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Healthy Diets and the Role of Micro, Small, and Medium Enterprises

Examining Ethiopia's Food Environment

Alan de Brauw

Kalle Hirvonen

Markets, Trade, and Institutions Unit
Poverty, Gender, and Inclusion Unit

INTERNATIONAL FOOD POLICY RESEARCH INSTITUTE

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AUTHORS

Alan de Brauw (a.debrauw@cgiar.org) is a Senior Research Fellow in the Markets, Trade, and Institutions (MTI) Unit at the International Food Policy Research Institute (IFPRI), Washington, DC.

Kalle Hirvonen (k.hirvonen@cgiar.org) is a Senior Research Fellow in IFPRI's Poverty, Gender, and Inclusion (PGI) Unit, Washington, DC.

Abstract

Micro, small, and medium enterprises (MSMEs) play an important role in the food environment in many low- and middle-income countries. But there is little systematic knowledge about the opportunities they have and constraints they face in trying to grow their businesses. To contribute to building this knowledge base, we draw upon linked household–enterprise surveys collected in two districts in Ethiopia in 2023. To learn about the constraints faced by these enterprises, we examine differences in organizational characteristics and business practices by outlet type, location, and manager gender and education among MSMEs that sell food. The results suggest that while there are clear availability constraints for specific types of foods, there are some strategies that could help MSMEs that retail healthy foods increase sales. If policymakers or others are interested in supporting sales through the food environment, interventions such as business training, service access, and capacity building on nutrition would best fit their needs.

Keywords: Small and medium enterprises, food environment, retail, Ethiopia

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1. Introduction

Healthy diets are associated with a range of improved health outcomes, including lower risks of heart disease, cancer, and obesity (Forouzanfar et al. 2015). While the exact components of a healthy diet continue to be debated, most nutritional guidelines emphasize the importance of nutrient-dense foods such as whole grains, fruits, vegetables, legumes, and nuts, along with moderate consumption of animal-sourced foods (Herforth et al. 2019). Yet, despite broad agreement on the value of these foods, consumption levels in many countries remain well below recommended targets (Headey et al. 2024). In low- and middle-income countries (LMICs), consumers face multiple barriers to accessing healthy and nutritious foods – including low purchasing power, high food prices, and limited availability (Headey et al. 2019; Headey et al. 2024; Huelsen, Khonje, and Qaim 2024).

Challenges in access to healthy, micronutrient dense foods have prompted a growing body of research focused on understanding how food environments shape consumption choices and patterns (Brouwer et al. 2021; de Brauw et al. 2019). Food environments can be defined as all aspects of the local environment that shape the acceptability, accessibility, affordability, and availability of foods (e.g., Herforth and Ahmed 2015). For individual consumers, the local food environment is crucial to shaping diet quality, as consumers make choices framed by the food environment about what foods to obtain before they make decisions about what foods to consume. Policies that might help the sale of healthy foods, or that could constrain the sale of ultra-processed foods, could help improve the choice set faced by consumers as they choose what to eat.

An important part of the food environment are the places where consumers obtain foods, whether open air markets, different types of shops, or places that prepare food, such as street food vendors and restaurants. Such outlets can be thought of as the last step in the food system before food is actually consumed. If policy makers are interested in improving dietary outcomes, food outlets are likely to play an important role in catalyzing those changes. Understanding the role of these outlets is crucial for policy because they represent the immediate interface between consumers and the broader food system. Interventions at this level – such as improving the availability and affordability of nutrient-rich foods, regulating the marketing and placement of ultra-processed products, or supporting small retailers who sell healthy foods – can directly influence consumer choices and dietary outcomes. Policies targeting food outlets therefore offer a practical and

scalable means of improving diet quality, particularly in settings where consumers face structural constraints in accessing healthy foods.

In LMICs, consumers across both rural and urban settings typically obtain healthy and nutritious foods from open markets and small-scale vendors (Sibhatu and Qaim 2017; FAO et al. 2023; Dzanku, Liverpool-Tasie, and Reardon 2024). The vendors in these markets and many of the other businesses that sell food are often micro, small, and medium enterprises (MSMEs). Recent evidence from Viet Nam shows that the majority of food purchases across all food groups are made at MSMEs, with over 80 percent of household food expenditures going to these vendors across rural, peri-urban, and urban settings (Ceballos et al. 2025). While the Ceballos et al. study use similar data collection methods as in this study, other authors have found consistent information using other methods. For example, Ambikapathi et al. (2021) describe food vendors in a peri-urban neighborhood in Dar es Salaam, Tanzania, showing that many vendors selling healthier foods are informal, micro-enterprises, and in fact many are mobile. Downs et al. (2024) find that "healthy" foods are often found in open air markets in Nigeria and Timor Leste, while small groceries and supermarkets are more likely to sell them in Honduras, and they find a great deal of variation in Liberia.[1] Despite their central role in the provision of healthy foods, relatively little is known about how MSMEs operate or what factors drive variation in their business practices. To be able to effectively intervene in the food environment to improve diet quality, it is important to better understand this variation.

Like many countries in sub-Saharan Africa, Ethiopia is undergoing a rapid food systems transformation, shaped by economic growth and changing consumer preferences. Dietary patterns are shifting – particularly in urban and peri-urban areas – towards increased consumption of oils, fats, animal products, and processed foods (Worku et al. 2017). These shifts are contributing to a rising public health burden, including increases in overweight, obesity, and non-communicable diseases (Baye and Hirvonen 2020). Meanwhile, prices for legumes and nuts, vitamin A rich fruits and vegetables, and animal source foods have been rising in Ethiopia relative to grains, roots, and

[1] While vendors in open air markets can certainly be categorized as MSMEs, in other countries they study more information would be needed to categorize these retailers.

tubers, which would drive consumer choices away from those foods (Ameye, Bachewe, and Minten 2021).

