figure 1 illustrates the distribution of fruit and vegetables in Hanoi and Moc Chau, drawing from our group discussions (Appendix B. Stakeholder-drawn diagrams of value chain organization in Dong Anh and Moc Chau). The main actors in the FV supply chain include producers, intermediaries such as collectors, wholesalers, export companies, retailers, and consumers. Each of these actors can undertake one or more functions in the chain such as production, distribution, and transportation. FV products are typically traded through three intermediaries including traders, wholesalers, and retailers before reaching its end consumers.

Additional information from the survey of actors clarifies the flows of FV products from producers to retailers. Surveyed cooperatives mostly source their products from farmer members of their own cooperatives next to independent farmers (out of the cooperatives). Surveyed private companies source products mostly from cooperatives, followed by farmers and collectors from their own network. Both local collectors and wholesale traders mostly collect products from independent farmers. FV vendors (both within and outside wet markets) typically source their products from the wholesale market, followed by direct sourcing from independent farmers (out of cooperatives).

Figure 1: General FV value chain organization across study sites



FV producers also supply products to retailers and consumers directly, yet often in small amounts and ad-hoc without formal agreements on guaranteed amounts. Hence, the roles of different middlemen are predominant. Results from FGDs also reveal that a wide range of actors along the FV value chain and a dearth of a reliable mechanisms setting prices greatly influences the retail prices of FV. There is considerable diversity between shorter and longer FV supply chains of sources of supply. Yet, there is an increasing tendency for large-scale producers to skew toward longer FV supply chains while shorter FV supply chains tend to facilitate smaller scale producers.

The organization of FV value chains in Dong Anh and Moc Chau resemble each other, consisting of similar types of actors in the chains; yet actors in Moc Chau often combine multiple roles in the chain. For example, household FV producers in Moc Chau are typically involved in multiple stages of the supply chain including production, product collection and retailing (Figure B - 3 in Appendix B), while most household producers in Hanoi focus solely on production. Cooperatives in both sites assume roles in different stages of the value chain, from organizing and training farmers, maintaining relationships with collectors and retailers, processing FAV to marketing of (processed) FAV products.

It is notable that the supply of FV in both Dong Anh and Moc Chau, according to the FV value chain in the surveyed sites, is largely geared towards serving consumption in Hanoi.

3.2. Actor typologies

The value chain actors can be characterized by several indicators, such as type of businesses, size (number of workers), products targeted (seasonal, year-round, etc.), service ranges (delivery, food serving, processing, online ordering, etc.), formality (registered or not), consumer segments targeted (households, stores, restaurants, etc.), and characteristics of the business owner (education, age, years in business, gender).

3.2.1. Actor types and business owner characteristics

The majority (42%) of sampled MSMES were FV vendors and stores within wet markets in both Moc Chau and Dong Anh. More FV vendors and stores in wet markets were surveyed in Dong Anh than in Moc Chau because each commune/town in Dong Anh normally has four to five wet markets while there are typically only one or two wet markets in one commune/town in Moc Chau. The survey also covered 31 FV vendors and stores outside wet markets (13% of the total sample) in Moc Chau while in Dong Anh we faced difficulty in interviewing vendors and stores out of wet markets as outlet owners generally hesitated to participate in interviews.

Middlemen (local collectors and wholesale traders) both had a considerable presence in the sample, but the sample in Moc Chau was more skewed towards collectors, while the sample in Dong Anh had more wholesale traders (in wholesale markets). This reflects geographic characteristics of the two study sites. Located in the mountainous areas, vegetable production areas of smallholder producers (accounting for 80% of local farmers) in Moc Chau are scattered and distant from buyers (including wholesalers, retailers, etc.), therefore collectors play an important role in connecting smallholder farmers with buyers in the chain. On the contrary, Dong Anh is characterized by a flat terrain with favourable transportation systems, smallholder producers normally sell directly to wholesale traders. Cooperatives and private companies made up a small proportion in the total sample, reflecting the small number of larger MSMEs in both study sites.Table 3 displays the sample distribution across the two districts. Some of the subsequent tables, figures and analyses do not include the last two types of actors as there were only two of them in the sample.

Table 3: Distribution of actor types in two districts

	Actor type	N			%
		Moc Chau	Moc Chau	Moc Chau	
1	Fruit/vegetable vendor/store within wet markets	24	77	101	42%
2	Local collector	34	3	37	15%
3	Fruit/vegetable vendor/store outside of wet markets	31	0	31	13%
4	Wholesale trader	4	18	22	9%
5	Cooperative	14	4	18	8%
6	Private company	4	4	8	3%
7	Online shop	7	0	7	3%
8	Store and production plus agritourism service through strawberry farm	7	0	7	3%
9	Wholesaler and retailer within wet markets	0	7	7	3%
10	Wholesaler and retailer fruit store outside wet markets	0	1	1	0%
11	Wholesaler in Hanoi	1	0	1	0%
	Total	**126**	**114**	**240**	**100%**

The majority of respondents (owners or managers of the business) were female (85% in Dong Anh and 69% in Moc Chau). The male-headed MSMEs were mostly local collectors (36%), cooperatives (20%) and wholesale traders (14%).

Regarding education, the majority of respondents (79% in Dong Anh and 76% in Moc Chau) completed either lower or higher secondary schools (Figure C - 1 in Appendix C). The majority (85%) never attended a training in business, management, or finance. Experience of owners, in terms of years in business, varied markedly across different actor types. FV vendors, both inside and outside of wet markets, and wholesale traders, appeared to have been in the business the longest (Table 4).

Table 4: Years of experience in business, by actor type

Actor type	mean	SD	min	max	mean age
Fruit/vegetable vendor/store within wet markets (n = 101)	14.1	9.7	1	45	49
Local collector (n = 37)	9.1	5.0	2	20	39
Fruit/vegetable vendor/store outside of wet markets (n = 30)	9.3	5.3	2	20	45
Wholesale trader (n = 22)	14.8	9.0	5	40	46
Cooperative (n = 18)	5.7	4.3	1	18	43
Private company (n = 8)	7.5	5.5	2	17	36
Online shop (n = 7)	5.6	2.4	3	10	34
Strawberry farm (n = 7)	6.6	3.8	2	12	43
Wholesaler and retailer within wet markets (n = 7)	26.9	8.7	18	42	51

3.2.2. Employment

Our sample was dominated by micro and small businesses[1] (Table 5). For example, retailers & traders typically employed 1-2 workers. While collectors and traders employed more labour, a typical one was a micro business with fewer than 11 workers (including the survey respondent him/herself). Small businesses were likely to be cooperatives and private companies. There were only 4 cooperatives (2 in each district) considered medium-sized with more than 50 workers. A considerable share of fruit/vegetable vendor/store within wet markets (48%) and outside of wet markets (40%) were self-employed (no employee).

Table 5: Number of workers (excluding owner/manager), including seasonal and unpaid labour) by actor type

Actor type	mean	SD	min	max
Fruit/vegetable vendor/store within wet markets (n = 101)	1	0.8	0	4
Local collector (n = 37)	6	4.2	0	20
Fruit/vegetable vendor/store outside of wet markets (n = 30)	2	2.2	0	11
Wholesale trader (n = 22)	3	2.,7	0	12
Cooperative (n = 18)	26	27.0	6	95
Private company (n = 8)	22	12.7	5	40
Online shop (n = 7)	1	1.7	0	4
Strawberry farm (n = 7)	4	1.1	2	5
Wholesaler and retailer within wet markets (n = 7)	1	1.5	0	4

Table 6 details the labour composition by actor type. Family and unpaid labour made up a considerable share of workers employed by FV vendors within wet markets (87% and 77% respectively). Across actor types, young employees (between 16 – 30 years old) made up only a small share of the total workers. Women did seem to make up a large share of employees in FV vendors within wet markets, considering the fact that the majority of the sampled vendors included self-employed women and the number of employees presented do not include business owners themselves.

Table 6: Share of labour types, by actor type and labour type (n indicates the number of businesses with respective labour types)

	Women		Family		Seasonal		Unpaid		Young	
	n	mean	n	mean	n	mean	n	mean	n	mean
Fruit/vegetable vendor/store within wet markets	52	24%	53	87%	52	21%	45	77%	53	14%
Local collector	34	36%	34	38%	34	53%	34	25%	34	39%
Wholesale trader	21	45%	21	73%	19	38%	20	59%	21	19%
Cooperative	18	46%	18	17%	18	39%	18	8%	18	34%
Fruit/vegetable vendor/store outside of wet markets	18	64%	18	57%	18	3%	18	50%	18	7%
Private company	8	56%	8	24%	8	38%	8	4%	8	30%

[1] In the survey, MSMEs were defined according to the small and medium enterprise supporting law in Vietnam. A micro, small and medium enterprise has less than or equal to 10 employees (including self-employed entrepreneur without employees; 11 to 50 employees, and 51 to 100 employees, respectively).

The majority of businesses (72.5%) did not intend to employ more labour in the near future, for the reason that they did not intend to extend the scale of their operations (94% of answers). In terms of female employment, among the 21% of businesses who wanted to employ more women, the only reason given was that the job is suitable for females. Such job usually involves sales and basic FV processing (cleaning, removing dead leaves, packaging etc.).

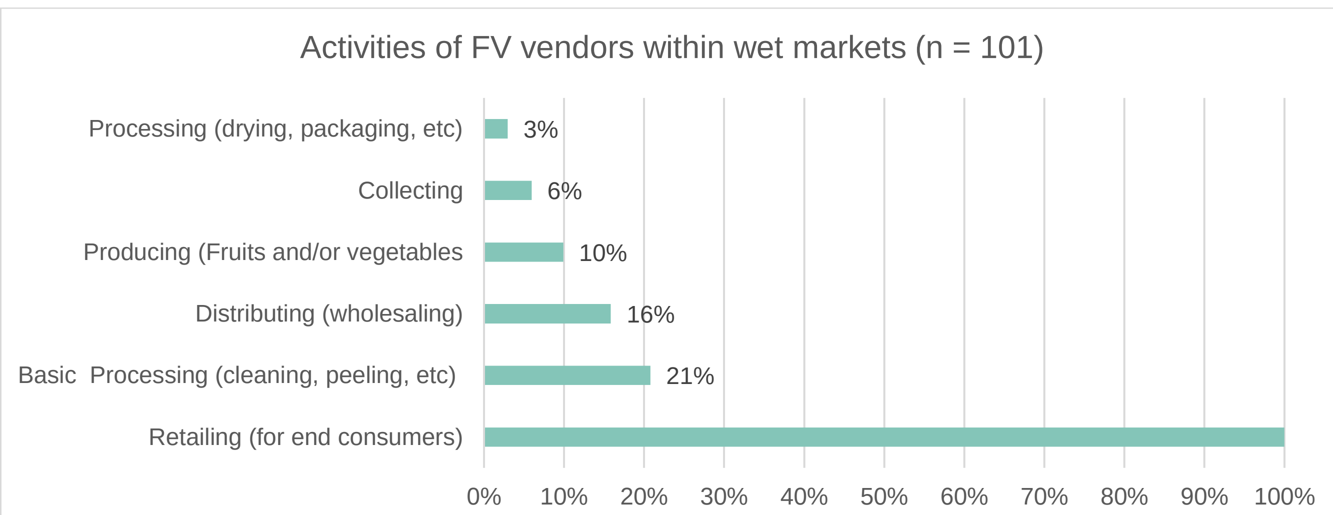
Regarding youth employment, 23% of the businesses wanted to employ more young workers. The main reasons were for the techniques and skills that the young labour force have (62% of responses) and that they wanted to prioritize young workers (17% of responses). Meanwhile, the main reason not to employ young workers (besides the general lack of intention to employ more workers) was that the job (in FV) was not considered attractive to young people.

3.2.3. Products and services

The majority of businesses surveyed (63%) had more than one business activity, with cooperatives and private companies displaying the highest level of diversification, while FV vendors (within and outside of wet markets) and online shops displayed the lowest number of activities (Table C - 1 in Appendix C).

To illustrate, for FV vendors within wet markets, besides retailing for end consumers as the main activity (retailing contributed the most to turnover of 94% of respondents), they were only usually involved in one or two other associated activities like basic processing or wholesaling (Figure 2**Error! Reference source not found.**). Meanwhile, a typical cooperative's operation usually covered producing, collecting, distributing (considered by 13 out of 18 cooperatives as contributing the most to their turnover) and retailing.

Figure 2: Business activities of FV vendors within wet markets



The majority of FV vendors within wet markets specialized in either fruits or vegetables, while the majority of local collectors and FV vendors outside wet markets traded in both FV (Table 7).

Table 7: Share of businesses trading in both FV, only fruits or only vegetables, by actor type

Actor type	Both FV	Fruits only	Vegetables only
Fruit/vegetable vendor/store within wet markets (n = 101)	5%	42%	53%
Local collector (n = 37)	62%	3%	35%
Fruit/vegetable vendor/store outside of wet markets (n = 30)	58%	26%	13%
Wholesale trader (n = 22)	27%	9%	64%
Cooperative (n = 18)	50%	22%	22%
Private company (n = 8)	25%	13%	50%
Online shop (n = 7)	71%	29%	0%
Strawberry farm (n = 7)	71%	14%	14%
Wholesaler and retailer within wet markets (n = 7)	43%	14%	43%

3.2.4. Change in product structures

A small share of surveyed MSMEs, across all actor types, reported changes to the structure of their products (e.g. addition or removal of a certain FV, selling more or less share of a certain FV) over the past 5 years (12% for fruits and 17% for vegetables, respectively). Interestingly, no respondent considered these changes to be negative, only positive (62% for fruits and 58% for vegetables, respectively) or neutral. There were no actors that reported a high prevalence of change in the product structure.

Figure 3 and Figure 4 report the main external and internal causes for the changes in product structure. The main external causes given were market demand change, change in supply of products, as well as weather/climate related changes. For example, Bac Hong cooperative in Dong Anh expanded the varieties on offer from traditional vegetables such as cabbage, collard greens, water spinach, spring onions to include higher-value vegetables such as cherry tomatoes, celery, kale, and spinach. Growing off-season vegetables helped to increase income and competitiveness. The shift in certified products also followed the demand of customers (kitchens, supermarkets, schools, and clean food stores). The FGD participants also mentioned support by the government (district economic department) and a pilot model project to convert to organic production, but this was a specific case as was not reflected in the survey results.

In terms of internal causes, more than half of the respondents (30 out of 57) who reported changes in their product structure did not provide any internal causes. Those who did, stated the availability of capital. Respondents who wanted to contribute to consumer health and the environment were likely to refer to the switch to certified products.

