IFPRI Discussion Paper 02333

April 2025

Business Aspects along the Rural-Urban Continuum, Outlet type, and Gender of Ownership among MSMEs in the Vietnamese Food Environment

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Abstract

Concurrent with its rapid economic growth, Viet Nam has been experiencing a food systems transformation. Broad changes in the food environment have been a key part of this transition. While the availability of processed food is ubiquitous, the food environment continues to be largely dominated by micro, small, and medium enterprises (MSMEs). So, to build strategies to improve the availability and affordability of healthy foods, MSMEs are a key entry point. In this paper, we use primary survey data to separate key sources of variation in MSMEs' organizational dimensions and business practices by type of outlet, rural-urban location, and gender of the owners. We focus on outcomes related to employment, food sources, business finance, good business practices, and nutrition knowledge and attitudes. We find limited differences in this set of outcomes in terms of whether an outlet is located in a rural, peri-urban, or urban area, or in terms of the gender of its owners. Instead, most of the variation in outcomes can be linked to the type of outlet, raising specific types of outlets as a key focus when seeking to foster the supply of healthier foods in the food environment.

Keywords: MSMEs, Food Environment, Food Systems Transformation, Viet Nam

Acknowledgments

We thank Ricardo Hernandez of the Alliance of Bioversity and CIAT, Elodie Maitre d'Hôtel and Michaël Bruckert of Centre de Coopération Internationale en Recherche Agronomique pour le Développement (CIRAD), and Thanh Pham and Tran Ngoc Oanh of the Mekong Development Research Institute for their collaboration on the data collection, data analysis, and contributions that improved the survey forms used to generate these data. We also thank Dao The Anh and Pham Tho of the Viet Nam Academy of Agricultural Sciences for further discussions that have improved this paper, and Payal Soneja for research assistance. This work is part of the CGIAR Research Initiative on Sustainable Healthy Diets through Food Systems Transformation (SHiFT). This research is being implemented by CGIAR researchers from the International Food Policy Research Institute (IFPRI), the Alliance of Bioversity International and the International Center for Tropical Agriculture (the Alliance), and the International Potato Center (CIP) in close partnership with Wageningen University and Research (WUR). We would like to thank all funders who supported this research through their contributions to the CGIAR Trust Fund: https://www.cgiar.org/funders/.

1. Introduction

In parallel with other Low- and Middle-Income Countries, Viet Nam has been undergoing a rapid food systems transformation. Diets have also been rapidly changing, from being rich in starchy staples to being characterized by higher consumption of animal source foods, ultra processed foods, and sweetened beverages. While the current direction of food systems transformation has led to a reduction in food insecurity, concerns have been raised about overall diet quality, given the increase in overweight and obesity rates among children, adolescents, and adults (Raneri et al. 2019, Van Minh et al. 2023, Pham et al. 2023). A changing food environment has been identified as a key determinant of dietary changes, and therefore the food environment is potentially a good entry point for interventions stimulating healthier food choices (Pingault et al., 2017).

With the rapid economic growth, the Vietnamese food environment has undergone substantial change over the past three decades. Especially in urban areas, modern food shops and food service shops (cafes, diners, and restaurants) have been introduced to cater to changing consumer preferences (Nguyen et al, 2021). This transformation has taken place without much of the "supermarket revolution" that may have taken place in other Asian countries (e.g., Reardon, Timmer, and Minten, 2012). Instead, the Vietnamese food environment is still largely dominated by micro, small, and medium enterprises (MSMEs), with a large majority of households regularly procuring most of their foods in them (Yasmeen et al. 2018; Ceballos et al. 2023a). Assessing MSMEs' potential role in improving the availability and affordability of healthy foods thus seems an important starting point to revert the trends of decreasing diet quality and increasing obesity rates (Nguyen et al. 2024).