Given their dominant role in the food supply chain and their potential to influence diet quality at scale, understanding how MSMEs operate is critical for informing efforts to improve nutritious choices faced by consumers in Ethiopia's rapidly evolving food system. Therefore, in this paper we use primary data to examine important differences in organizational structures and business practices among MSMEs operating in Ethiopia's food environment. The objectives of the paper are to understand how these heterogeneous businesses operate, what constraints they face, and to identify important sources of variation in their business practices. We then explore the implications of these results for the design of interventions that can help improve the accessibility of healthier food choices for Ethiopian consumers. In doing so, the analysis can help practitioners and policymakers better design interventions that lead to improved acceptability, accessibility, affordability, and availability of nutrient dense foods.

2. Data and methodology

2.1. Data

The data used in this paper originate from an in-person survey conducted with more than 1,500 MSMEs in two Ethiopian district (*woredas*): Woreda 8 in Kolfe Keranyo, located within Addis Ababa, and Butajira town in the Central Ethiopia Regional State. The former represents an urban area, while the latter is peri-urban, and both represent areas being covered by the Seqota Declaration in Ethiopia.[2] The main data set used in this paper was part of an effort to collect data that allow us to better understand the way consumers, and particularly adolescents, interact with their food environment. From the perspective of the food environment, a listing exercise was completed to capture basic information about all the businesses selling food within the geographies selected for the survey. From that listing exercise, the MSME survey was conducted among a randomly selected subset of businesses; the subset dropped supermarkets, vendors selling only

[2] The Seqota Declaration represents a fifteen-year commitment by the Government of Ethiopia, between 2016 and 2030, to end malnutrition among children (Sinamo and Zelalem 2022). Functionally, a set of woredas has been selected as targets for intervention to expand its reach between 2021-2025 before a national scale up in 2030. While Butajira was not an expansion phase woreda, our preliminary fieldwork found that people in the surrounding areas traveled to Butajira to purchase food, and those woredas were all expansion phase woredas.

cereal-based foods (e.g., bakeries), and mobile street vendors.[3] From these lists, MSMEs were randomly selected for inclusion in the sample, targeting 900 vendors in each district.

The MSME survey took place between October and November 2023, and 1806 firms were interviewed in total. The number of eligible vendors in the survey site in Addis Ababa fell short of the target of 900. Instead, only 732 vendors were interviewed. This shortfall was compensated for by increasing the sample size in Butajira, where the survey team completed 1,074 vendor interviews. For the purposes of this paper, we exclude 120 businesses from the analysis because a) they are government owned outlets; b) cooperatives; or c) have more than 100 full-time employees. The final sample used in the analysis is formed of 1,686 outlets, which satisfy the definition of MSMEs for this paper.

For clarity of exposition, we group these 1,686 outlets into four groups: kiosks or other small shops, street sellers, restaurants, and juice shops (Table 1). We retain juice shops as a separate category despite their small share (3 percent) because they sell freshly made juices along with fruits and vegetables, which makes their product offerings distinct from the other retail categories. We drop supermarkets because they are unlikely to be MSMEs, and we drop mobile street vendors as they would be difficult or impossible to find for a follow-up. Based on these adjustments, the data reveal that kiosks/small shops are the dominant form of MSMEs, constituting 68 percent of all outlets, followed by restaurants (16%) and street sellers (13%), with juice shops at 3 percent. These three main outlet types represent over 95 percent of the sample. In terms of regional distribution, 81 percent of kiosks/small shops are in Butajira, whereas restaurants are more evenly distributed between the two sites (18% in Addis Ababa and 15% in Butajira).

[3] Downs et al. (2025) provide an alternate method of measuring food environments; the development of their method and this one were concurrent.

Table 1. Outlet types, by survey site

	Total		Addis Ababa (Urban)		Butajira (Peri-urban)	
Outlet type	**N**	**%**	**N**	**%**	**N**	**%**
Kiosk/small shop	1,150	68.2	328	49.0	822	80.9
Street seller	221	13.1	180	26.9	41	4.0
Restaurant	265	15.7	118	17.6	147	14.5
Juice shop	50	3.0	44	6.6	6	0.6
Total	**1,686**	**100.0**	**670**	**100.0**	**1,016**	**100.0**

Among the 1,686 outlets surveyed, female ownership is more common, representing 58.5 percent of all sampled outlets (Table 2). Street sellers are overwhelmingly female owned (89 percent), while juice shops stand out as the sole category where male owners are more prevalent, accounting for 74 percent of owners. More than 50 percent of the kiosks or other small shops as well as restaurants in the sample are primarily owned by a woman.

Table 2. Gender of the primary owner, by outlet type

	Female owner		Male owner	
	N	**%**	**N**	**%**
Total	**987**	**58.5**	**699**	**41.5**
By outlet type:				
Kiosk/small shops	624	54.3	526	45.7
Street seller	196	88.7	25	11.3
Restaurant	154	58.1	111	41.9
Juice shop	13	26.0	37	74.0

Source: Primary survey data.

2.2. Methodology

Understanding how organizational characteristics and business practices vary by outlet type, location, and the gender of the owner(s) is key to designing more effective strategies for targeting businesses that could increase the availability of healthy foods. Yet, these factors are often interconnected, making it difficult to isolate their individual effects on the outcomes of interest. To assess the relative importance of each, we use a multivariable regression framework. This approach enables us to examine all three dimensions simultaneously – while accounting for other relevant variables – and answer questions such as: Does location still matter when we account for owner

gender and outlet type? Is gender still a significant factor after adjusting for location and outlet type? Or does outlet type play the largest role in shaping the outcomes?

We estimate the following equation:

$$y_{id} = \alpha + X'_{id}\beta + \epsilon_{id} \,, \tag{1}$$

where y_{id} is the outcome observed for outlet *i* located in district *d*. The analysis focuses on five categories of outcomes. First, employment outcomes include the total number of employees (excluding the owner), the number of full-time employees, and the number of part-time employees. Second, food product sourcing captures whether outlets source from short supply chains (own production or directly from producers) or medium supply chains (wholesalers); sourcing from long supply chains is excluded due to lack of variation, as all outlets rely on them to some extent. Third, financing outcomes cover the use of formal and informal credit, credit from suppliers, and whether customers are allowed to buy on credit. Fourth, formalization and business practices include whether the outlet is formally registered and the number of recommended business practices it follows.[4] Finally, nutrition knowledge and attitudes are measured using an index that reflects respondents' knowledge of nutrition[5] and their interest in selling more nutritious foods to customers.