Figure 3: Main external causes of changing product structure

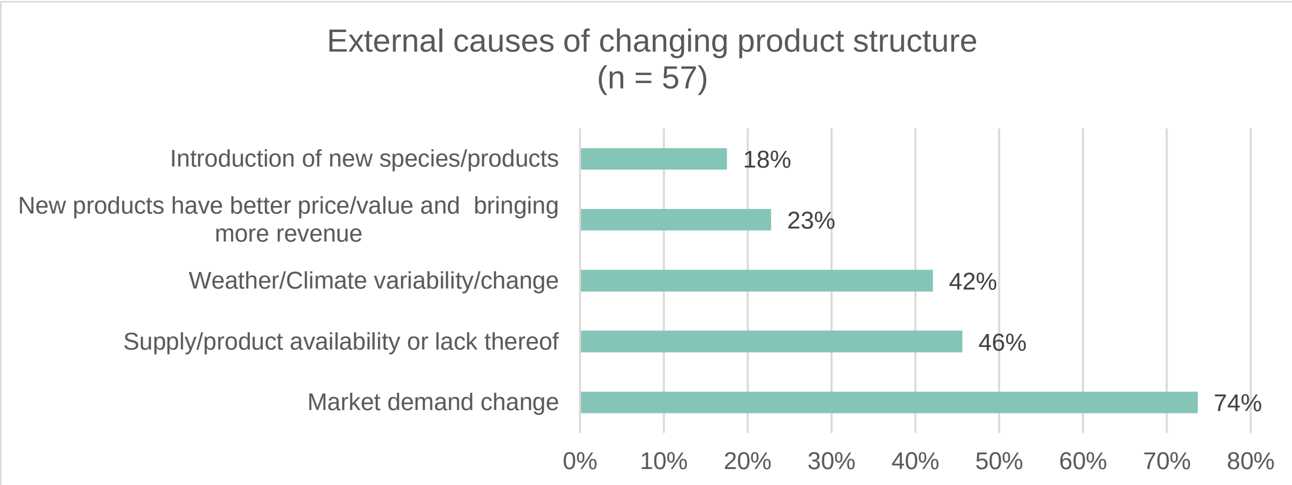
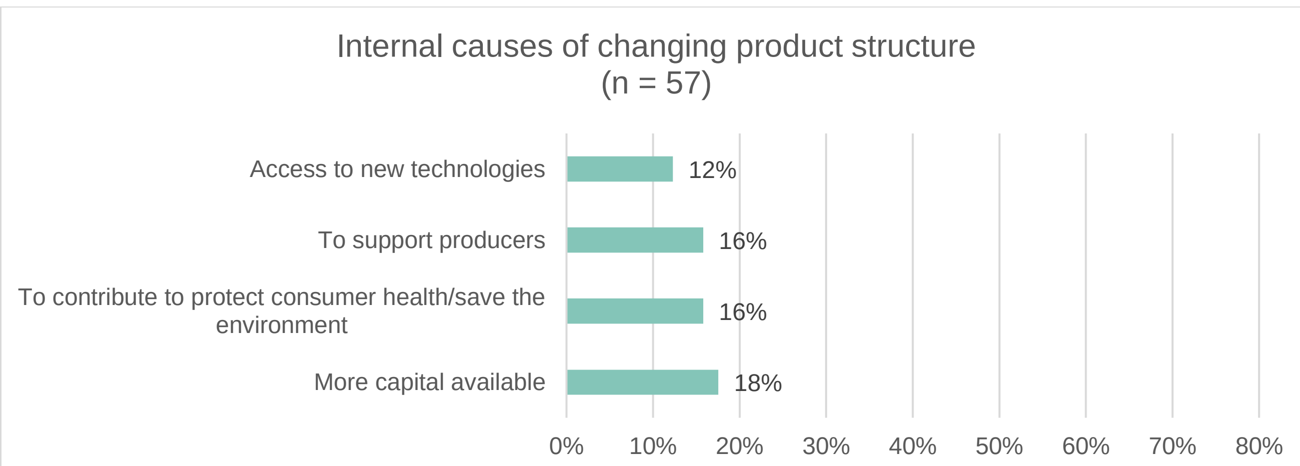


Figure 4: Main internal causes of changing product structure



3.2.5. Environmental considerations

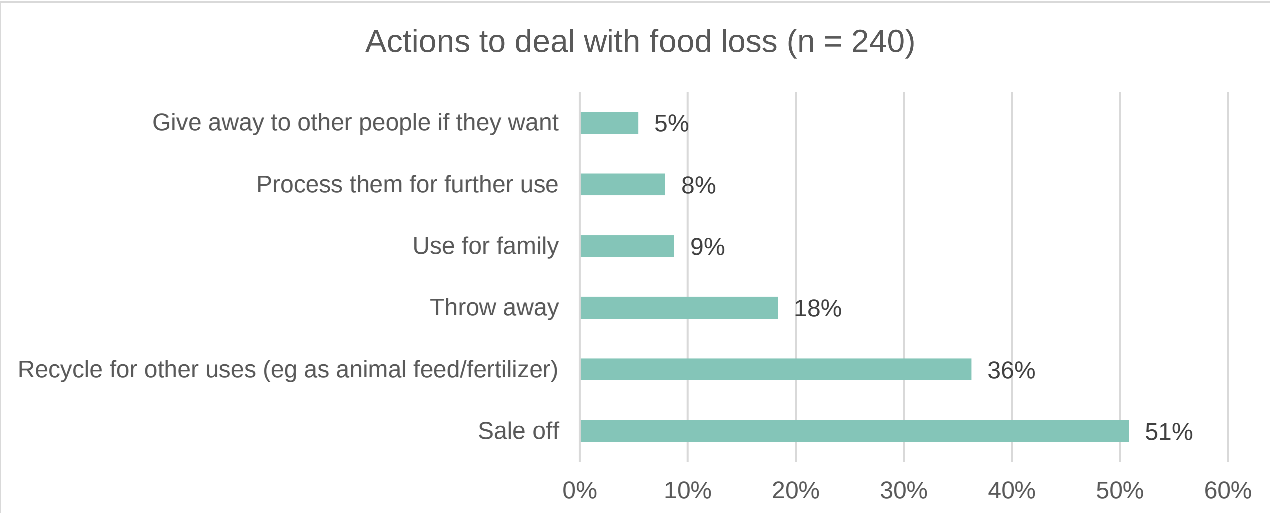
Taking into account the topic of sustainability, the survey included questions about perception of food loss and environmentally-friendly actions taken by MSMEs. On average, surveyed MSMEs did not seem to perceive food loss as a critical issue, as reflected in an average ranking score of 2 or 3 out of 10 (10 indicating a very serious issue) (Table C - 2 in Appendix C).

FGD participating vegetable vendors in Dong Anh town market considered the spoilage rate to be low because they only sold in small quantities to begin with. The Bac Hong vegetable cooperative in Dong Anh estimated the spoilage rate to be about 10-20%, depending on the type of vegetables (e.g., green onions and tomatoes are easily damaged) and the harvest time (changing seasons from spring to summer and from autumn to winter can bring adverse weather). Local collectors in Tan Hop, Moc Chau also considered that damaged products can be used as animal feed or made into fertilizers. Meanwhile, local collectors in Dong Sang commune, Moc Chau rated the spoilage rate to be high because the harvest season coincides with the rainy season.

To deal with food loss, the most common actions taken by the surveyed MSMEs were to reduce price and recycle for other uses (Figure 5). Among FV vendors within markets, 65% of them would sell off the

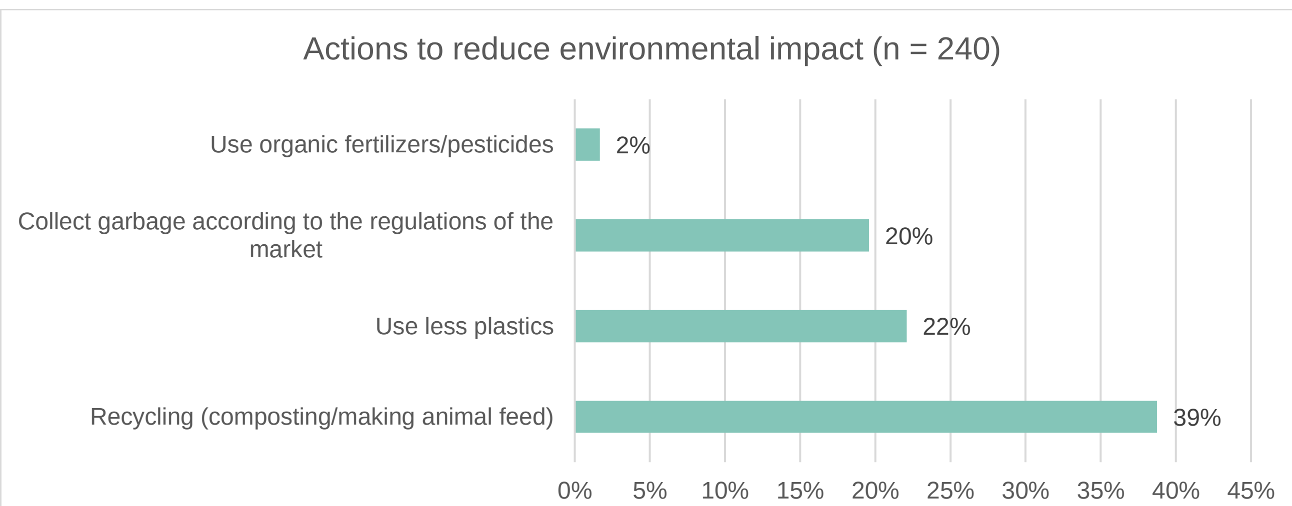
FV that have withered or nearly spoiled. Simply throwing away the amount of spoiled FV was relatively common across all actor types.

Figure 5: Most common actions to deal with food loss



To reduce the environmental impacts of their activities, the most common actions taken by the surveyed MSMEs (including FV vendors within the wet markets) were to recycle, use less plastic or simply collect garbage according to regulations (Figure 6). Those that mentioned the use of organic fertilizers/pesticides, for example by following VietGAP standards were cooperatives.

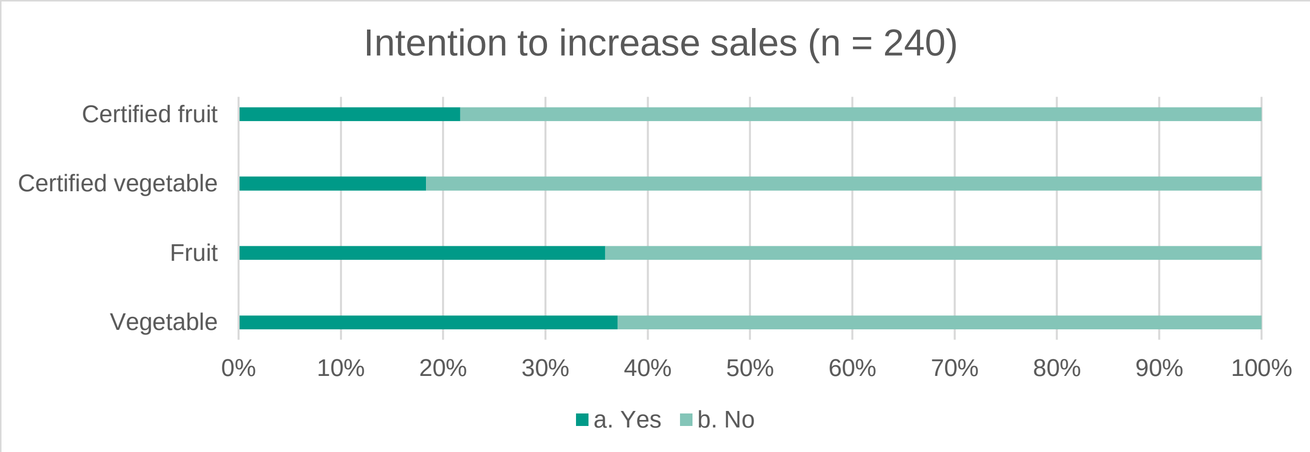
Figure 6: Most common actions to reduce environmental impact



3.3. Intention to increase sales

A minority of businesses intended to sell more fruit or vegetables (around 40% of the businesses for normal products and 20% for certified products) (Figure 7). Those who were the most willing to increase sale of "normal" non-certified FV were cooperatives, private companies, and local collectors. The intention to sell more certified fruits & vegetables was high in cooperatives and private companies (Figure C - 2 in Appendix C).

Figure 7: Intention to increase sales, by type of product, total sample



Both external and internal causes influenced the intention to expand the business (Figure C - 3, Figure C - 4, Figure C - 5, Figure C - 6, Figure C - 7, Figure C - 8 in Appendix C). External factors involve influences from the external business environment, while internal factors are related to the internal capabilities, performance, and decisions of the business itself.

External causes were similar across different types of actors for both certified and non-certified products, including change in market demand change; new products with better prices bringing more revenue; product availability; and introduction of new species/products. Meanwhile, small differences are reported for listing internal causes. Cooperatives and private companies intended to increase their sale conditional on having better access to new technologies (around 28-37% for private companies, around 40-50% for cooperatives) and more capital available (12-27% for private companies); as a means to support local producers (25-27% for private companies, 12% for cooperatives); to contribute to protect consumer health/save the environment (18-25% for enterprises, 37-42% for cooperatives). In the local context of Vietnam, expanding the business for cooperatives and private companies requires more operation costs and management skills, capital, and access to new technologies, therefore these are given more consideration. Meanwhile, contribution to protect consumer health/save the environment was the only reason mentioned by nearly 100% vendors/stores in wet markets. For vendors in wet markets the intention to increase sales was particularly low for certified FV because the higher prices were deemed unaffordable to local consumers, next to a lack of capital and management skills.

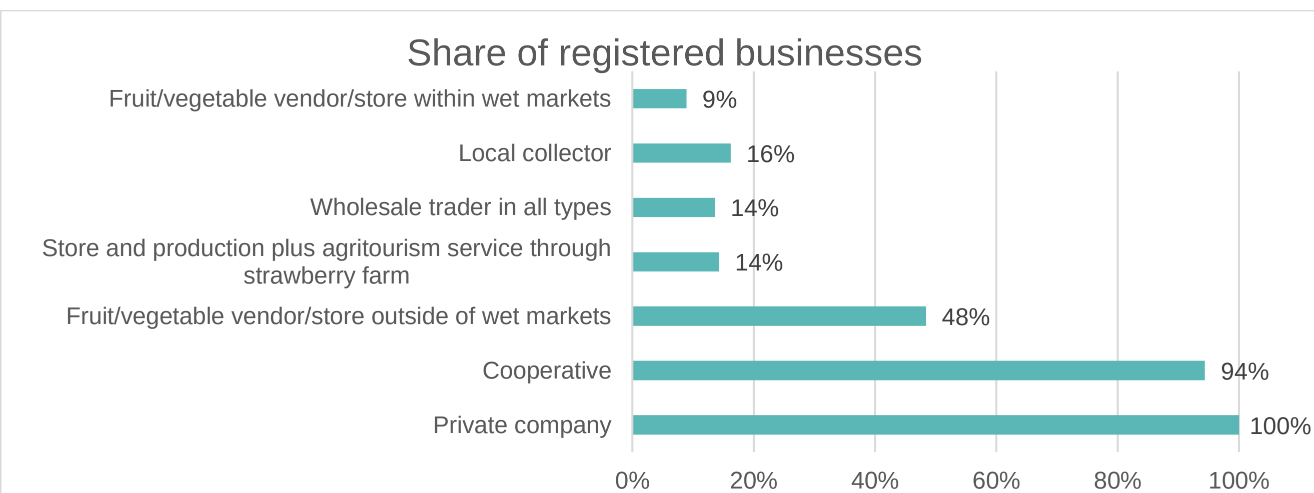
3.4. Formality and informality

The “informal economy” comprises all economic transactions without contracts or social protection, including (own-account) self-employment in unregistered enterprises and employment in unprotected jobs in (in)formal enterprises (Chen, 2006). In the survey, we looked at two aspects defining (in)formality of a business. First, the study considers the formal registration of the business. In Vietnam, the General Statistics Office (GSO) uses business registration to differentiate formal from informal businesses (Pasquier-Doumer et al., 2017). Second, we look at some features of business operation (such as the practice of bookkeeping or written contracting).

It was expected from the literature review and expert consultation that the majority of MSMEs in general (Central Institute for Economic Management, 2017) and in Dong Anh and Moc Chau, in particular, were either not registered, or registered as a household businesses instead of an enterprise. The reason are the more favourable conditions given to household businesses, for example, easier business rules and regulations, tax conditions (e.g. easier procedure; ability to pay fixed annual tax not monthly tax like enterprises, lower income tax, etc.), simple accounting and book keeping standards, lower costs for financial management and accounting and lower administrative penalties.

In the total sample, 75% of businesses were not formally registered, the majority of whom were FV vendors in wet markets, local collectors, and wholesale traders. Within each of these actor types, very small shares were registered as household businesses (9%, 16% and 14% of FV wet market vendors[2], local collectors, and wholesale traders, respectively) (Figure 8). In the survey, the main reason given for not registering was the small size of the business which requires no registration. This was confirmed by the results of the focus group discussions and government regulations on exemption from business registration. Specifically, Decree 39/2007/ND-CP regulates for individuals and Decree 01/2021/ND-CP regulates for business households with low income doing trade activities independently and regularly (including street trading, petty trading, petty food trading, consignment trading, commercial activities done independently and regularly) are exempt from business registration. Therefore, exemption to business registration is given to street vendors, collectors, wholesaler traders, and retailers (only buying agricultural products from producers and sell to enterprises/buyers without complex processing, packaging, etc.). Some respondents did not want to register due to complicated procedures, lack of management skills, increased costs for personnel for simple accounting books, environmental protection and insurance. Depending on their organisational structure, larger establishments were either formally registered as cooperatives (94% of the cooperatives) or private enterprises (100% of the private companies). For FV vendors/stores outside of wet markets, over 48% were registered. These respondents mentioned that registration facilitates businesses to increase revenue and profit from market expansion, particularly in building relationships with buyers through contracts such as restaurants, hotels, industrial kitchens, supermarkets, etc. As a formally registered business, Bac Hong Cooperative has been able to undertake legal supply contracts with larger retailers such as supermarkets, food stores, and restaurants across locations and ultimately expand their business.

Figure 8: Registration status of specific actor types



[2] It is worth noting that in Vietnam vendors within (formal) wet markets are managed by formal market boards. Therefore, although many of them are not formally registered, they are governed by formal authorities.