This paper explores key sources of variation in specific organizational dimensions and business practices among MSMEs operating in Viet Nam's food environment. Specifically, we separate variation in those characteristics by the type of outlet, its location across the rural-urban continuum, and the gender composition of the outlet's owners. Rural-urban disparities are large in Viet Nam. Undernutrition has become mainly a rural problem, and diets differ between rural and urban areas with urban residents eating less rice and more animal source foods (NIN et al. 2014, World Bank 2016). The gender perspective is incorporated following a long literature on gender aspects of business ownership, which has often focused on the differential characteristics of outlets partly or fully owned by women in relation to those fully owned by men.[1]

Understanding the variation in organizational dimensions and business practices among MSMEs, whether by location, business type, or gender of the owner, is helpful for developing ways to target interventions for increasing the availability and affordability of healthy foods. The ultimate goal is to provide a roadmap that allows targeting specific interventions at well-defined groups of MSMEs. By identifying common constraints to growth and profitability among different groups of businesses along one or more dimensions including rural-urban location, outlet type, and gender of ownership, interventions can be designed that both remove or reduce the constraints for that group and foster their supply of healthy foods.

The paper uses data collected in Viet Nam in 2023, as part of an exercise specifically designed to learn more about how food is retailed to consumers, focusing on MSMEs. Initially, a census of all

[1] See Kevane et al. (2021), Love et al. (2023), and Siegrist (2022) for recent reviews, and Kawarazuka et al. (2018) and van den Berg (2023) for the Viet Nam context in particular.

outlets selling foods was conducted in selected wards of three districts, selected to represent a rural-urban transect of Viet Nam's food system. The data collection effort first classified food outlets into different types. Subsequently, a longer survey targeted a subset of outlet types from the census considered highly likely to be an MSME and to be likely already selling or willing to sell healthy foods. This MSME survey inquired about numerous topics including employment, business practices, financial information, and knowledge and attitudes around nutrition. The respondents for this survey were almost always either an owner (92.6 percent) or a manager (5.7 percent) of the outlet.

The paper is organized as follows. The next section describes the context and discusses to what extent it makes sense to focus on MSMEs in the food environment. Section 3 introduces the data and outlines the overall methodology followed to analyze the difference in outcomes across outlet types, location, and gender of ownership. Section 4 presents the results and Section 5 concludes.

2. MSMEs relevance in the Viet Nam food environment

The focus on MSMEs allows for a certain class of interventions that is simply not possible with larger businesses, which often involve complex decision structures involving several people or, in the case of franchises, are subject to strict rules and processes. Such an exclusive focus on MSMEs, however, can be limiting, so in order to gauge whether it constrains the generalizability of our analysis we begin by exploring, using primary data, the importance of MSMEs in the food environment and the extent to which consumers purchase their foods from these.

First, we rely on the census data to calculate, for each location (rural, peri-urban, and urban), the fraction of outlets that are likely MSMEs out of the universe of outlets selling foods. We do this based on the type of outlet, excluding for example supermarkets, convenience stores that are part of a chain, and bars.[2] We focus on the *number* of outlets—instead of on other potential measures such as physical outlet space or volume of sales—because our interest ultimately lies in the availability of foods from the perspective of consumers, which depends more on the presence of outlets selling those foods in the food environment than on these alternative dimensions.[3] Panel A in Table 1 shows that a minimum of 94.2 percent of the total outlets in the food environment of the three surveyed wards are most probably MSMEs, though this is slightly lower in the rural ward (at 91.8 percent).[4]

To study which types of outlets consumers frequent for their food purchases, we rely on consumption data from 2,829 households with adolescents collected at around the same time as the MSME survey in the same three districts. These data list all foods purchased by the household in the past 7 days,

[2] The eight outlet types (out of the 16 types available in the census data) considered to be likely MSMEs (and later confirmed to be so) were: Convenience store (not part of a chain); Food stall/stand/tabletop inside toad market; Food, beverage stall, tabletop; Mobile vendor; Non-fast food restaurant; Coffee/fresh juice shop; Bubble tea store; Non-convenience food store (fruit store, butcher, etc.).

[3] For a more detailed analysis of the extent to which different outlet types offer different groups of nutritious foods see Hernandez and Nguyen (2024).