X_{id} is a vector of binary independent variables, and β is the corresponding vector of coefficients. For location, we distinguish between outlets in urban districts and those in peri-urban districts, with the latter serving as the reference category. Gender of ownership captures whether the main owner is female, using non-female ownership as the reference. Outlet type is categorized as kiosk or small shop, street seller, and the reference category – restaurant or juice shop. The education

[4] The nine recommended business practices are: 1. Keeps records of revenues and costs for their business on a regular basis; 2. Records every purchase and sale made by their business; 3. Is able to use their records to easily see how much cash their business has on hand at any point in time; 4. Regularly uses their records to know whether sales of a particular product are increasing or decreasing from one month to another; 5. Has worked out the cost to you of each main product they sell; 6. Knows which food they make the most profit per item in selling; 7. Has a written budget, which tells them how much they must pay each month for rent, electricity, equipment maintenance, transport, advertising, salaries/wages, and other indirect costs of the business; 8. Reviews the financial performance of your business and analyze where there are areas for improvement at least once a year; 9. Saves surplus generated by the business for business emergencies.

[5] The questionnaire included a 10-item quiz designed to assess respondents' nutrition knowledge. Each correct response was awarded one point, and the total was used to construct an index.

level of the top manager is grouped into four categories: has not completed primary school (reference category), completed primary school, completed lower secondary school, and completed upper secondary school.

The term α is the intercept, capturing the average outcome for the reference categories of the independent variables. The error term (ϵ_{id}) captures unobserved factors that influence the outcome. As the binary independent variables may be correlated with the error term, we do not interpret the estimated coefficients β as causal effects.

We estimate equation (1) using ordinary least squares (OLS) estimator, with standard errors adjusted for heteroskedasticity of unknown form following White (1980). Table A1 in the appendix reports descriptive statistics for all dependent and independent variables. Figures A1 to A5 show the full distributions of the non-binary dependent variables: number of employees (Figure A1), number of full-time employees (Figure A2), Number of part-time employees (Figure A3), number of recommended business practices performed by the outlet (Figure A4), and nutrition knowledge score (Figure A5).

3. Results

3.1. MSMEs relevance in the Ethiopia food environment

We begin by illustrating the role of MSMEs in Ethiopia's food environment. To do this, we use consumption data from a survey of 1,921 households with adolescents, conducted concurrently with the MSME survey in the same two districts. The household survey included a standard 7-day recall module, which asked respondents to report the type of outlet from which each food item was purchased. While the original module covered 149 food items, we group them here according to the Global Dietary Quality Score (GDQS) categories (Bromage et al. 2021). The values in columns 1 and 3 of the table show the share of households that purchased items from each GDQS+ food group in Addis Ababa and Butajira, respectively. These figures represent typical household purchasing behavior within the sample; they suggest that some categories of more nutrient dense foods, but several are rarely purchased (e.g., fish, poultry).

Conditional on purchasing a food within a food group, columns 2 and 4 show the share of households purchasing each food from a MSME. For all the foods that are not extremely rarely purchased, between 80 and 100 percent of purchases are made from MSMEs. These figures

highlight the importance of MSMEs in the food environment in urban and peri-urban Ethiopia; consumers clearly depend upon them for almost all the more nutrient dense foods they purchase.

Table 3. Share of households purchasing from different food groups

Food Group	% purchasing, Addis Ababa (Urban)	% purchasing from MSMEs, Addis*	% purchasing, Butajira (Peri-urban)	% purchasing from MSMEs, Butajira*
Citrus Fruits	24.1	85.6	40.7	95.1
Orange Fruits	8.0	87.0	19.7	84.2
Other Fruits	49.3	93.6	69.8	91.6
Legumes	56.5	93.0	61.7	81.1
Green Leafy Vegetables	59.9	98.6	93.3	100
Cruciferous Vegetables	1.2	100	0.5	60.0
Orange Vegetables	40.0	97.6	62.6	99.6
Other Vegetables	91.2	96.4	97.6	99.7
Nuts, Seeds	1.2	100	2.2	100
Whole Grain	4.0	100	16.5	97.5
Liquid Oil	16.2	83.9	33	76.4
Fish	0.2	50	0.5	80
Poultry	0.1	100	0.8	87.5
Eggs	22.1	95.2	31.3	87.3

*Notes: MSME stands for micro-, small-, and medium-sized enterprises. Sample in Addis Ababa is in Woreda 8, Kolfe Keranyo. * = The percentage purchasing from MSMEs is conditional on purchasing in the first place.*

3.2. Employment outcomes

We first assess differences in outcomes related to employment among outlets (Table 4). We focus on the number of employees, the number of full-time employees, and the number of part-time employees; we exclude the owner in all cases. The average outlet in our sample employs 3.2 workers, out of which 1.4 are full-time workers and 1.8 are part-time workers (Table A1 in the appendix). Many of the MSMEs do not have full-time employees at all. About 21 percent of the MSME workforce are between 15 and 24 years of age and the rest are over 24 years of age.

In estimating equation (1) using the number of employees as the dependent variable, we find statistically significant variation by location, gender of the owner, outlet type, and the education level of the top manager. Outlets located in urban districts employ, on average, 1.4 fewer workers

than those in peri-urban areas, holding other factors constant. Female-owned MSMEs employ 1.8 fewer workers than male-owned ones, holding other factors constant. Outlet type is also strongly associated with employment levels: kiosks or small shops employ 6.5 fewer workers, and street sellers 5.5 fewer, compared to restaurants or juice shops (the reference category). These patterns are consistent when focusing full-time (column 2) and part-time (column 3) employees separately.

We also find that the education of the top manager is positively associated with employment, but only among managers with upper secondary education. Outlets managed by individuals with this level of education have, on average, 2.3 more employees than those managed by individuals who have not completed primary school.

Taking these findings together, they point to some potential policy entry points for supporting employment among MSMEs in the food retail sector. Urban outlets employ fewer workers than peri-urban outlets, suggesting that high operating costs or space constraints may limit job creation in cities. Female-owned MSMEs employ fewer workers than male-owned ones, highlighting persistent gender barriers that could be addressed through better access to credit and business support. Finally, the positive link between manager education and employment suggests that strengthening vocational and business training could help enhance MSME growth and job opportunities.