Besides registration status, formalization is also manifested in several features of conducting business, such as having a fixed location, practising daily business accounting, having a tax number, or registering and paying social insurance contributions for employees. Among non-registered businesses, although 63% had a fixed location, only 28% maintained daily records and kept regular accounts of sales and profits. Almost none of them had tax registration numbers, had contracts for employees or made health and social insurance contributions.

3.5. Interfirm networks

Linkages between businesses are classified into horizontal and vertical linkages. Horizontal linkages are connections among enterprises at the same step of the value chain. Vertical linkages relate to the cooperation among enterprises along the value chain. Both types of linkages are important to enhance enterprise performance and innovation capability (Belete, 2018; Martin-Rios et al., 2022; Tian et al., 2021). This study places a greater emphasis on horizontal linkages within the FV value chain. In Vietnam, prior research has predominantly concentrated on vertical chain linkages, as evidenced by studies like those conducted by (Ho & Dao, 2006), Bui et al. (2021), and (Hoang, 2021), whereas investigations into horizontal linkages have been notably limited.

Informal networks were commonly found among participants in both selected locations of the study. Our data shows that a large number of surveyed respondents had connections with a group and actively took part in various collective activities organised by its members. This pattern also validates insights from our expert consultation noting that informal connections exist among actors in the FV chains.

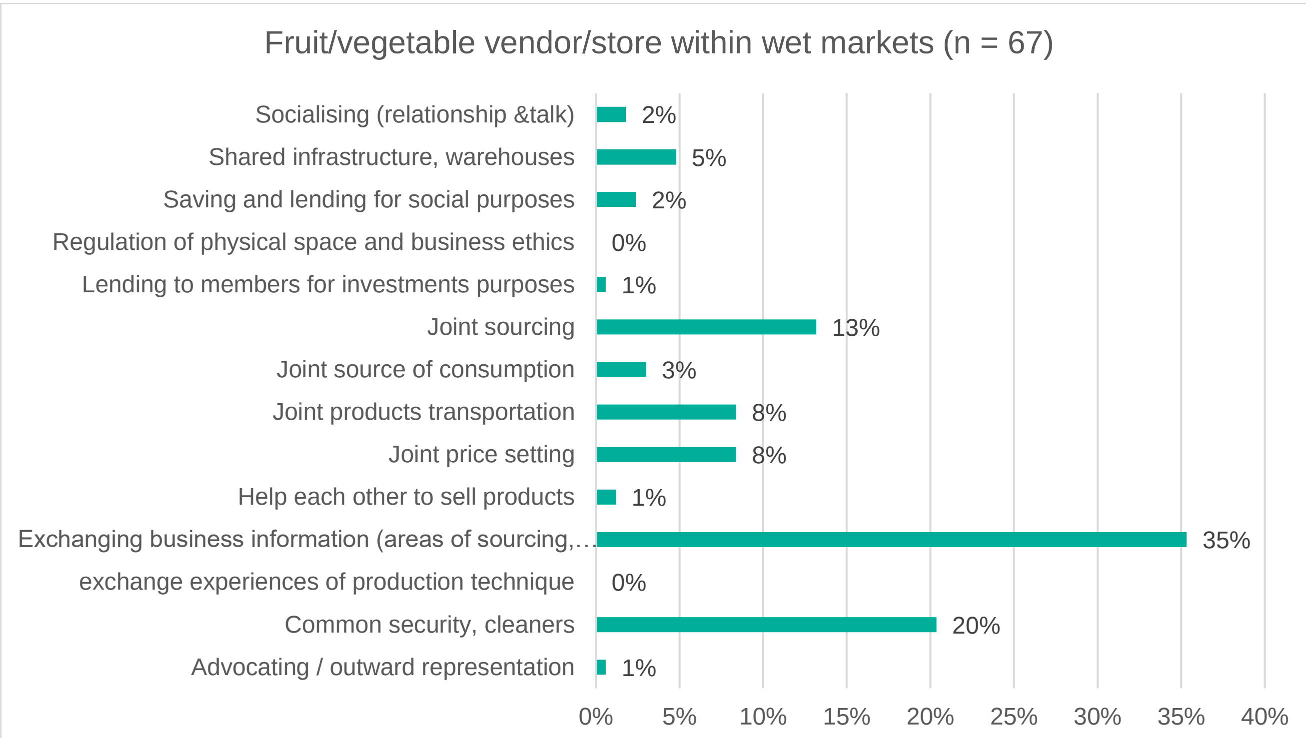
3.5.1. Horizontal linkages among same type actors

More than half (54%) of the respondents were involved in various forms of joint activities with similar businesses. For those who did not join any activities, the majority were vendors and stores selling FV in the wet markets (30%), FV vendors/stores outside of wet markets (24%), and local collectors (22%). These respondents typically did not see additional benefits or advantages, or found themselves in situations where networks do not exist (e.g., when only one business of this kind exist in the locality).

Network types vary depending on their business characteristics, scale, and business environment. For small-scale retailers located in formal wet markets serving both end-user consumers and caterers such as restaurants with no procurement contracts, there is a tendency for them to join a network with other retailers for exchanging market information. While for middlemen, including collectors, traders, etc. their linkages centre on aggregating different sources of supply to allow for serving large-scale clients. Results from focus groups comprised of collectors and cooperative representatives in Bac Hong Cooperative in Dong Anh, Tan Hop commune and Dong Sang commune in Moc Chau show evidence of well-established connections between collectors and traders in the chain. For example, in Tan Hop commune and Dong Sa commune, collaboration among collectors was reported for aggregating supply to satisfy big orders from customers. A similar linkage was also identified for cooperatives, and collaborations are commonly under informal agreements between parties. Linkages among collectors sometimes also aim for joint price setting across locations and parties in the chain. However, retailers located in smaller market space, typically do not have a wider network with actors in the chain.

FV vendors within the markets made up the largest group participating in joint activities, accounting for 28%. By joining a network, most retailers anticipated to be better informed about the current market situation in terms of sourcing and market price (35%) and look for opportunity to share their business operation costs with others in the same location, including the cost of security, cleaners (20%) and transportation (8%) or for joint sourcing with others (13%) (Figure 9). For this type of retailers, their networking involvement tends to focus on maintaining a stable condition for their business activities with a lack of interest in exploring further business opportunities or expand their business scale.

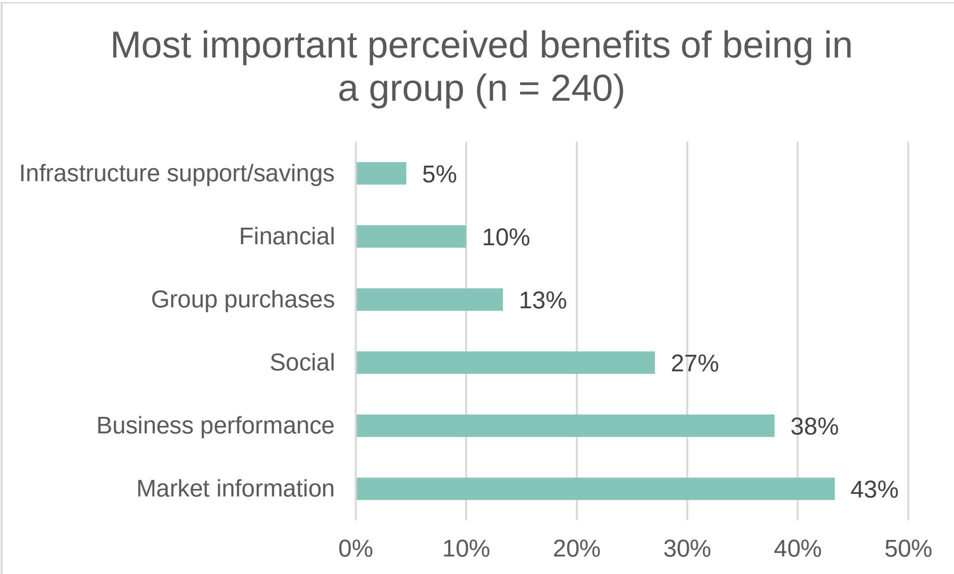
Figure 9: Joint activities among FV vendors in wet markets



Almost all of these networking groups were informally formed and operated with no appointed leaders (89%). The group activities were typically initiated and organized by group members, with no monetary contribution (95% responses). A group, on average, consisted of 13 members with an average 80% of whom were women. They typically met on a weekly basis (53% of responses) or only when it was necessary (40% of responses). The groups most commonly met face-to-face (43%), followed by phone calls, SMS, emails (35%) and social media (Zalo, Facebook groups) (20%).

For most respondents who participated in the network groups, being part of a group was important (74%) and they regarded it as a good way to gain access to and exchange market information (43%) and support their business performance (38%) (Figure 10).

Figure 10: Perceived benefits of being in a group

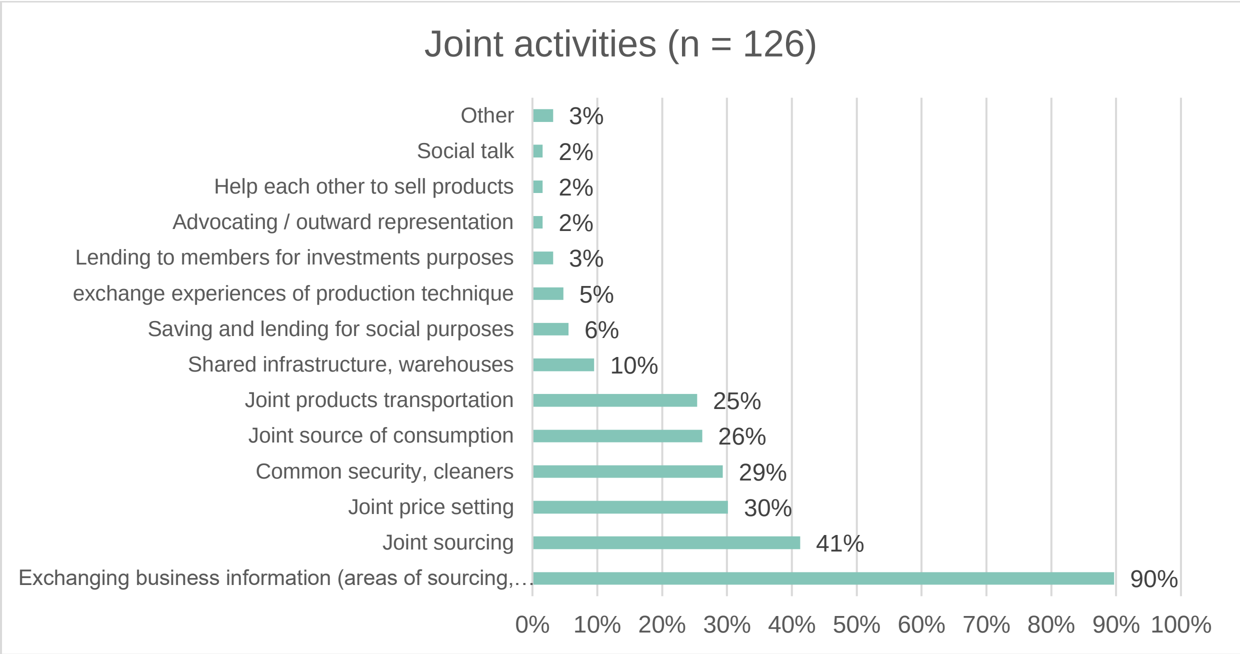


Though groups were generally open for everyone to join, the networks were commonly formed among trusted individual (81% trusted their group members) through social connections with no mutual financial benefits. For that reason, few conflicts were experienced among group members (96% experienced no conflict in their groups).

Network functioning

The main motivation for people to join these networks was to exchange business information (90%) on product sourcing and market prices with other group members, followed by the intention for joint product sourcing (41%) (Figure 11). While sharing information was the most appealing reason to join the networks, some emphasised sharing information related to their business activities cautiously in order to protect their businesses. Despite this hesitance, group members (80%) generally regarded their group activities as highly effective.

Figure 11: Joint activities among same-type actors

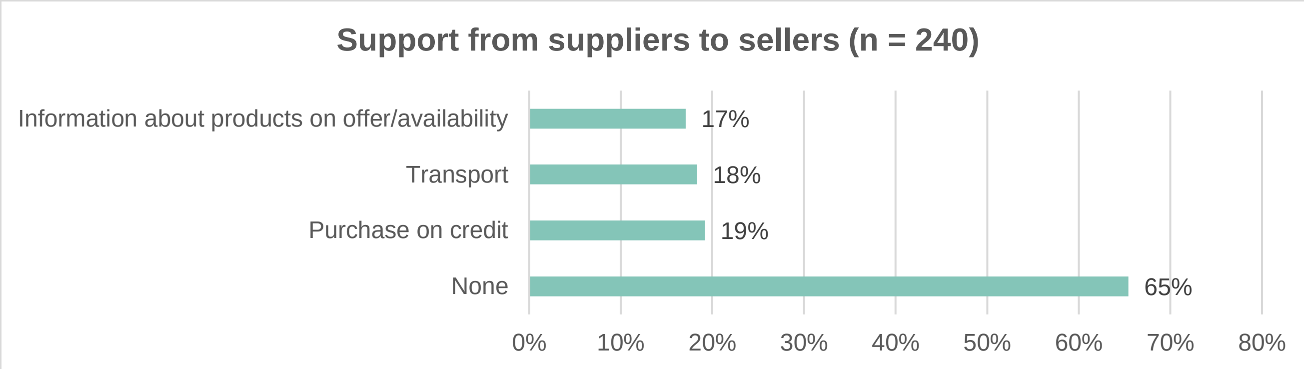


In particular, linkages among collectors in the FV supply chain can be found in the cases of Bac Hong Cooperative in Bac Hong Commune, Dong Anh and Tan Hop commune, Moc Chau district, Son La. Members of these networks acknowledged the benefits of being part of a network: exchanging information on production areas, product types and prices, exchanging products to smooth supplies and prices, diversifying products, or jointly supplying big orders. Another example is a network of traders and producers in Dong Sang commune that come together to share supplies and stabilise pricing gaps in the market. Collector networks in the FV chain focus exclusively on smoothening trade by connecting with producers, sourcing products and joint price setting. Connecting with other collectors also helps mitigate food loss along the supply chain, by improving flows of their stocks, especially in times of surpluses. For retailers, networking is beneficial for improving their market awareness on prices and competitions but has no certain influence over the market price setting.

3.5.2. Vertical linkages among actors in the chain

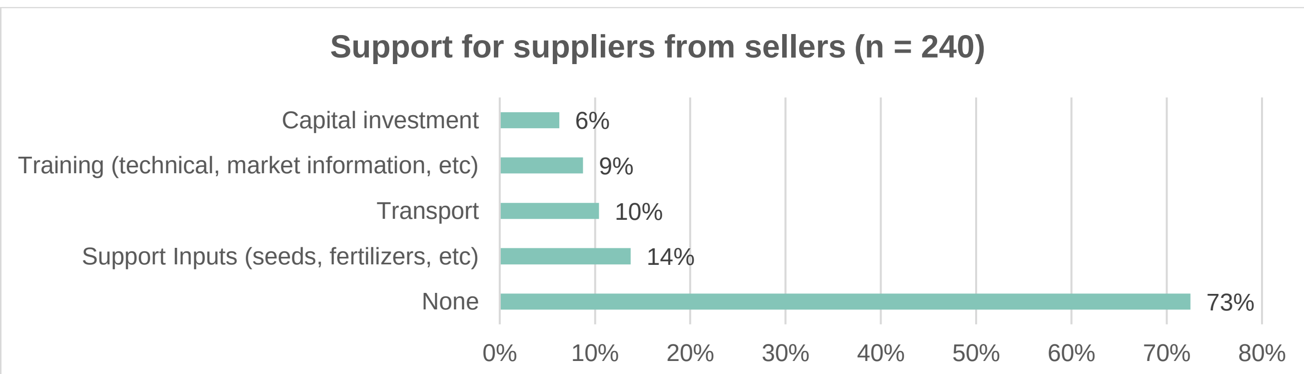
Over one-third (35%) of respondents, mainly fruit and vegetable vendors in and around the wet markets and a few other wholesalers, acknowledged some level of support from suppliers of their products, with the most common support being purchase on credit (19%), transport (18%) and information about products on offer/availability (17%). 65% of respondents reportedly did not receive any support from suppliers (Figure 12).

Figure 12: Support from suppliers to sellers



Conversely, local collectors, cooperatives and wholesale traders (27% of responses) also provided support or services to the suppliers for their products (e.g. cooperatives supporting farmers) in various forms: supporting inputs (seeds, fertilizers, etc.) (14%), transport (10%), training (technical, market information, etc) (9%) (Figure 13).