Table 4. Regression results for employment outcomes

	(1) Number of employees w/o owners	(2) Number of full-time employees w/o owners	(3) Number of part-time employees w/o owners
Location:			
Urban district	-1.366***	-0.768***	-0.598***
	(0.407)	(0.208)	(0.202)
Peri-urban district	(reference)	(reference)	(reference)
Owner's gender:			
Main owner is female	-1.827***	-0.921***	-0.906***
	(0.382)	(0.195)	(0.189)
Main owner is male	(reference)	(reference)	(reference)
Outlet type:			
Kiosk or small shop	-6.470***	-3.227***	-3.243***
	(0.940)	(0.474)	(0.468)
Street seller	-5.479***	-2.915***	-2.564***
	(0.589)	(0.301)	(0.291)
Other outlet type (Restaurant or Juice shop)	(reference)	(reference)	(reference)
Top manager's level of education:			
Less than primary school completed	(reference)	(reference)	(reference)
Primary school completed	0.249	0.145	0.103
	(0.198)	(0.111)	(0.094)
Lower secondary school completed	0.151	0.090	0.061
	(0.232)	(0.130)	(0.111)
Upper secondary school completed	2.258***	1.171***	1.087***
	(0.558)	(0.286)	(0.277)
Intercept	9.305***	4.499***	4.807***
	(1.165)	(0.588)	(0.580)
Observations	1,686	1,686	1,686

*Note: Heteroskedasticity robust standard errors in parentheses. Statistical significance denoted with * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.*

3.3. Sourcing of food products

We next assess variation in sourcing patterns across MSMEs. The survey asked MSMEs to identify how they obtained their most valuable food item. In Table 5, we explore sourcing patterns for those food products across MSMEs using two outcome variables: whether the outlet source their most important products directly from producers (column 1) and whether it sources from the wholesale market (column 2). About 30 percent of the outlets source some of their products directly from the producer while 67 percent source some of those products from the wholesale market (Table A1 in the appendix).

Outlets located in urban districts are significantly less likely to source directly from producers (36 percentage points lower) and also less likely to source from the wholesale market (26 percentage points lower) relative to those in peri-urban areas. This finding suggests that urban outlets are likely to rely more on longer supply chains or intermediaries than peri-urban ones, holding other things constant.

The type of outlet is also strongly associated with sourcing patterns. Kiosks and small shops are 16 percentage points more likely to source directly from producers and 25 percentage points more likely to source from the wholesale market compared to restaurants or juice shops. In contrast, street sellers do not differ significantly from the reference category in terms of sourcing behavior. Holding location and outlet type constant, we find no difference in sourcing behavior by gender.

Table 5. Regression results for sourcing of food products outcomes

	(1) Direct from Producer	(2) Sourced from the wholesale market
Location:		
Urban district	-0.362***	-0.256***
	(0.019)	(0.026)
Peri-urban district	(reference)	(reference)
Owner's gender:		
Main owner is female	0.035	-0.007
	(0.022)	(0.021)
Main owner is male	(reference)	(reference)
Outlet type:		
Kiosk or small shop	0.155***	0.249***
	(0.025)	(0.031)
Street seller	-0.007	-0.051
	(0.030)	(0.046)
Other outlet type (Restaurant or Juice shop)	(reference)	(reference)
Top manager's level of education:		
Less than primary school completed	(reference)	(reference)
Primary school completed	0.002	-0.007
	(0.028)	(0.030)
Lower secondary school completed	0.008	-0.036
	(0.032)	(0.032)
Upper secondary school completed	0.046	-0.039
	(0.033)	(0.034)
Intercept	0.317***	0.633***
	(0.037)	(0.041)
Observations	1,686	1,686

*Note: Heteroskedasticity robust standard errors in parentheses. Statistical significance denoted with * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.*

3.4. Financing practices

Next, we examine two financial practices across MSMEs: whether the outlet has or had access to formal or informal credit (Table 6, column 1), and whether the outlet allows customers to buy on credit (Table 6, column 2). A firm's level of formality influences its access to formal credit sources (Aga and Reilly 2011), while informal lending tends to rely on trust (Yimer 2024; Aga and Reilly 2011), often developed through repeated interactions with neighbors or regular customers. Overall, 61 percent of the outlets have access to formal or informal credit while 68 percent of outlets allow customers to buy goods on credit (Table A1 in the appendix).

We find that MSMEs in the urban district are 23 percentage points less likely to report access to formal or informal credit, and are 13 percentage points less likely to allow customers to buy on credit, relative to those in peri-urban areas, holding other factors constant. The lower access to credit among urban MSMEs may stem from the more fragmented and competitive environment of urban areas, where vendors are less embedded in strong social networks. Since trust is more difficult to build among networks, vendors may have fewer informal borrowing opportunities. Further, they lack access to formal credit, especially unregistered or semi-formal enterprises that lack the documentation or relationships needed to engage with financial institutions. Similarly, the lower likelihood of urban vendors allowing customers to buy on credit likely reflects the same underlying dynamic: in urban settings, vendor–customer interactions tend to be more transactional, with fewer personal ties. In contrast, peri-urban vendors often operate within tighter-knit communities, where repeated interactions and familiarity foster trust, making both informal credit access and customer credit more viable.

The type of outlet is also important in shaping financial practices. Street sellers are 13-percentage points less likely to have accessed formal or informal credit, but are 12-percentage points more likely to offer credit to customers, relative to restaurants or juice shops, while holding location and gender of ownership constant. Kiosks or small shops do not differ from the reference category in terms of credit access but are 20-percentage points more likely to let customers buy on credit.

Meanwhile, once we control for location and the type of outlet, credit access does not differ by the gender of the owner. Female-owned outlets are 5 percentage points more likely to allow customers to buy on credit, holding other factors constant. Finally, the educational attainment of the top manager shows mixed results. Compared to managers who have not completed primary school,

primary school completion is associated with a slightly lower likelihood of credit access (6 percentage points), while completing lower secondary school is associated with a 10-percentage point increase in the likelihood of offering credit to customers.

In sum, street sellers in the urban area, of both genders, are more likely to lack access to credit than other types of vendors.

Table 6. Regression results for finance practice outcomes

	(1) Has/had access to formal or informal credit	(2) Outlet lets customers buy goods on credit
Location:		
Urban district	-0.228***	-0.134***
	(0.026)	(0.026)
Peri-urban district	(reference)	(reference)
Owner's gender:		
Main owner is female	-0.008	0.050**
	(0.024)	(0.023)
Main owner is male	(reference)	(reference)
Outlet type:		
Kiosk or small shop	-0.014	0.199***
	(0.030)	(0.032)
Street seller	-0.129***	0.122***
	(0.046)	(0.047)
Other outlet type (Restaurant or Juice shop)	(reference)	(reference)
Top manager's level of education:		
Less than primary school completed	(reference)	(reference)
Primary school completed	-0.061*	0.047
	(0.034)	(0.034)
Lower secondary school completed	0.023	0.098***
	(0.036)	(0.036)
Upper secondary school completed	0.026	0.056
	(0.037)	(0.037)
Intercept	0.744***	0.504***
	(0.043)	(0.044)
Observations	1,686	1,686

*Note: Heteroskedasticity robust standard errors in parentheses. Statistical significance denoted with * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.*

3.5. Formalization and business practices

We next examine two outcomes related to formalization and business practices: whether the outlet has a tax registration number, and the number of recommended business practices the outlet follows (Table 7). We find that about 74 percent of the outlets report having a tax registration number, and that the average outlet follows 3.3 recommended business practices out of 9 (Table A1). The latter variable is associated with higher revenues in this sample (de Brauw et al., 2024).

Outlets in urban districts are 10 percentage points more likely to be formally registered relative to those in peri-urban areas (column 1), holding type of outlet and the gender of the owner constant. However, they perform significantly fewer business practices—on average, 0.70 fewer – suggesting that formal registration does not necessarily translate into broader engagement with good business practices. Female-owned outlets are nine percentage points less likely to be registered and perform, on average, 0.54 fewer business practices than male-owned ones, controlling for other characteristics.

There are notable differences across outlet types. Street sellers are 65 percentage points less likely to be registered[6] and perform 1.0 fewer business practices than restaurants or juice shops (the reference category). Kiosks and small shops do not differ significantly in terms of registration but perform 0.72 fewer business practices on average.

The education level of the top manager is positively associated with both outcomes. Compared to those who have not completed primary school, managers with upper secondary education are 10 percentage points more likely to be registered and perform 1.52 more business practices. Even completing primary or lower secondary school is associated with a significant increase in the number of practices performed, though the effects on registration are smaller.

These results highlight the importance of addressing both regulatory and capacity constraints facing MSME food outlets. While urban outlets are more likely to be formally registered, they are less likely to adopt good business practices. So formalization alone would appear to be insufficient for improving management quality. Second, we observe a large gap between male- and female-owned outlets, which may be partially due to disadvantages in access to information,

[6] Only 37 out of 221 (17 percent) of the street sellers interviewed reported to have a tax registration number.

training, or administrative support. Education appears to play a key enabling role, as better-educated managers are both more likely to be register and to follow recommended practices. Policies that pair simplified registration processes with targeted training – especially for women and less-educated entrepreneurs – could help strengthen business capabilities and promote more inclusive formalization.

Table 7. Regression results for formalization and business practices outcomes

	(1)	(2)
	Outlet has a tax registration number	# of Business practices performed by the outlet
Location:		
Urban district	0.104***	-0.700***
	(0.017)	(0.117)
Peri-urban district	(reference)	(reference)
Owner's gender:		
Main owner is female	-0.089***	-0.537***
	(0.019)	(0.108)
Main owner is male	(reference)	(reference)
Outlet type:		
Kiosk or small shop	-0.006	-0.716***
	(0.022)	(0.145)
Street seller	-0.654***	-1.020***
	(0.036)	(0.174)
Other outlet type (Restaurant or Juice shop)	(reference)	(reference)
Top manager's level of education:		
Less than primary school completed	(reference)	(reference)
Primary school completed	0.022	0.490***
	(0.028)	(0.119)
Lower secondary school completed	0.066**	0.693***
	(0.030)	(0.137)
Upper secondary school completed	0.098***	1.521***
	(0.030)	(0.157)
Intercept	0.800***	3.800***
	(0.033)	(0.182)
Observations	1,686	1,686

*Note: Heteroskedasticity robust standard errors in parentheses. Statistical significance denoted with * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.*

3.6. Nutrition knowledge and attitudes

Although a bit different than the variables we have measured to this point, we are also interested in whether they are interested in selling more nutrient dense foods, and we are interested in their nutritional knowledge. Managers of MSMEs may not be interested in selling more nutrient dense foods; if correlated with a specific type of manager, it could help target interventions related to building healthier diets. Second, we are interested in how much respondents know about nutrition. We asked each respondent a list of ten questions about micro- and macronutrient content of foods, and we sum the number of correct answers to make up a nutrition knowledge score.[7] 87 percent of respondents expressed interest in offering more nutrient dense foods, but the mean nutrition knowledge score in this sample is 5 out of 10, suggesting that knowledge about the nutrient content of foods can be improved (Table A1 in the appendix).

We find that outlets in the urban district are 6 percentage points more likely to express interest in offering more nutrient dense foods, compared to those in peri-urban areas, holding other things constant (Table 8, column 1). Kiosks and small shops are 5 percentage points less likely to report interest in offering more nutrient dense foods than restaurants or juice shops, and we find no difference by gender of owner. In sum, the interest in selling more nutrient dense foods is high, but slightly more concentrated among urban businesses and street sellers, restaurants, and juice shops.