Figure 13: Support for sellers from buyers



Suppliers typically came from the same commune (50% for fruit, 57% for vegetables). Vegetables were more "local", with another 28% responses said the sources were from the same district but different communes. 20% of fruit providers said their main sources came from other districts (e.g., Long Bien, Chuong My, Me Linh in Hanoi, and Mai Son, or Son La city in Son La).

The FGDs revealed weaknesses in the interlinkages among various actors in the FV supply chain, including producers, collectors, cooperatives, intermediate companies, wholesalers, and retailers. These weaknesses encompass mismatches between supply and demand, intense competition in buying and selling, and a high rate of vegetable spoilage attributable to inadequate storage facilities. These deficiencies contribute to price fluctuations, reduced product quality, and unstable supplies. Notably, weak linkages between growers and traders often result in oversupply of certain products and shortages of others. Moreover, the concentration of middlemen along the distribution stage in the supply chain in Hanoi and Moc Chau puts farmers at a disadvantage, as traders and intermediaries wield their positions of power, impacting the retail price shares of fruit and vegetable products.

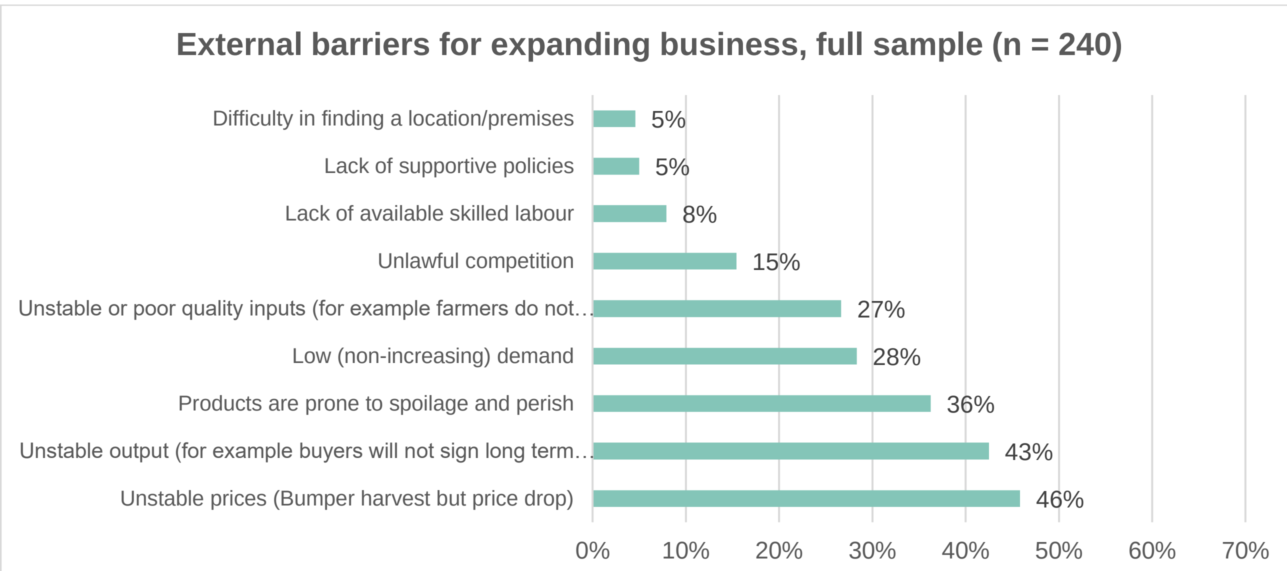
3.6. Barriers and opportunities for expanding business

3.6.1. Barriers

External barriers

Regarding external barriers for expanding business and/or increase FV supply to the market, survey participants most frequently cited unstable prices, with unstable supplies being the second most commonly mentioned challenge (Figure 14). One given reason for the unstable output for the products was the lack of long term commitment from buyers. A fruit wholesaler, for example, recalled the case when his customers (restaurants and kitchens) bought in large quantities but delayed payments, which deterred him from doing business with them. The perishability and spoilage of FV was also commonly mentioned as one key barrier (36% of full sample respondents), although as shown in Section 3.2.5. food loss was not voiced as a critical issue. This barrier was mentioned the most by FV vendors in wet markets, next to unstable outputs (Figure C - 9 in Appendix C).

Figure 14: Major external barriers to expanding business, full sample



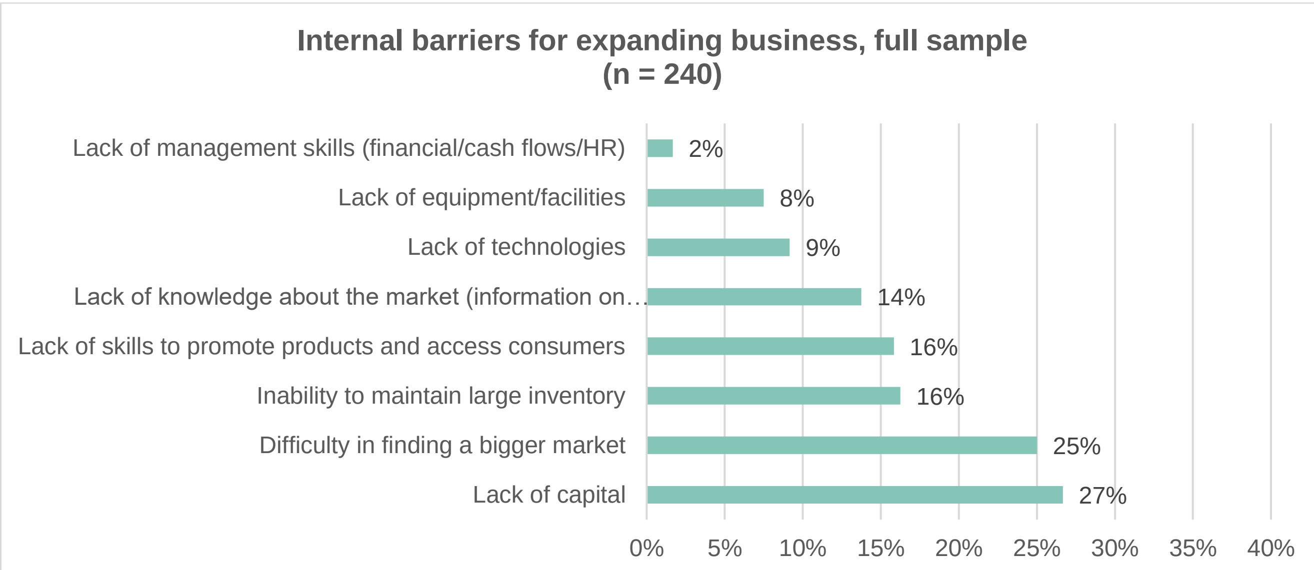
For local collectors, unstable or poor quality inputs were mentioned the most, next to unstable prices (Figure C - 10 in Appendix C). For example, a local collector in Moc Chau recalled: “When the supply was high, the farmers asked me to (help) buy their products. When the supply was low and the price increased, when I came to buy, they sold all products to other people already." Collectors participating in the FGD in Tan Hop commune, Moc Chau found finding stable relationships with buyers as the biggest challenge for their business (FGD in Tan Hop, Moc Chau).

Internal barriers

Concerning internal barriers**,** respondents highlighted a lack of capital and the challenge of finding larger markets as the most important internal barriers (Figure 15). These were also the top two challenges mentioned by FV vendors in wet markets (Figure C - 11 in Appendix C). Lack of capital was the top external barrier mentioned by local collectors, followed by lack of skills to promote products and access customers (Figure C - 12 in Appendix C). FGD with Bac Hong Cooperative in Moc Chau mentioned the challenge for them was investment requirement to ensure vegetable productivity and quality (including safety) such as shade (netting) houses, improved roads, greenhouses, and processing facilities.

Interestingly, one would expect that the lack of capital would be accompanied by unavailability or inaccessibility of credit, which was not mentioned as one of the most important external barriers faced by the surveyed MSMEs. One plausible explanation is that the majority of the MSMEs involve women-led micro and small entrepreneurs, who prefer to rely on their own savings, self-financing or within-family resources instead of actively pursuing external sources of capital such as bank loans (Ambler et al., 2020).

Figure 15: Major internal barriers for expanding business, full sample

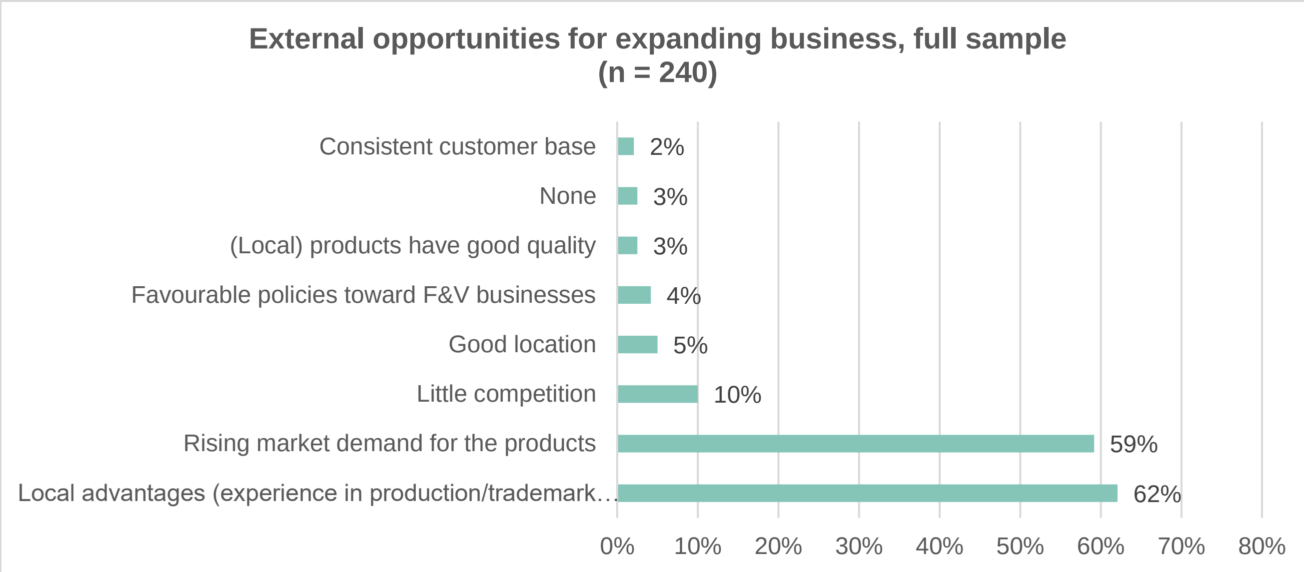


3.6.2. Opportunities

External opportunities

Local advantages and rising market demand for the products were most frequently mentioned as external opportunities for all the surveyed MSMEs (Figure 16), as well as for the sub-group of FV vendors in wet markets (Figure C - 13 in Appendix C) and local collectors (Figure C - 14 in Appendix C). Both Dong Anh and Moc Chau are well-known FV providers in North Vietnam, with plentiful production experience and good established connections with consumer base in metropolitan Hanoi. Moc Chau is also a popular agritourism destination, with specialty FV products, for visitors from Hanoi and other provinces.

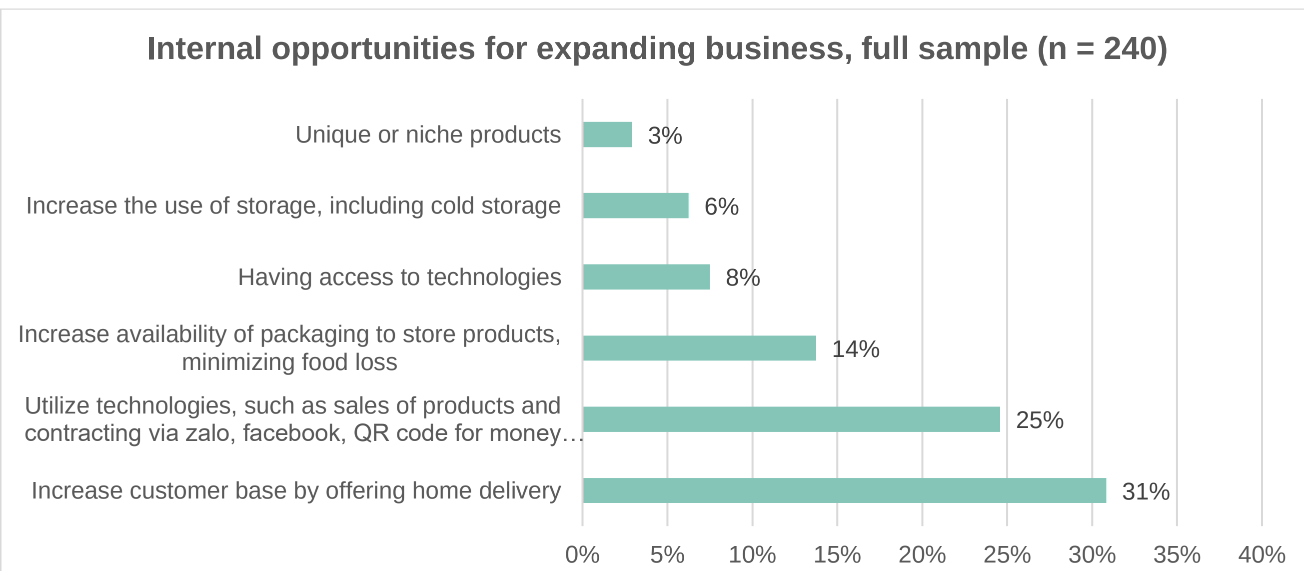
Figure 16: Major external opportunities for expanding business, full sample



Internal opportunities

The majority of surveyed MSMEs mentioned the use of home delivery and technologies, such as sales of products via social media, as internal opportunities to improve their business (Figure 17Figure 17:). These two opportunities were also mentioned the most by the FV vendors in wet markets (Figure C - 15 in Appendix C). For local collectors, increased availability of packaging to reduce food loss, increased use of storage such as cold storage, and utilization of social media for sales and contracting, were mentioned as the dominant internal opportunities (Figure C - 16 in Appendix C). The group of collectors in Tan Hop commune, Moc Chau ranked home delivery as the biggest advantage for their business (FGD in Tan Hop, Moc Chau).

Figure 17: Major internal opportunities for expanding business, full sample



4. Policy environment

Understanding the current policy environment is crucial for identifying effective entry points for policy interventions in the fruit and vegetable (FV) sector. Vietnam lacks a specific food policy and relevant policies fall under the domains of economic development and nutrition and health. Economic development policies regulate agriculture production and mid-stream trade activities, focusing on fostering connections between production and retail. Health and nutrition policies primarily address the consumer end of the food chain. We provide a snapshot of the policy environment by examining these two policy areas, assessing the acknowledgment of MSMEs in ensuring safe and nutritious food availability, and evaluating how policy objectives address challenges faced by FV businesses.

4.1. Nutrition policies

Vietnam has achieved impressive progress towards the SDGs, in the past 40 years. Effective poverty reduction (Goal 1) has contributed to hunger eradication (Goal 2) efforts, halting child malnutrition and improving agricultural labour productivity (Socialist Republic of Vietnam, 2022a).

The latest strategic policy documents show the government of Vietnam's commitment to a multi-sectoral, food system-wide approach to address nutrition-related challenges. The National Action Plan for Food System Transformation in Vietnam towards Transparency, Responsibility, and Sustainability by 2030 (Socialist Republic of Vietnam, 2023) features quantifiable targets across diverse facets of the food system, such as production practices, food processing, trade, distribution, environmental impact, and nutritional outcomes. Its implementation plan outlines a coordinating role for the Ministry of Agriculture and Rural Development, but various other ministries and governmental organizations are involved, including the Ministries of Health, Planning and Investment, Finance, Industry and Trade, and Science and Technology. The objectives with potential implications for FV MSMEs encompass initiatives like public-private partnerships to enhance secure food distribution (e.g., transportation infrastructure, logistics, cold chain), fortifying market linkages, and augmenting storage capabilities to counteract disruptions in the food supply chain. Although the role of traders and vendors in enabling access to safe and nutritious foods has not been widely addressed, various policy objectives on infrastructure and market linkages could possibly improve the business environment of FV businesses. The plan also includes objectives on increased export, and improved standards for the quality management process. These plans, however, do not seem to favour the economic position of MSMEs.

The national nutrition strategy 2021-2030 with a vision toward 2045 (Socialist Republic of Vietnam, 2022b) encompasses a range of objectives aimed at reducing all forms of malnutrition amongst vulnerable groups, obesity and overweight, as well as other non-communicable diseases (NCDs) while improving the nutritional status of the whole population. The outlined objectives predominantly focus on interventions directly related to nutrition, mostly aimed at consumers and less towards other actors of the food system. Nonetheless, interventions geared towards increased awareness and the promotion of healthy dietary habits, such as nutrition education and the provision of nourishing school meals, have the potential to augment the demand for nutritious foods like fruits and vegetables. This, in turn, could potentially boost the FV business sector.

Similar to the discussion above, Owili et al. (2021) analysing food and nutrition policy documents, concluded that the Vietnamese government embraces a food system approach. They found a strong focus of policies on nutrition education for supporting consumers to make healthier choices, such as increased consumption of FV, especially locally available foods, which could increase the demand for healthy foods like FV, benefiting the sector. Regarding retail and marketing policies they identified objectives on controlling food prices, by limiting food imports and providing state support to assist farmers to access domestic markets, and minimizing post-harvest loss. Policies also focused on developing inclusive and efficient value chains, whereby key commodities such as rice receive more attention than FV. Additionally, since these policies focus on nutritional outcomes rather than economic benefits, and traders or vendors are not acknowledged as a target group, it remains ambiguous to what extent FV MSMEs could benefit from these interventions.

4.2. Economic development policies

The Doi Moi reforms of 1986 that transitioned the country from a centralized to a market economy led to the dismantling of cooperatives and a restructuring of state enterprises, which were the main employers at that time. This resulted in a boom of MSMEs of mostly self-employed workers or family businesses (Pasquier-Doumer et al., 2017). In 2016, it was estimated that MSMES employed 47% of the total labour force in Vietnam, although this is likely to be an underestimation due to the large informal sector (OECD, 2021).

National legislation has paid a growing attention to SMEs. The definition of SME was first included in the law in 2001, coinciding with the establishment of the SME Development Agency, now known as the Agency for Enterprise Development (AED). The latter is the primary governmental body providing non-financial business development services like trainings. In 2018 the SEM support law was introduced, underscoring the Vietnamese government’s commitment to supporting domestic SMEs. This policy addresses various challenges encompassing taxation, financial accessibility, innovation, and value chain development (OECD, 2021). In 2017, 28 major state-led SME support programs were active (World Bank Group, 2017). An evaluation by the OECD concerning the business environment and SME policies highlights improvements over time, such as lowered regulatory compliance costs and reduced corporate income tax rates (OECD, 2021).

The significance of SMEs, especially those in agriculture, is not emphasized in recent key policy documents, although there are relevant supporting policies in place. The most recent 10-year socio-economic development strategy for 2021-2030 emphasizes the development of large-scale commodity-oriented agriculture, highlighting the importance of both vertical and horizontal linkages in agricultural production. The role of SMEs was only briefly mentioned when discussing the need to digitalize the economy, in general. Reflecting the national socioeconomic development plan, the agricultural sector’s strategy approved by the Prime Minister in 2022 highlights fostering linkages between different stakeholders in the food chain to stimulate sustainable growth of the sector. An inclusive policy encouraging both formal and informal businesses to participate and collaborate in the food supply chain has been developed (Decree 98/2018/ND-CP) in complement to another policy that supports industry clusters and value chains specifically for agricultural MSMEs; yet focusing more on the formal sector (Decree 80/2021/ND-CP). Other relevant supporting programs include Program to support small and medium enterprises for the period 2021-2025 (which has recently been dropped to avoid overlaps with other initiatives to implement articles of the SME support law), project for development of vegetable and fruit processing industry period 2021 – 2030 (which is more export-oriented), and other policies providing production incentives. The types of support are very diverse, ranging from administrative procedure (e.g. tax and accounting) and legal support (e.g. in converting household businesses into registered SMEs), access to credit, participation in clusters and value chains and digital transformation for newly established businesses.

In practice, the effectiveness of these policies in providing an enabling environment for MSMEs to positively contribute to the supply of FV in improving nutrition outcomes in Vietnam remains unclear. Policy reforms remain necessary to address existing challenges. For instance, compliance with tax regulations remains challenging, particularly for MSMEs. Although there are programs aimed at enhancing financial access, such as the SME Development Fund and Credit Guarantee Fund, their utilization by SMEs is limited. The OECD attributes this to low confidence in public guarantees being upheld and interest rates being set excessively low. Other SME policies, for example on innovation, mainly address issues which are only relevant for other sectors, like high tech, fostering R&D and promoting intellectual property rights. Other policies target SMEs in the manufacturing sector, like textiles and electronics, by facilitating access to the export market and supporting them in meeting international standards. The World Bank stated that the effectiveness of these SME support programs is unclear because monitoring and evaluation systems to assess outcomes and impact is lacking (World Bank Group, 2017). Moreover, weak coordination between different ministries and the lack of human and financial resources at the province-level impede effective implementation (OECD, 2021).

To conclude, current socio-economic development strategies and implementation plans allocate limited attention to MSMEs' needs. Existing SME-specific policies largely favour manufacturing SMEs producing high-value goods for export. However, proposed interventions have the potential to enhance the business environment for SMEs in the food sector and enhance their competitiveness, such as refined tax regulations, enhanced financial access, and innovation initiatives.

5. Conclusions

Although the share of FV in overall agricultural production has been increasing in Vietnam recent years in response to growing demand (Siddiq and Basher, 2019), consumption of FV is still suboptimal. This raises the question whether interventions in the supply chain could play a role in stimulating consumption. This research investigated the attributes and operations of MSMEs participating in FV value chains in two typical production sites in Vietnam, in order to consider potential areas for interventions to increase the supply and affordability of FV products.

Although both study sites Dong Anh and Moc Chau have a similar organization of FV value chains, with similar midstream key actors (collectors, wholesalers, export companies, retailers), Moc Chau's actors often take on multiple roles, while Dong Anh’s actors are more specialized in their functions. Cooperatives play dynamic roles in product mobilization in both areas. Importantly, the supply of FV from both locations primarily serves urban consumption Hanoi, indicating an interdependent connection between the two regions in sustaining FV supply for Hanoi. The diversity and interrelatedness of actors engaged in the lengthened chain highlight the need to investigate interfirm linkages beyond restricted geographical scope.

This study relies on a survey conducted with, mostly, informal micro and small businesses, with retailers and traders typically having 1-2 employees. Within the sample, 75% of the businesses were not formally registered, mainly encompassing FV vendors in wet markets, local collectors, and wholesale traders. Interviewed formal enterprises acknowledged that business registration can play an important role in facilitating market expansion, particularly by facilitating relationships with buyers through contracts, such as those with restaurants, hotels, industrial kitchens, and supermarkets, thereby enhancing revenue and profitability. Furthermore, formalized employment conditions, including written contracts and access to unemployment insurance and social security pensions, provide essential safeguards for workers against vulnerabilities stemming from various shocks, such as illnesses (Pasquier-Doumer and Oudin, 2017). It was reported that the recent pandemic had a disproportionately adverse impact on informal workers (Nguyen et al., 2020), underscoring the continued relevance of improving social security coverage, especially among informal MSMEs. However, the MSMEs surveyed did not mention the lack of formal registration as an impediment to their business, aligning with Pasquier-Doumer and Oudin's (2017) finding that a significant portion of informal household businesses saw no benefit in transitioning to formal status. McCaig & Nanowski (2019) also found that obtaining a business licence is not associated with an increase in profits or other business outcomes for Vietnamese enterprises. Thus, it is not formal registration, but rather the provision of formal public support that can bring more benefits to informal MSMEs. Legislative efforts can focus on conditions which influence informal sector activities, such as improved public services, enhanced health and safety regulations, and provision of social protection. Further in-depth research into the motivation and strategies of actors operating in informality is essential.

Regarding the potential of MSMEs in providing employment, the majority of surveyed businesses had no intentions of expansion, reflecting their lack of interest in upscaling. Approximately one-fifth of the surveyed MSMEs expressed a desire to hire more women, primarily for roles involving sales and processing functions. Given the seasonal nature of these roles, women workers may be more exposed to informal working conditions. Additionally, about one-fifth of the surveyed MSMEs aimed to employ more young workers due to their technical skills, yet they acknowledged that this sector generally lacks appeal to young individuals. This finding aligns with a previous study by Mulema et al. (2021) who found a negative relationship between perceptions and participation in agriculture among Vietnamese youngsters. The same study recommended facilitating youth engagement in more formal value chains, which can help to align their investment and personal aspirations with commensurate benefits and returns. This signals another incentive for MSMEs to professionalize their operations to attract young employees. Support programs for MSMEs can include interventions like innovation vouchers to improve skill enhancement and ICT adoption (OECD, 2021).

On average, surveyed MSMEs, did not perceive food loss as a critical issue, despite the attention and concern for post-harvest loss at the national level. According to the Food and Agriculture Organization of the United Nations, Viet Nam’s postharvest losses account for 10% - 30% of fruit and vegetables (Siddiq and Basher, 2019), and food loss reduction was identified as a pivotal transition pathway to reduce the environmental impact of food production (World Bank, 2020). One of the targets of the NAP on Zero Hunger is that by 2025 “food will not be lost or wasted”. In our survey, only the group of vendors in wet markets considered food loss as an important barrier to expand their business. Bringing more awareness for the stakeholders, for example by generating real data on loss in weight and value, will help to identify targets and points of interventions (Axmann et al., 2022). For example, Pham et al. (2021) provided results on food loss for some specific vegetables in traditional markets in Hanoi, and suggested that inadequate infrastructure of traditional markets for food loss management could cause environmental issues.

The data highlighted local advantages and the rising market demand for FV as the most important opportunities that FV businesses can exploit across the study sites. Notably, this opportunity is particularly beneficial for cooperatives and private companies, which possess the necessary resources to capitalize on the growing demand for higher-priced certified products. However, small household vendors do not perceive this option as attractive, as they lack the requisite skills and capital, and their customer base is unwilling to pay premium prices. Among the major obstacles to increasing FV supply are the fluctuations in FV prices and unreliability of inputs and outputs. Besides market conditions that cause price volatility, difficulties in securing inputs and outputs signify a lack of connections and trust between midstream MSMEs and other chain actors. This finding aligns with the observations made by Ngo et al. (2019) who noted that weak relationships among stakeholders in safe vegetable supply chains, characterized by a lack of mutual trust, transparent information sharing, and interest alignment, present significant barriers. Furthermore, challenges related to capital and market expansion are exacerbated by the diversity of firm types, necessitating tailored interventions and policies to support different entities within the chain.

Groups and networks composed of similar businesses can offer a valuable platform for information exchange and the organization of capital and support systems, which can significantly enhance business efficiency and foster growth. Our data reveals that a substantial portion of surveyed respondents maintain connections with such groups and actively engage in a range of collective activities initiated by their members. These activities span from exchanging market information to consolidating orders to facilitate greater demand to establishing common pricing strategies. Besides, membership in farmer or youth groups was found to have a positive impact on youth engagement in agriculture in Vietnam, as observed in a study by Mulema et al. (2021). The potential for harnessing the influence of group connections in improving the operation of FV supply chains, for example to diffuse information and technology, is substantial. However, the concentrated power of middlemen, further enhanced via such interfirm linkages, may also disadvantage other actors, e.g. farmers in the chain. Our study also found that vertical linkages between buyers and sellers in the chain were not common, highlighting the potential lack of trust in the chain. While many studies on FV supply chain collaboration in Vietnam have primarily focused on the involvement of farmer households in cooperatives (Tran et al., 2021; Yang et al., 2021), there has been a relative paucity of literature focusing on midstream actors.

Our findings stress the need for further research and potential interventions aimed at enhancing the understanding of interfirm networks among these midstream actors. An inquiry into how horizontal linkages may mitigate challenges arising from weak vertical linkages is essential. For instance, supporting networks of local collectors can enhance their market standing in negotiations with buyers. Additionally, investigating systemic conditions, such as improved public services and safety regulations, should also be explored.

Our review of relevant policies found that the FV midstream actors could potentially benefit from policies emphasizing nutrition education and promoting healthy dietary habits. On the economic development front, the government's strategies prioritize large-scale commodity agriculture and emphasize the importance of linkages in the food supply chain, from production to retailing. However, the role of MSMEs in these policies has not been adequately highlighted, and they often focus on manufacturing SMEs for high-value exports. The few initiatives targeting MSMEs, including those in FV, have not been adequately assessed for impact and improvement. Policy reforms are necessary to address the challenges faced by MSMEs in the FV sector, including tax regulations, financial accessibility, and innovation support. The policy analysis underscores the necessity of adopting a more comprehensive approach to bolster and empower MSMEs, with a specific focus on those engaged in the FV sector, aiming to boost their competitiveness and further their role in enhancing nutritional outcomes in Vietnam. It emphasizes the importance of crafting customized policies taking into account the high diversity of the sector, fostering greater inter-ministerial cooperation, and actively engaging MSMEs in shaping an enabling business environment for these enterprises.

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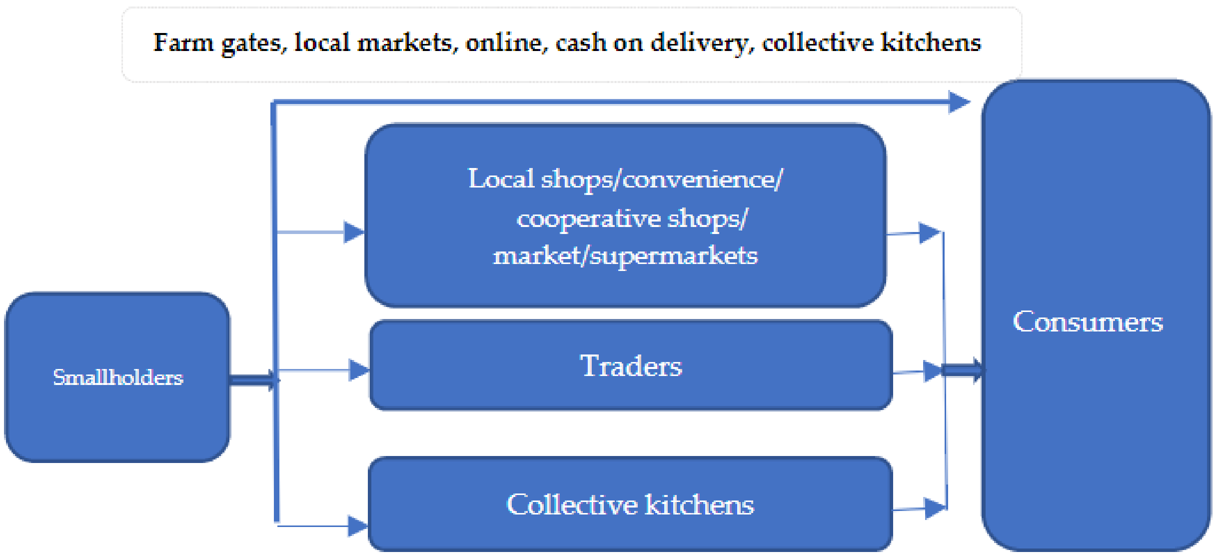
Appendices

Appendix A. Main FV chain organization in Vietnam

Figure A - 1: The short food supply chains (SFSCs) in the survey sample (Hanoi, Dak Lak, Dong Thap) in Vietnam (Bui et al., 2021)



Appendix B. Stakeholder-drawn diagrams of value chain organization in Dong Anh and Moc Chau

Figure B - 2: FV Value chain mapping in Dong Anh town market, Dong Anh district, Hanoi