We next examine nutritional knowledge (Table 8, column 2). We find that holding other things constant, respondents in urban areas score significantly lower –by 0.34 points – on the nutrition knowledge index, suggesting a gap between interest and actual knowledge. We also find street sellers score 0.47 points lower than other types of outlets on the nutrition knowledge index; again, the coefficient is statistically significant. Holding other things constant, we find no difference by the gender of the owner, but education is strongly and consistently associated with nutrition knowledge. Compared to managers who have not completed primary school, those with primary, lower secondary, and upper secondary education score significantly higher on the nutrition knowledge index by 0.41, 0.65, and 0.84 points, respectively. Only primary education is weakly

[7] The same list of questions was asked in the household survey.

associated with increased interest in offering nutritious foods (4 percentage points), while other levels show no statistically significant effect on this outcome.

To summarsize, while most MSME managers express interest in offering more nutrient-dense foods, limited nutrition knowledge may constrain their ability to do so effectively. The gap between high interest and lower knowledge, particularly in urban areas and among street sellers, points to a need for practical nutrition training and awareness programs. Strengthening managers' understanding of nutrient content and healthy food options could help translate interest into concrete business decisions and product offerings. Education emerges as a key lever – better-educated managers consistently score higher on nutrition knowledge – implying that efforts to improve basic and applied nutrition literacy among less-educated entrepreneurs could support broader dietary improvements through the food retail sector.

Table 8. Regression results for Nutrition knowledge & attitudes outcomes

	(1) Outlet interested in offering more nutritious foods	(2) Nutrition knowledge score
Location:		
Urban district	0.060***	-0.341***
	(0.018)	(0.094)
Peri-urban district	(reference)	(reference)
Owner's gender:		
Main owner is female	-0.007	0.143
	(0.017)	(0.087)
Main owner is male	(reference)	(reference)
Outlet type:		
Kiosk or small shop	-0.048***	0.076
	(0.019)	(0.108)
Street seller	-0.045	-0.469***
	(0.031)	(0.163)
Other outlet type (Restaurant or Juice shop)	(reference)	(reference)
Top manager's level of education:		
Less than primary school completed	(reference)	(reference)
Primary school completed	0.041*	0.412***
	(0.025)	(0.125)
Lower secondary school completed	0.013	0.645***
	(0.028)	(0.136)
Upper secondary school completed	0.042	0.839***
	(0.027)	(0.137)
Intercept	0.865***	4.600***
	(0.029)	(0.161)
Observations	1,686	1,686

*Note: Heteroskedasticity robust standard errors in parentheses. Statistical significance denoted with * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.*

4. Discussion and Conclusions

Food systems throughout the world are transforming with climate change, technological change, urbanization, and changing demographics throughout the world (e.g. Fanzo et al. 2017). As increasing numbers of consumers depend upon purchased foods, an improved understanding of the incentives faced by firms operating in the food environment is essential to ensure that consumers have access to the components of a healthy diet. In LMICs, MSMEs often play a primary role in providing healthier foods to consumers. Therefore, it is important to understand what factors might lead to better intervention design in LMICs, so policies or NGO interventions can be effective as they strive to increase the availability and affordability of healthier foods.

In this paper, we provide evidence on differences in specific organizational aspects and business practices among a sample of MSMEs operating in Ethiopia's food environment across three key dimensions: outlet type, location, and gender of the owners, relying on a large data collection exercise conducted in two districts along the rural-urban continuum in 2023, and specifically using linked household and MSME survey data. We show that indeed MSMEs are important sources of the building blocks of healthy diets in these two districts. MSMEs play a central role in shaping food access, as the vast majority of households – whether in urban or peri-urban settings – purchase healthier foods from these vendors.

Given that MSMEs are central to providing the components of a healthy diet to consumers, understanding the internal structure and behavior of MSMEs is key to identifying leverage points for improving food environments and promoting healthier diets. We explore these differences in a multivariable regression framework, considering the interrelationship between location, the type of outlet, and the gender and education level of the manager. This information can in turn be used to inform the development of more targeted interventions to increase the supply of healthy foods in the food environment.

The analysis reveals important heterogeneity in MSME practices across location, gender of ownership, outlet type, and manager education. Compared to peri-urban outlets, urban outlets tend to employ fewer workers, use longer supply chains, and show lower levels of engagement in business practices, despite being more likely to be formally registered. Female-owned enterprises, while equally likely to access credit, are less likely to be formally registered and tend to employ fewer workers and follow fewer good business practices. Outlet type is a strong predictor of

employment size, sourcing channels, and formality – restaurants and juice shops generally operate at a larger scale and are more engaged across these dimensions than kiosks or street sellers. Education emerges as a consistent correlate of stronger business practices, higher employment levels, and greater nutrition knowledge among managers.

In sum, the data suggest that improving the capability of managers of MSMEs – through targeted training, capacity sharing, and business support – can strengthen both firm performance and potentially the provision of healthier foods. As food system transformation in Ethiopia continues to evolve, supporting the growth and professionalization of MSMEs, particularly those operating in more informal or resource-constrained segments of the market, will be key to improving both economic and nutrition outcomes. Designing interventions that are tailored to local context and to the specific needs of women, less-educated managers, and smaller outlets can further enhance their effectiveness and ensure that gains in enterprise performance translate into higher incomes for retailers and broader improvements in diet quality.

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Appendix

Table A1. Summary statistics of the variables used in the analysis

	N	mean	SD	min	max
Dependent variables					
Employment outcomes:					
Number of employees w/o owners	1,686	3.189	7.518	0	140
Number of full-time employees w/o owners	1,686	1.405	3.847	0	70
Number of part-time employees w/o owners	1,686	1.784	3.720	0	70
Food product sourcing:					
Sourced directly from producer (0/1)	1,686	0.311	0.463	0	1
Sourced from wholesale market (0/1)	1,686	0.671	0.470	0	1
Financing outcomes:					
Has/had access to formal or informal credit (0/1)	1,686	0.614	0.487	0	1
Lets customers buy goods on credit (0/1)	1,686	0.683	0.465	0	1
Formalization and business practices:					
Outlet has a tax registration number (0/1)	1,686	0.744	0.437	0	1
# of recommended business practices performed	1,686	3.253	2.153	0	9
Nutrition knowledge and attitudes:					
Nutrition knowledge index	1,686	5.016	1.765	0	10
Interested in offering more nutritious foods (0/1)	1,686	0.872	0.334	0	1
Independent variables					
Urban district (0/1)	1,686	0.397	0.490	0	1
Peri-urban district (0/1) *(reference)*	1,686	0.603	0.490	0	1
Main owner of the MSME is female (0/1)	1,686	0.585	0.493	0	1
Main owner of the MSME is male (0/1) *(reference)*	1,686	0.415	0.493	0	1
Kiosk or small shop (0/1)	1,686	0.682	0.466	0	1
Street seller (0/1)	1,686	0.131	0.338	0	1
Restaurant or Juice shop (0/1) *(reference)*	1,686	0.187	0.390	0	1
Has not completed primary school (0/1) *(reference)*	1,686	0.211	0.408	0	1
Primary school completed (0/1)	1,686	0.324	0.468	0	1
Lower secondary school completed (0/1)	1,686	0.240	0.427	0	1
Upper secondary school completed (0/1)	1,686	0.226	0.418	0	1