FAV value chain in Dong Anh town market

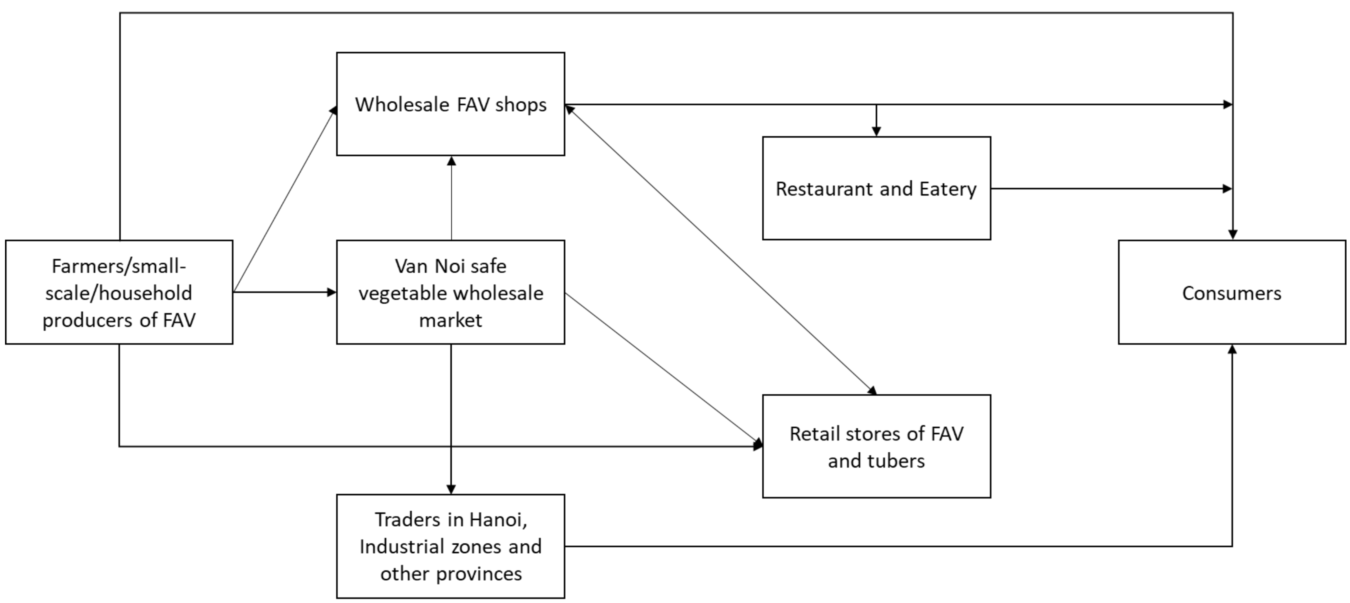


Figure B - 3: FV Value chain mapping in Bac Hong Cooperative, Bac Hong commune, Dong Anh, Hanoi

FAV value chain in Bac Hong co-op, Bac Hong Commune – Dong Anh, Hanoi

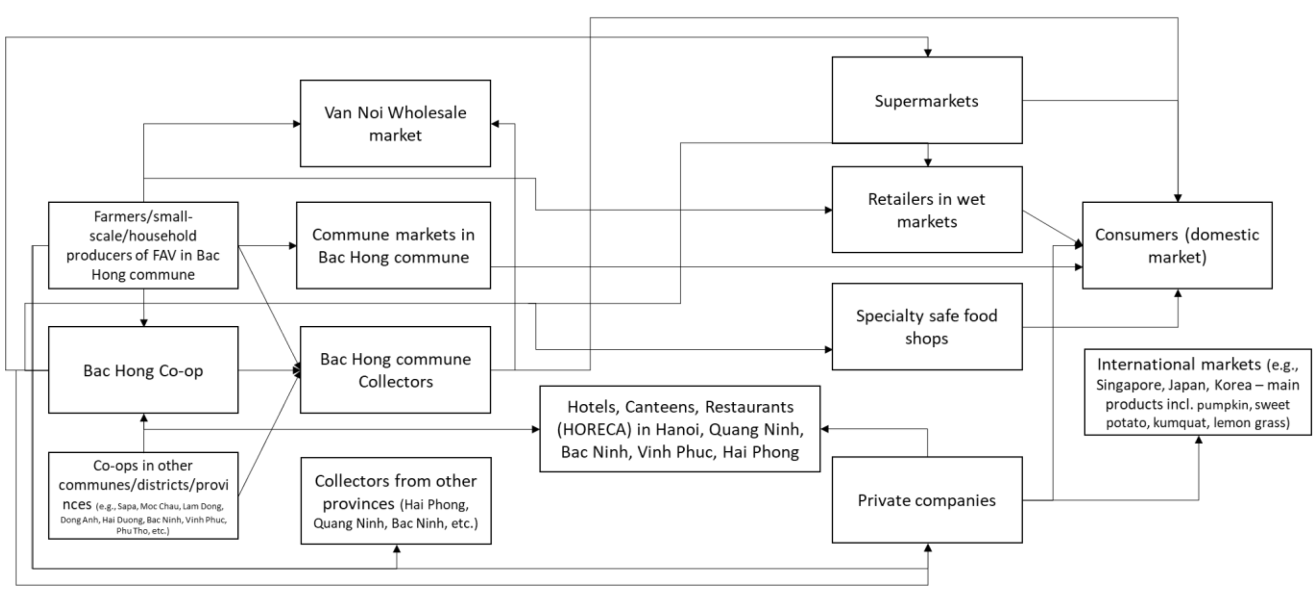


Figure B - 4: FV Value chain mapping in Tan Hop commune, Moc Chau district, Son La

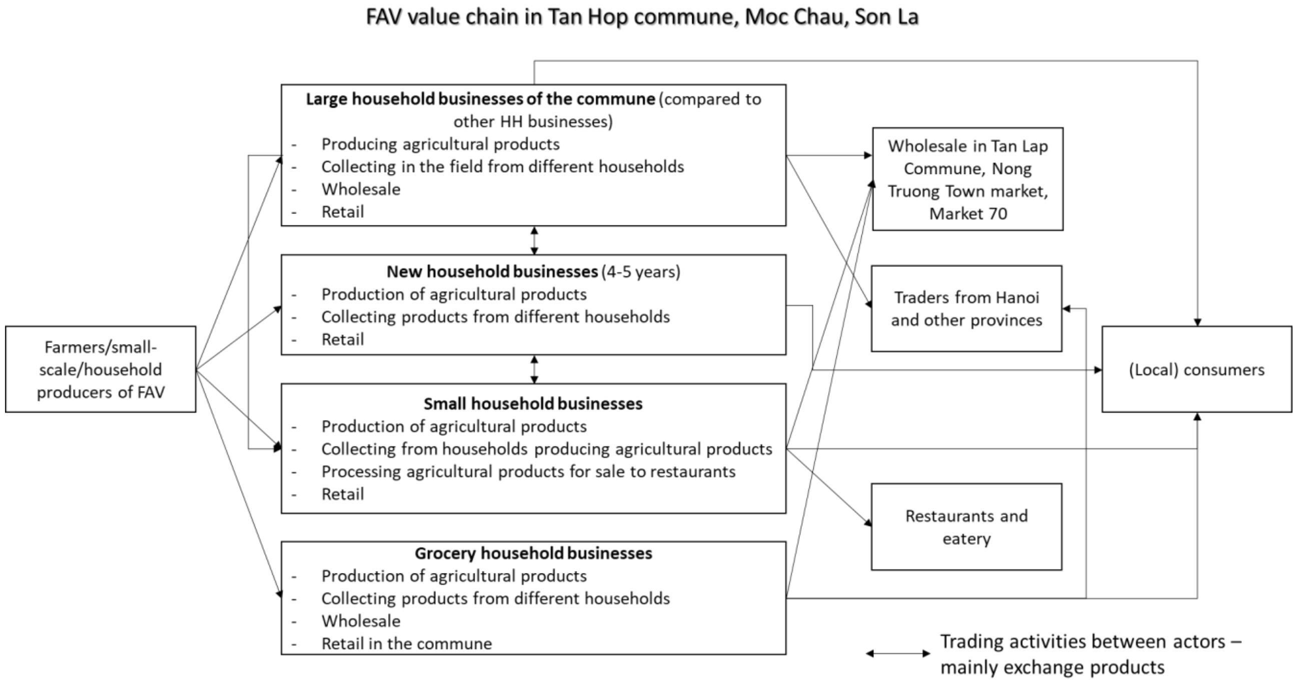
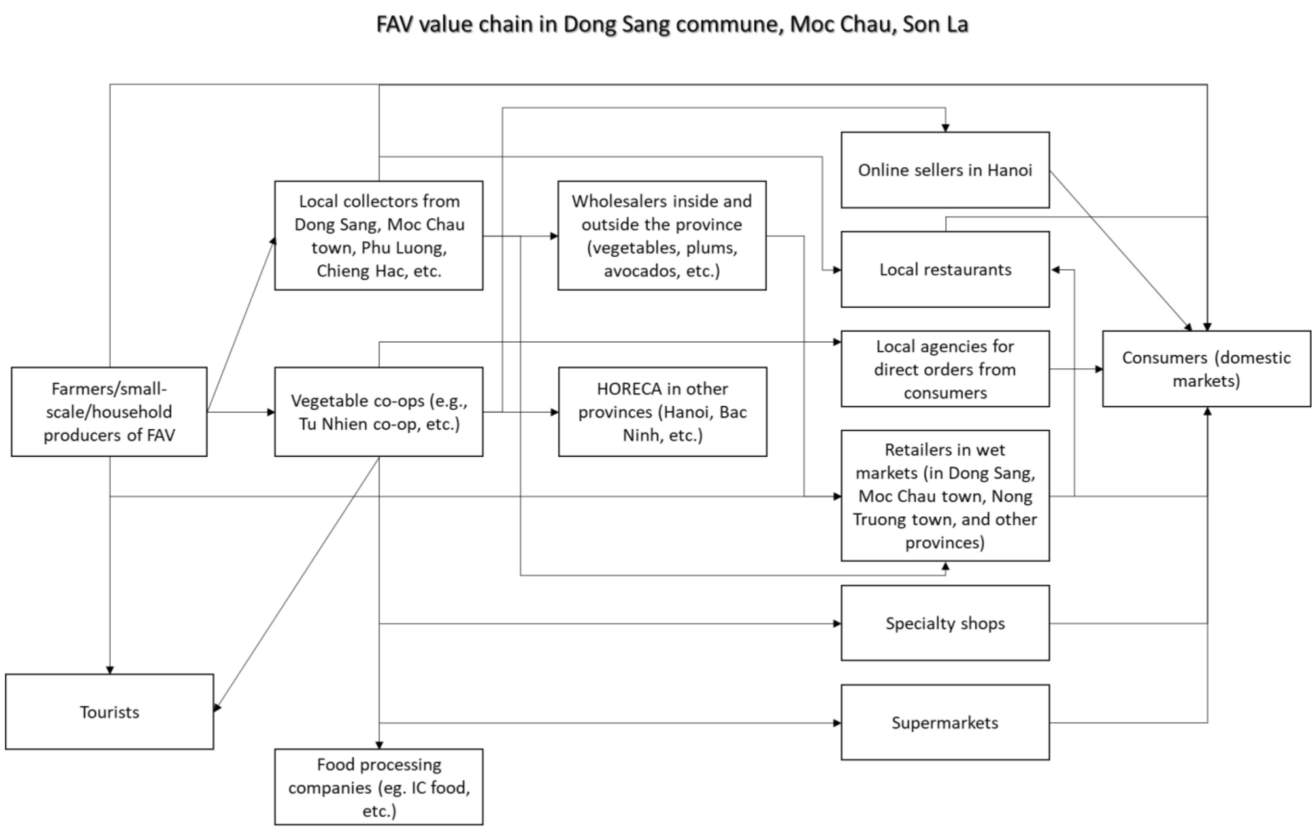


Figure B - 5: FV Value chain mapping in Dong Sang commune, Moc Chau district, Son La province



Appendix C. Supplementary tables and figures

Figure C - 1: Education level of respondents, by site

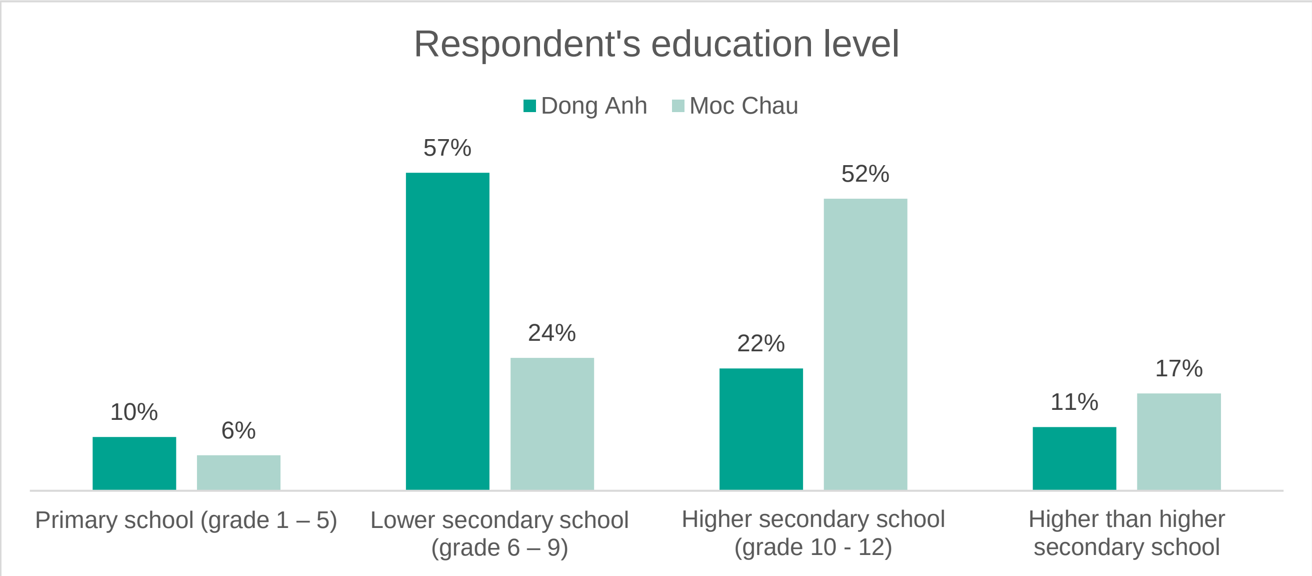


Table C - 1: Number of business activities, by actor type

Actor type	mean	SD	min	max
Fruit/vegetable vendor/store within wet markets (n = 101)	2	0.7	1	4
Local collector (n = 37)	3	1.1	1	5
Fruit/vegetable vendor/store outside of wet markets (n = 30)	1	0.8	1	4
Wholesale trader (n = 22)	3	0.7	1	4
Cooperative (n = 18)	4	1.2	2	6
Private company (n = 8)	4	1.2	2	6
Online shop (n = 7)	2	0.9	1	3
Strawberry farm (n = 7)	3	0.6	2	4
Wholesaler and retailer within wet markets (n = 7)	3	0.5	2	3

Table C - 2: Respondent's assessment of food loss as an issue (0: not serious at all, 10: very serious)

Actor type	mean	SD	min	max
Fruit/vegetable vendor/store within wet markets (n = 101)	3	1.7	0	10
Local collector (n = 37)	2	2.3	0	10
Fruit/vegetable vendor/store outside of wet markets (n = 30)	3	2.6	0	9
Wholesale trader (n = 22)	2	1.8	0	7
Cooperative (n = 18)	2	0.9	0	4
Private company (n = 8)	2	1.6	0	5
Online shop (n = 7)	2	1.1	1	4
Strawberry farm (n = 7)	3	1.3	2	5
Wholesaler and retailer within wet markets (n = 7)	2	1.1	1	4

Figure C - 2: Intention to increase sales, by actor type and type of product

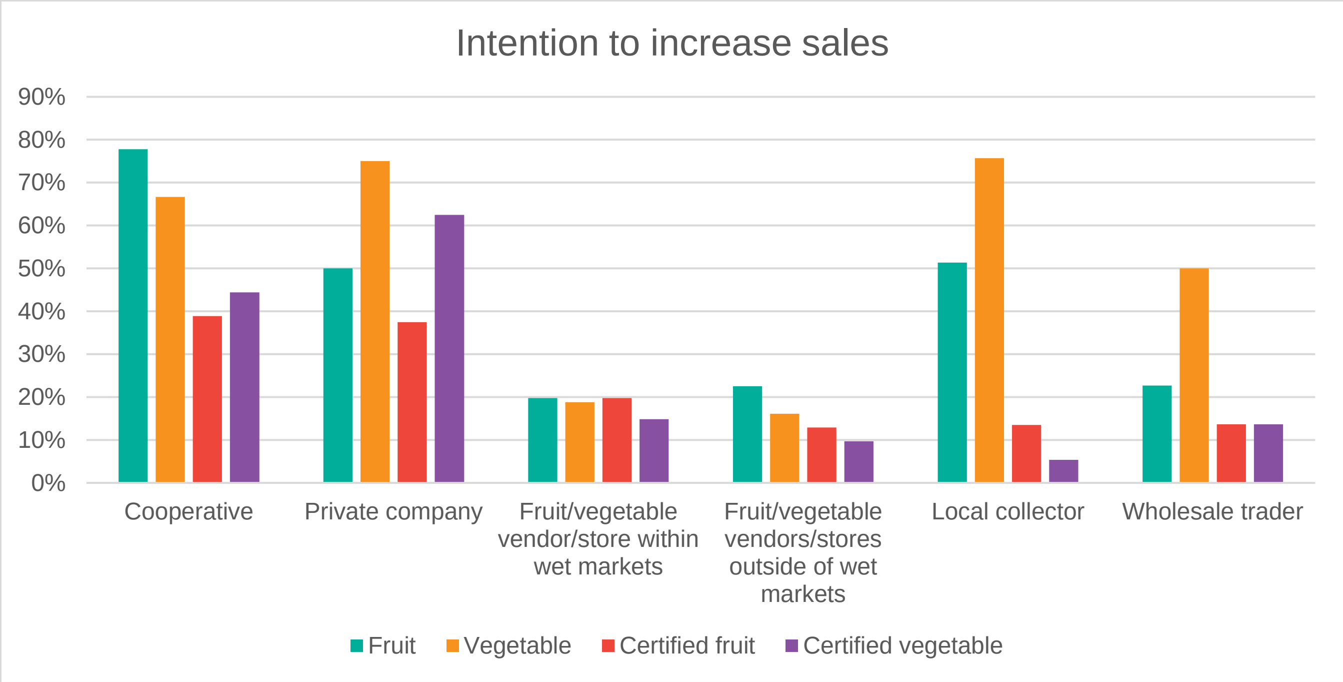


Figure C - 3: External causes to increase sales of fruit

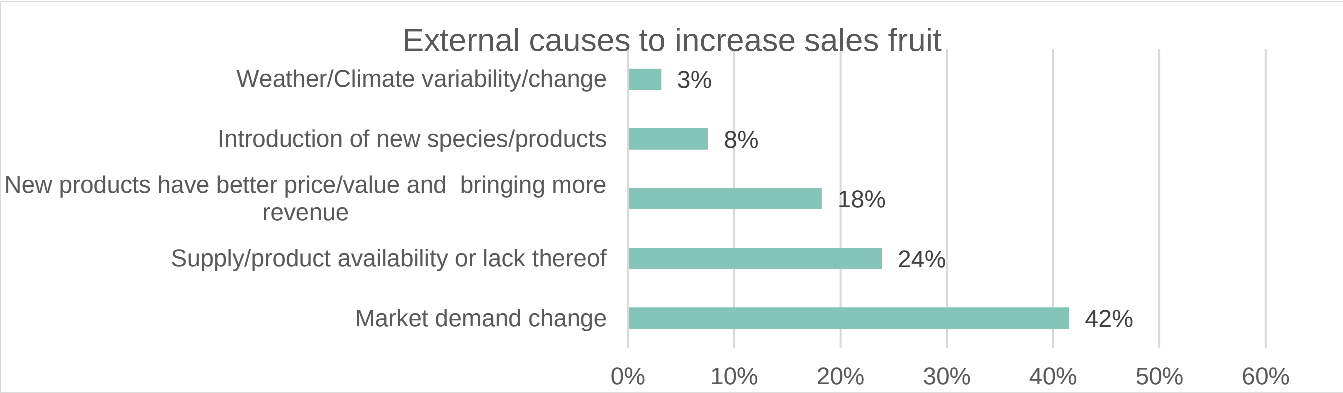


Figure C - 4: External causes to increase sales of vegetables

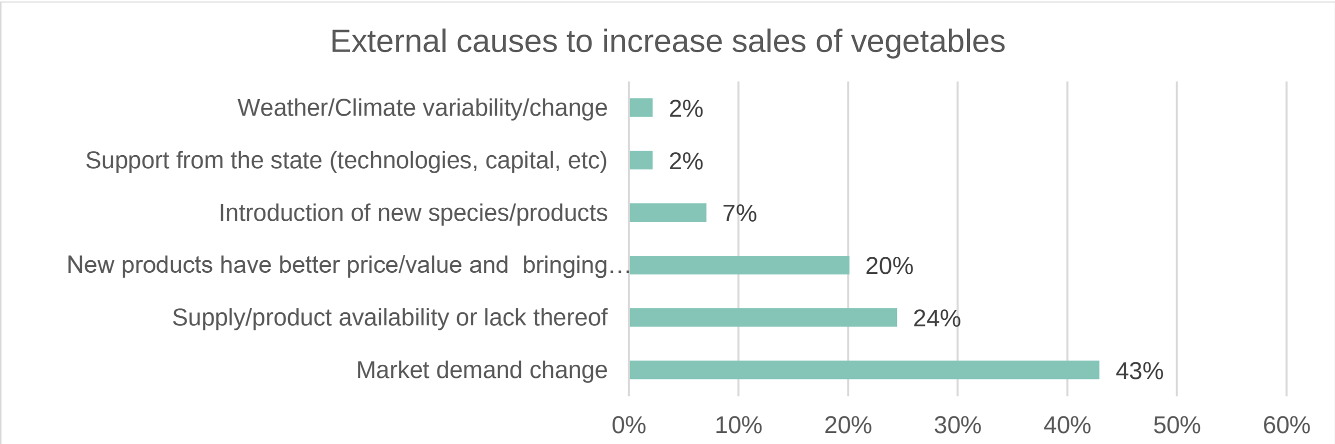


Figure C - 5: External causes to increase sales of certified fruit

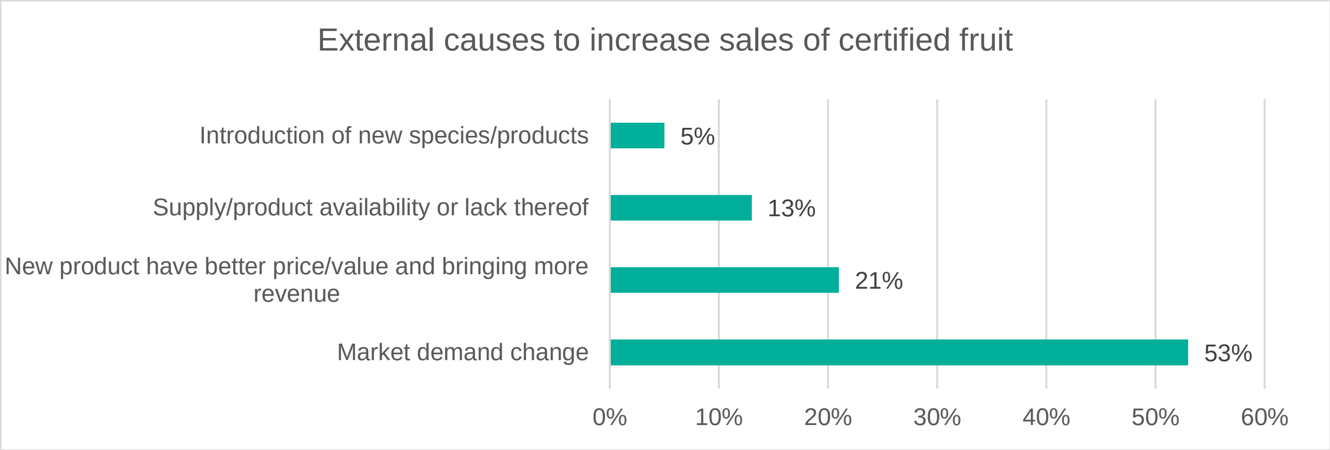


Figure C - 6: External causes to increase sales of certified vegetables

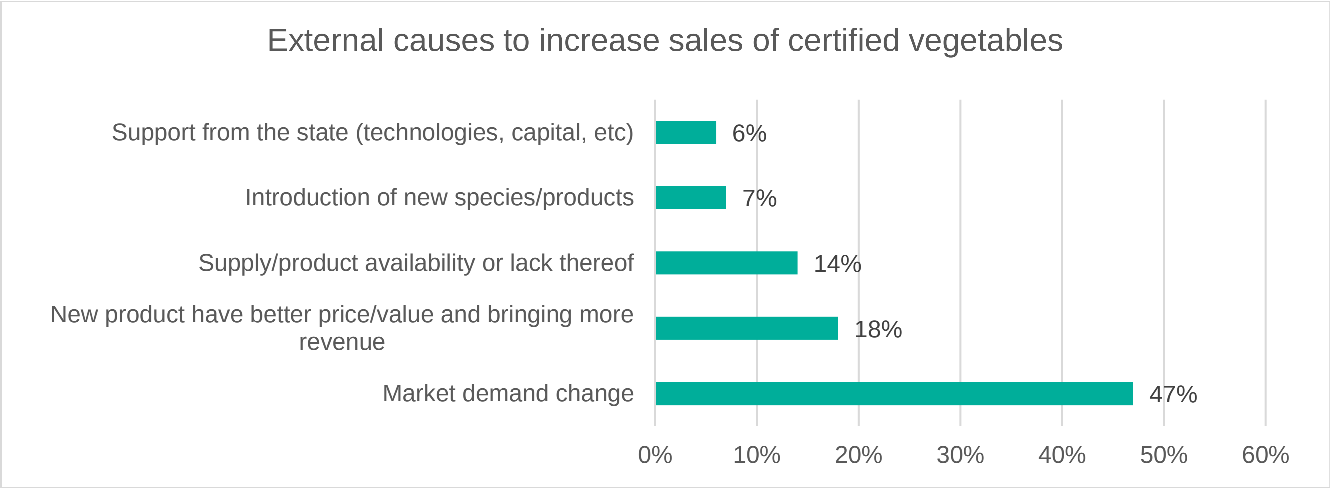


Figure C - 7: Internal causes to increase sales of certified fruit

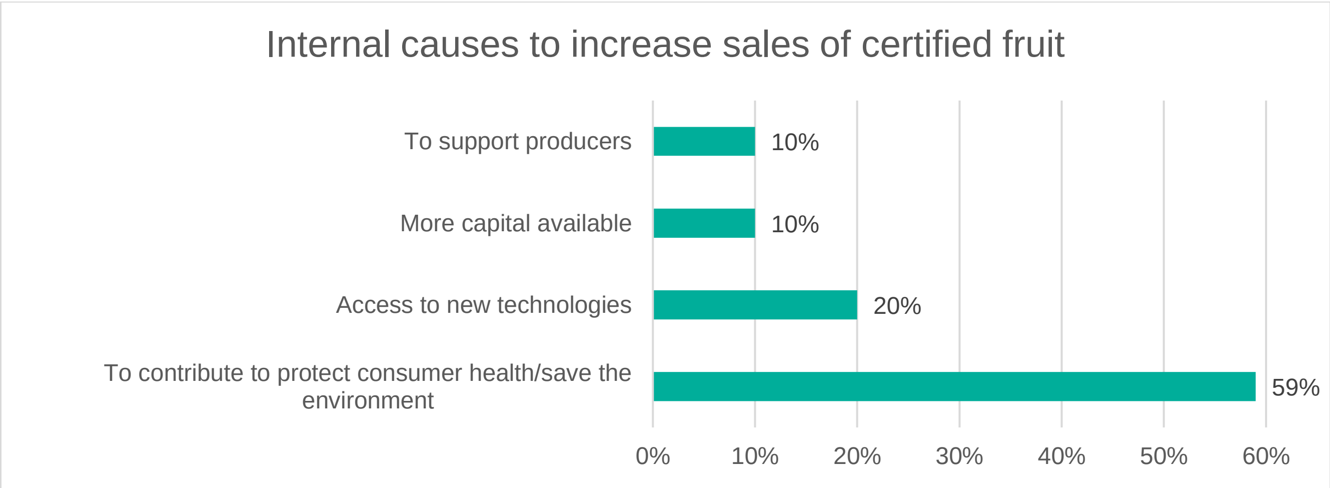


Figure C - 8: Internal causes to increase sales of certified vegetables

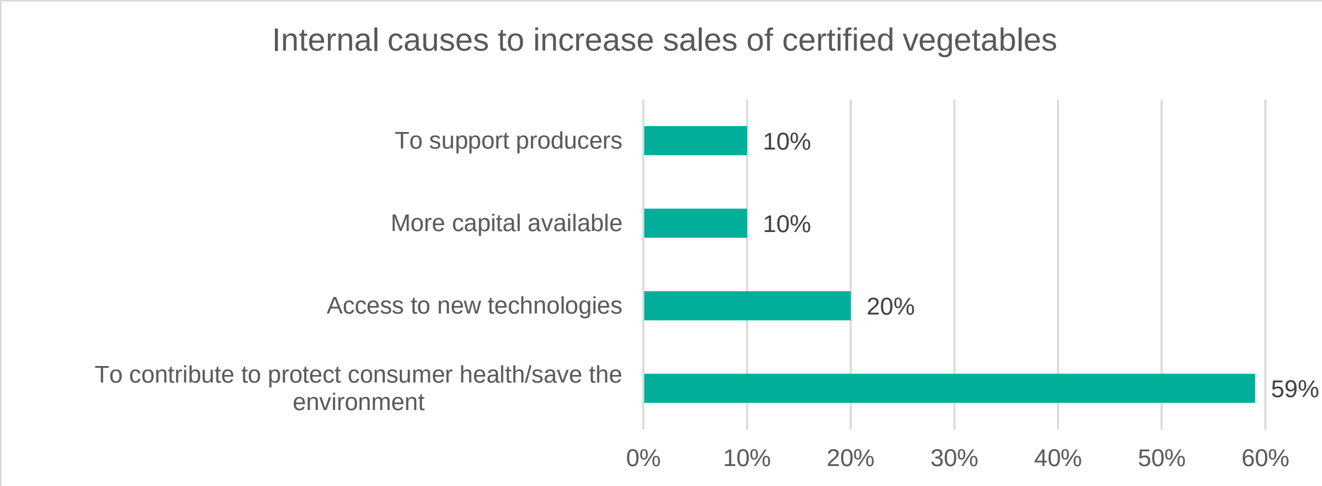


Figure C - 9: Top 5 external barriers for expanding business, for FV vendors within wet markets

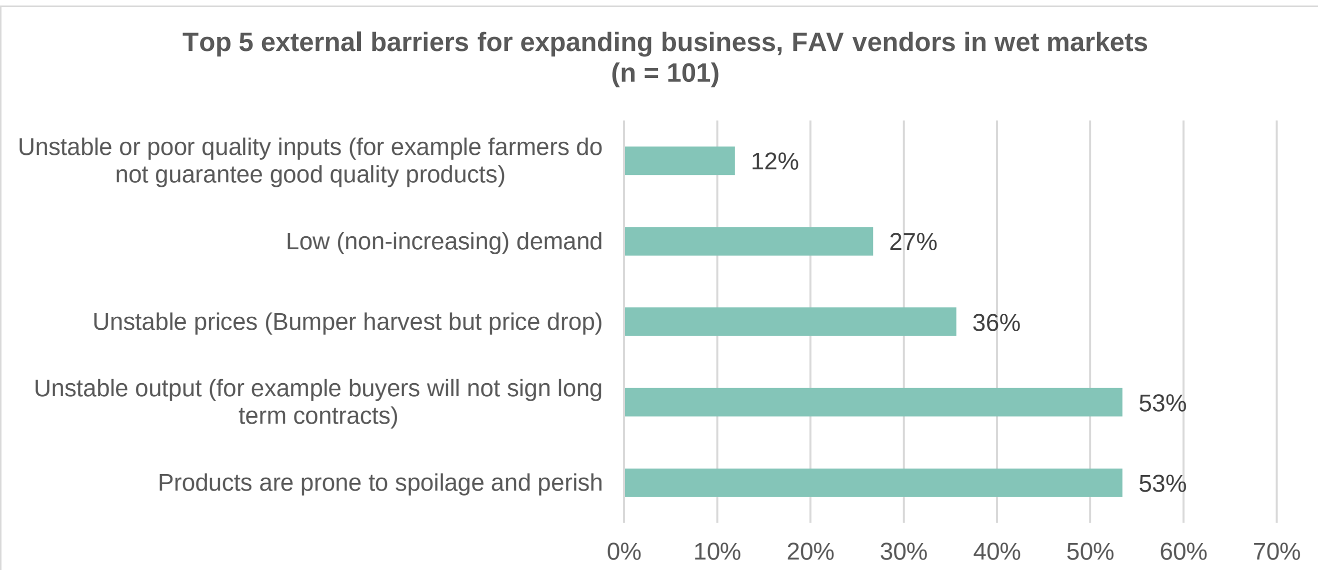


Figure C - 10: Top 5 external barriers for expanding business, for local collectors