Note: N = number of observations; SD = Standard error; MSME = micro, small, and medium enterprises; (0/1) = binary variable.

Figure A1. Distribution of total number of employees

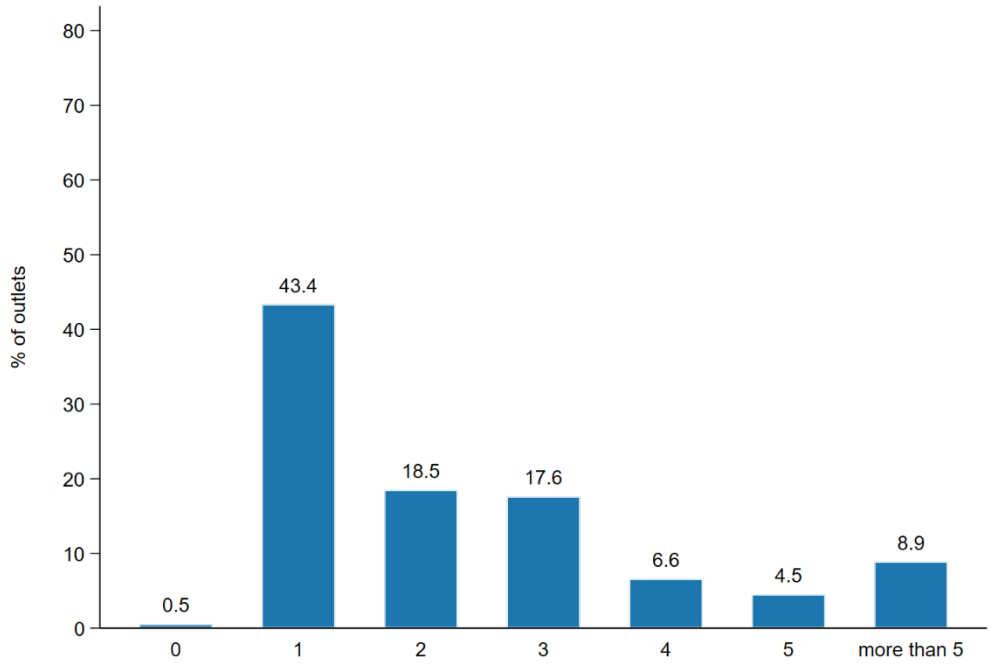


Figure A2. Distribution of number of full-time employees

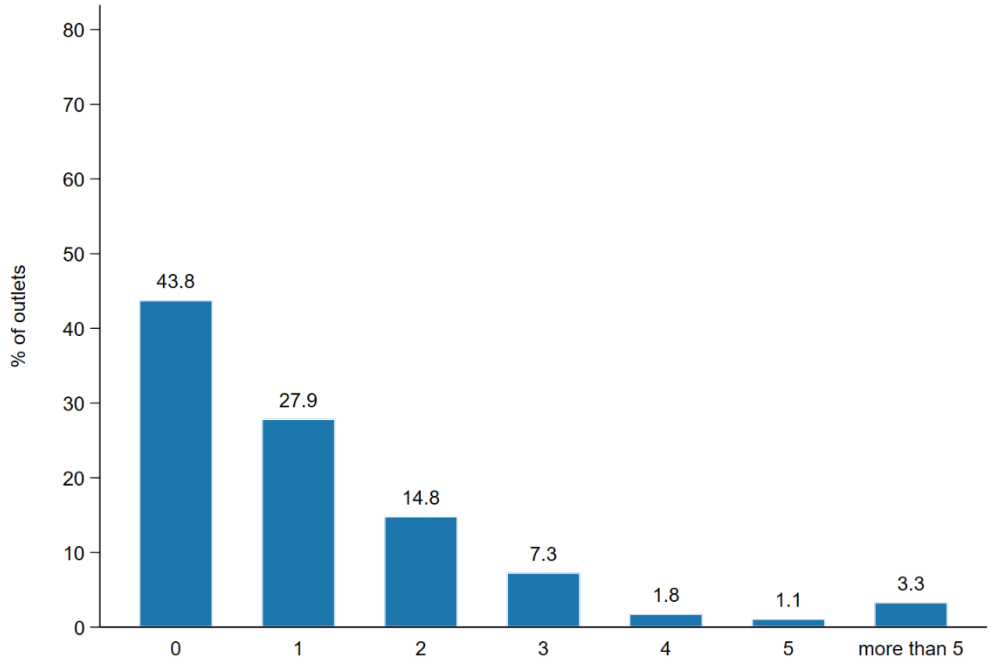


Figure A3. Distribution of number of part-time employees

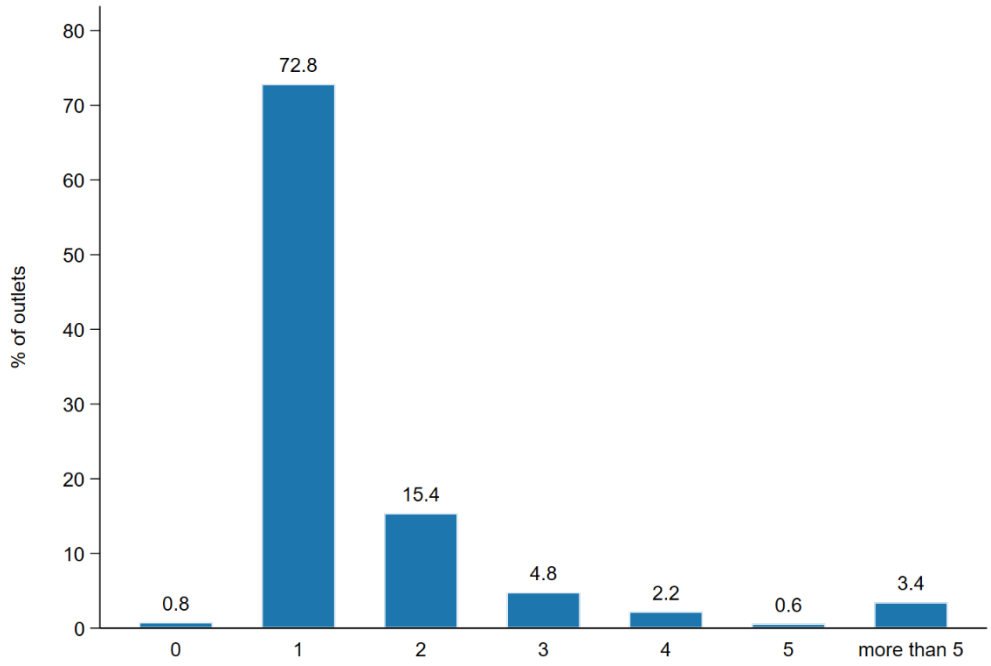


Figure A4. Distribution of number of recommended business practices followed by the outlets

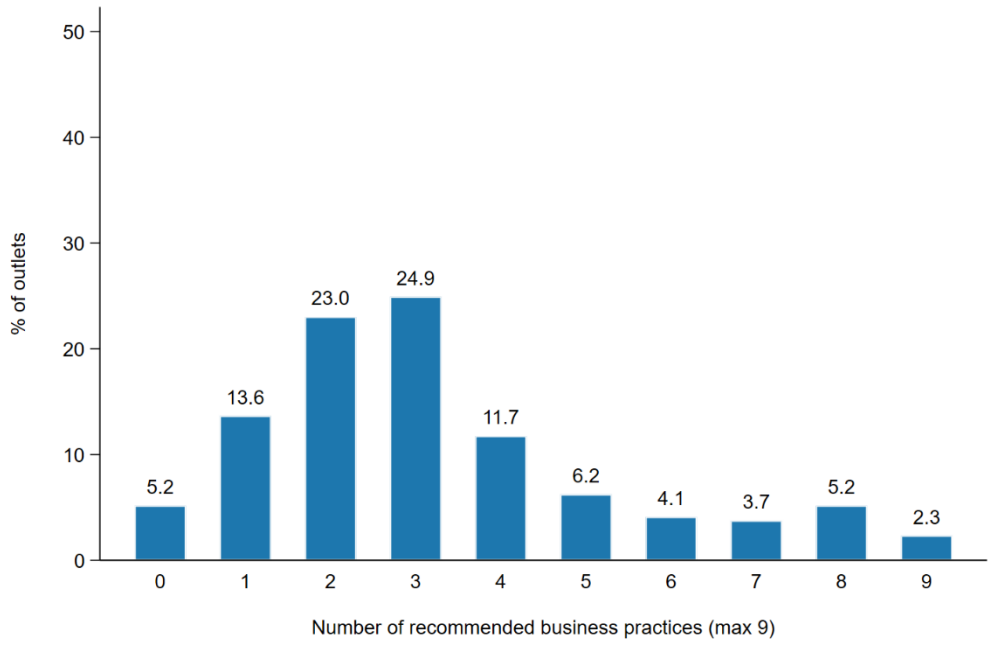
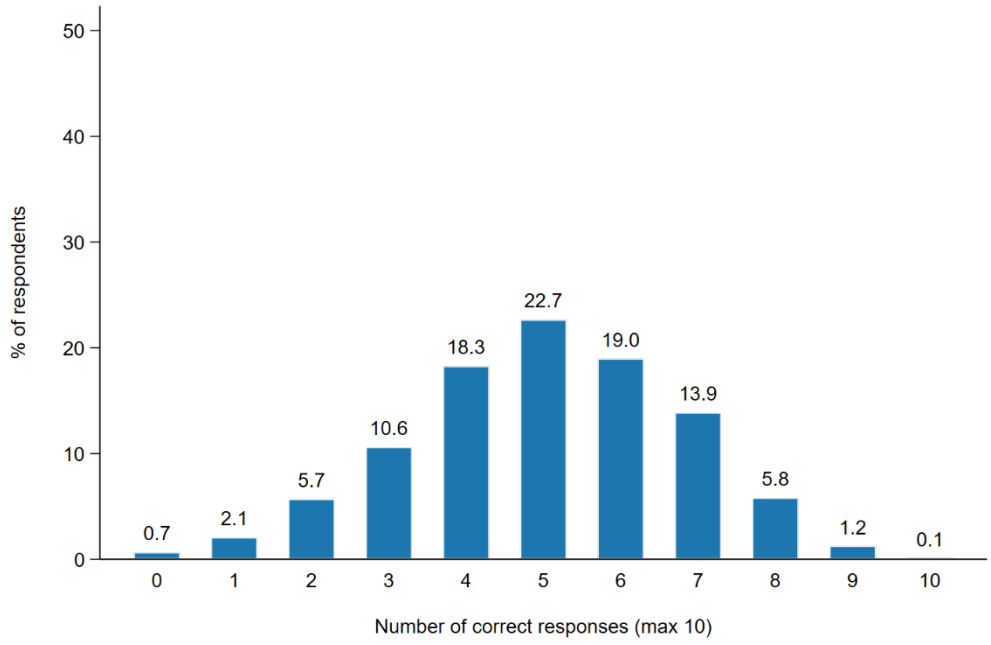


Figure A5. Distribution of nutrition knowledge score



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Tel.: +1-202-862-5600
Fax: +1-202-862-5606
Email: ifpri@cgiar.org