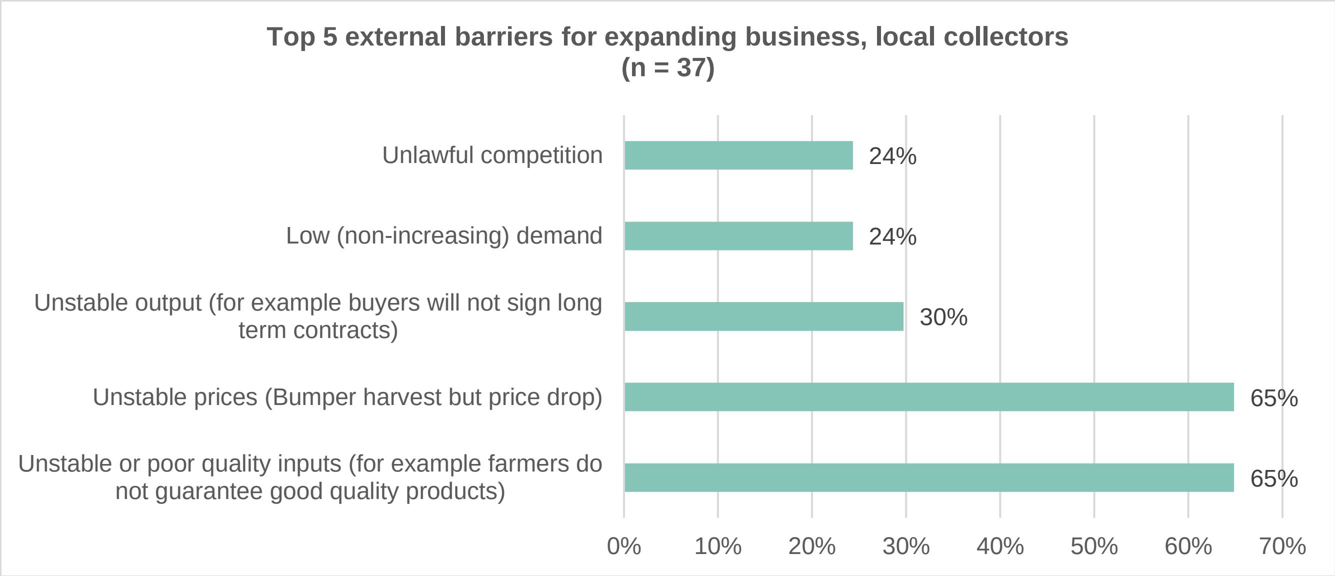


Figure C - 11: Top 5 internal barriers for expanding business, for FV vendors in wet markets

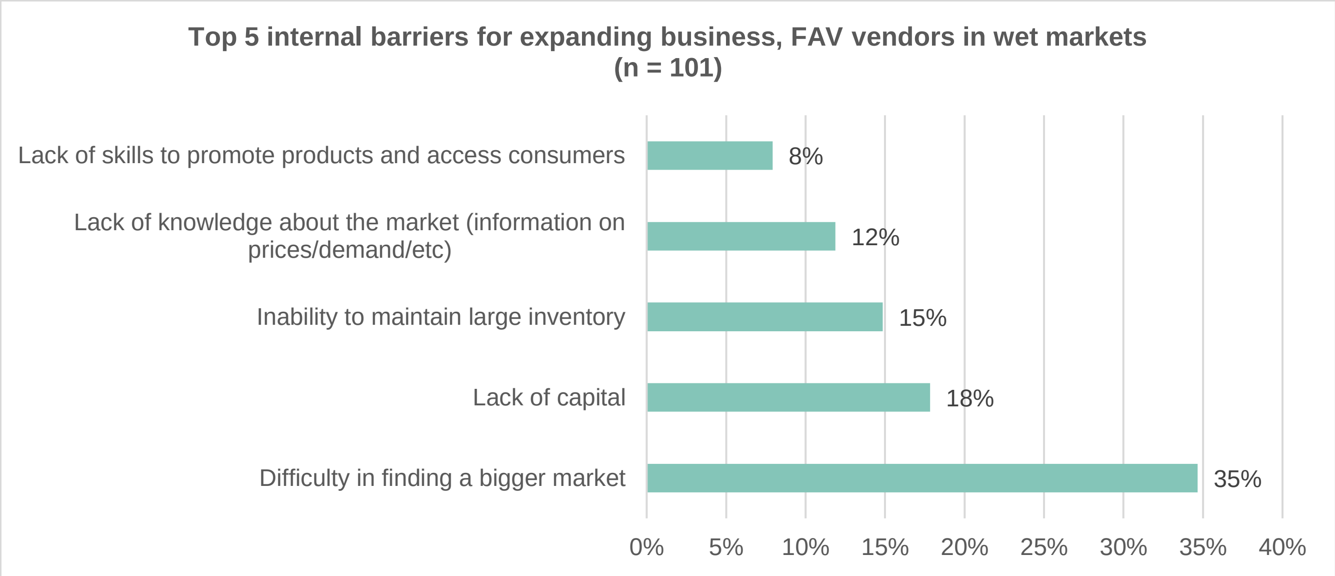


Figure C - 12: Top 5 internal barriers for expanding business, for local collectors

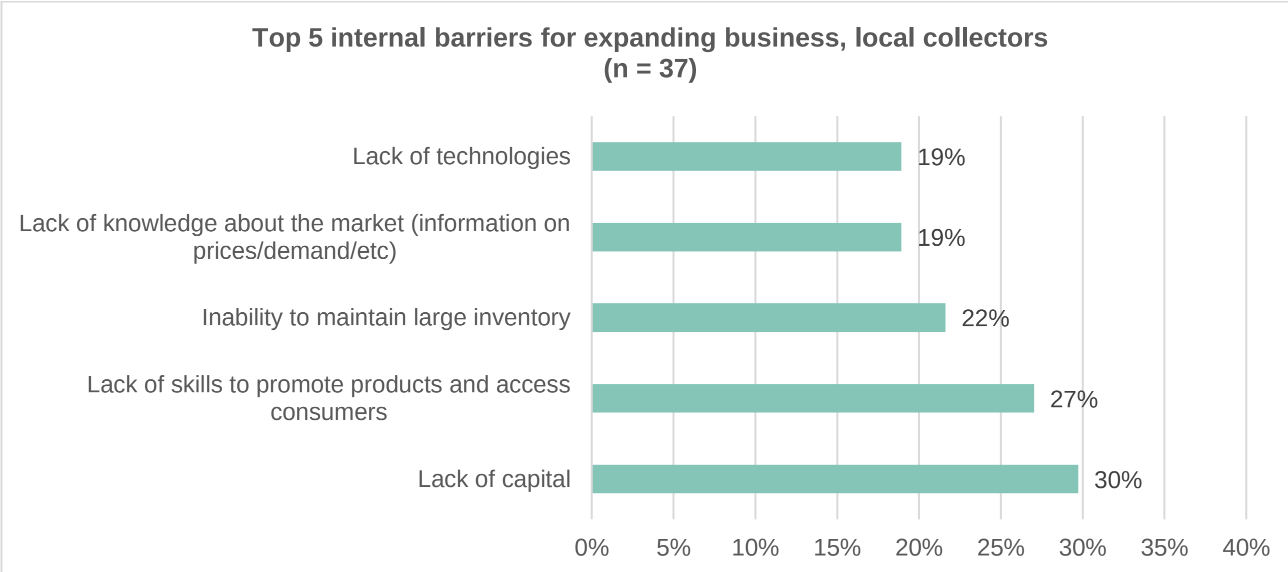


Figure C - 13: Top 5 external opportunities for expanding business, for FV vendors in wet markets

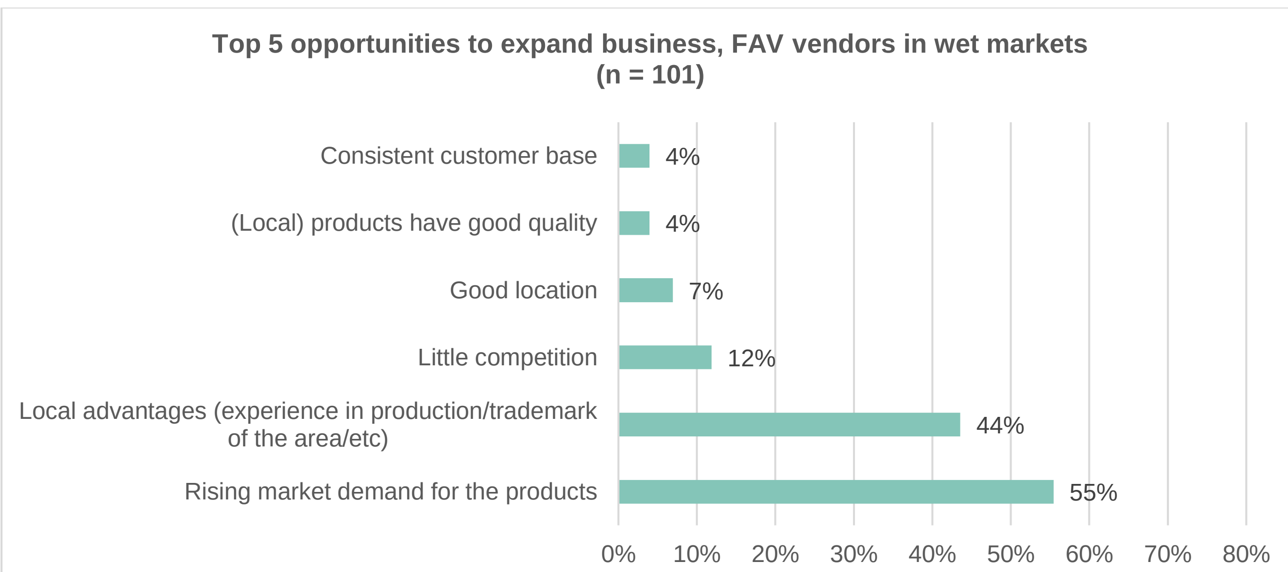


Figure C - 14: Top 5 external opportunities for expanding business, for local collectors

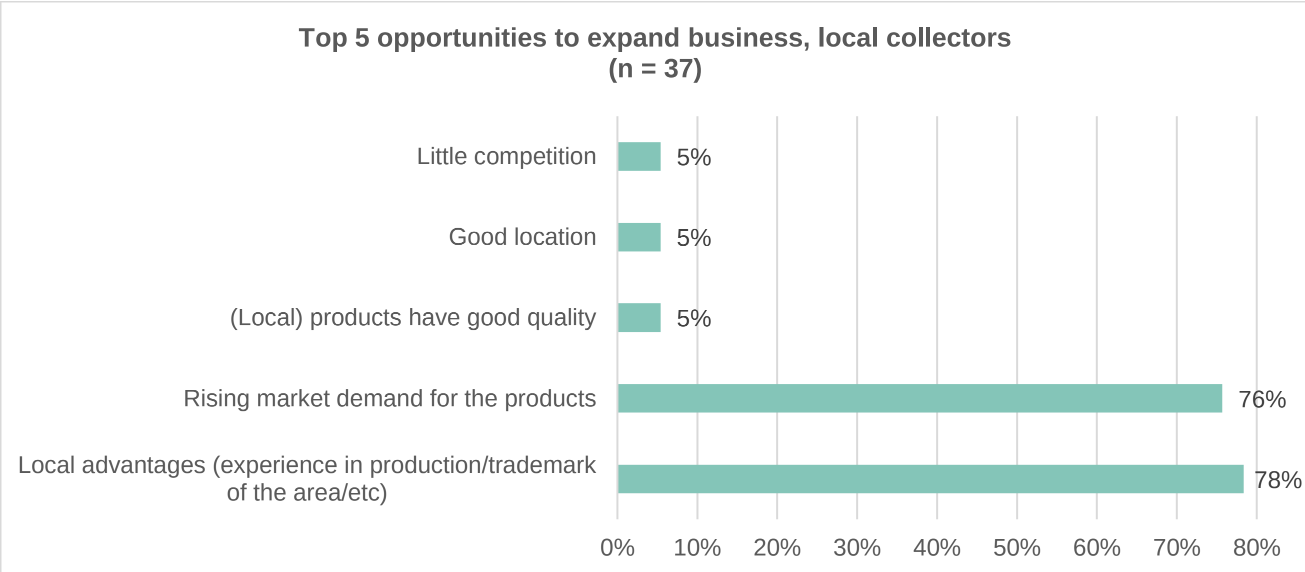


Figure C - 15: Top 5 internal opportunities for expanding business, for FV vendors in wet markets

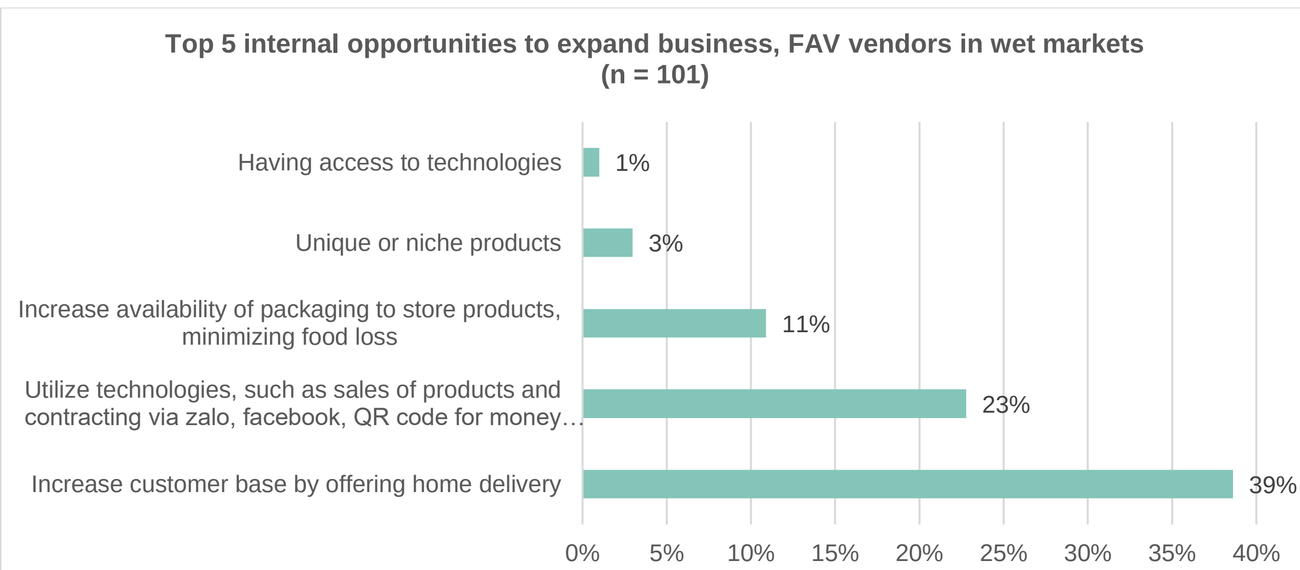
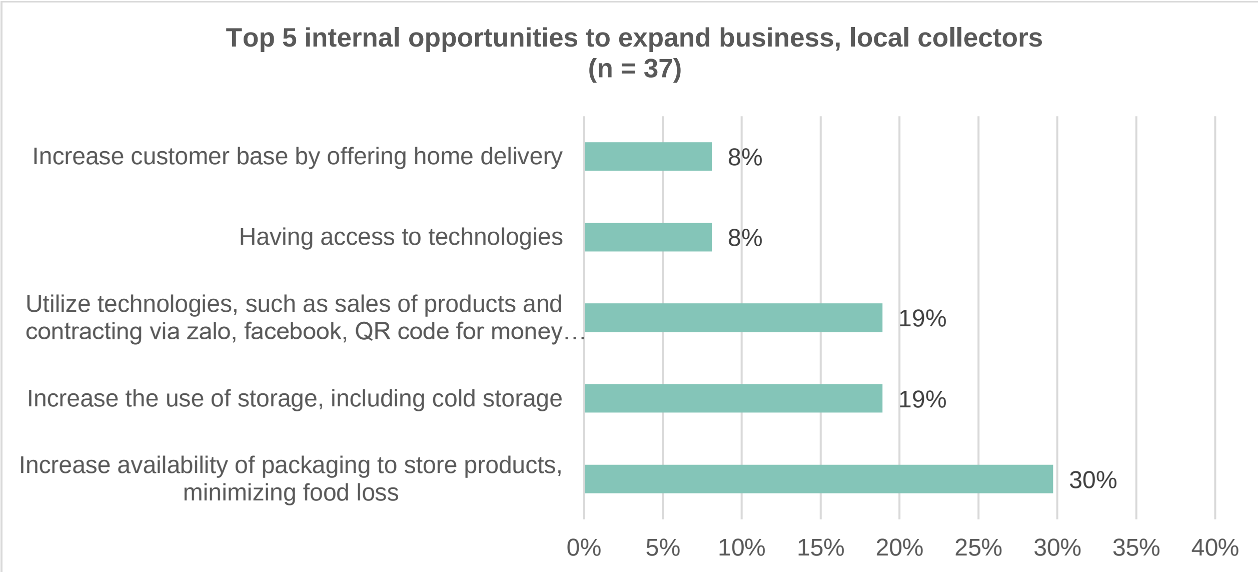


Figure C - 16: Top 5 internal opportunities for expanding business, for local collectors



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INTERNATIONAL FOOD POLICY RESEARCH INSTITUTE

1201 EYE ST., N.W., WASHINGTON, D.C. 20005 USA