[4] While all the interviewed outlets in the MSME survey were confirmed to be MSMEs according to a Viet Nam labor-based definition (classifying enterprises with fewer than 200 employees as such), since the data for the table come from the census (where we did not inquire about employment among interviewed outlets) we cannot confirm that they are all indeed MSMEs.

including the quantity, total purchase value, and the type of outlet where each food item was purchased from. Panel B in Table 1 shows the fraction of total household expenditures in a given food group that were reported as made at MSMEs.[5] Reassuringly, and in line with the ubiquity of MSMEs in the food environment shown in Panel A, the large majority of food purchases across all food groups were made at MSMEs. The proportion varies, however, across districts and food groups, with MSMEs being particularly important in urban areas for the purchase of eggs, fish and meats (with 92-94 percent of households' purchasing in these food groups happening at MSMEs), and in rural areas for the purchase of nuts and seeds, prepared foods, and oils and fats. Even when it comes to food groups that are relatively unhealthy, such as grains and baked goods, sugar-sweetened beverages, and sweets and ice cream, expenditures are also predominantly made at MSMEs in both rural and peri-urban areas, though less so in urban areas, presumably due to the presence of more convenience stores, fast food restaurants, and supermarkets.

Table 1. Importance of MSMEs in the food environment

Panel A. Percentage of outlets that are likely an MSME

	Rural (Mộc Châu)	Peri-urban (Dông Anh)	Urban (Dông Da)	Total
Total number of outlets	1,155	1,228	3,811	6,194
Percent within MSME categories	91.8	95.7	94.6	94.2

Panel B. Share of food expenditures purchased from MSMEs, by food group

Food group	Rural (Mộc Châu)	Peri-urban (Dông Anh)	Urban (Dông Da)
Dairy	74.1	77.6	50.1
Eggs	82.1	78.8	92.2
Fish and meat	90.2	94.7	94.4
Fruits, Vegetables, Legumes	93.5	92.3	91.2
Nuts and seeds	95.6	91.8	88.7
Prepared food and fresh juice	93.0	93.4	78.0
Oils and fats	96.2	93.3	79.1
Grains and baked goods	91.5	79.4	68.4
Sugar-sweetened beverages	86.4	86.5	62.2
Sweets and ice cream	94.3	83.7	57.4
Others	95.6	88.8	81.5

Note: The table shows the percentage of outlets that are likely an MSME across the food environment in the sampled rural, peri-urban, and urban areas in Viet Nam (panel A) and the average share of expenditures in a given food group purchased from outlets likely to be an MSME, across all households interviewed at each of the three survey locations (panel B). The data for panel A come from SHiFT's Viet Nam short audit survey and the one for panel B come from SHiFT's Viet Nam household food consumption survey.

[5] The food groups are based on those in the Global Dietary Quality Score (GDQS). The values in the table correspond to average percentages across households, so they are indicative of the behavior of the average household in the sample but not of the overall market share of each outlet type across the different food groups.

3. Data and methodology

The sample for the MSME survey was drawn from the food outlet census, focusing on the eight outlet types considered highly likely to be MSMEs and likely already selling or willing to sell healthy foods. The sample was selected through stratified random sampling proportional to the outlet type distribution by location.[6] In case a business could not be interviewed, for example because it closed, could not be traced, or the owner refused to cooperate, it was replaced with a business of a similar type in the same or a neighboring ward. The final sample consists of 1,627 outlets across the three study areas.

For clarity of exposition, we aggregate the eight outlet types considered in the survey into four groups: restaurants, coffee shops, stores, and vendors, as indicated in the last column of Table 2. Vendors, generally defined, comprise almost two thirds of the outlets selling food in the selected districts, while stores (which includes both convenience stores and specialized stores such as dairy or meat shops common in Viet Nam) represent the second most common outlet type, at almost 20 percent of all outlets (though this is higher in rural Moc Châu, where they represent more than 40 percent of outlets in the food environment). Since vendors are usually specialized and sell only a narrow set of related foods, we rely on cluster analysis to divide them into identifiable types, resulting in five vendor groups: Fruit and vegetable (F&V) vendors, Meat vendors, Packaged goods vendors, Prepared foods vendors, and Others.[7] Overall, F&V vendors represent the largest fraction (40 percent) of vendors in the food environment, with prepared food vendors second in importance representing almost a quarter of all vendors.

Table 2. Distribution of outlets by type and location

	Total	Rural (Moc Châu)	Peri-urban (Dong Anh)	Urban (Dong Da)	Outlet types in the survey:
Overall	1,627	272	350	1,005	
Restaurants	184	26	8	150	Non-fast food restaurant
Coffee shops	130	9	6	115	Coffee/fresh juice shop; Bubble tea store
Stores	296	110	36	150	Convenience Store (not part of a chain); Non-convenience food store (fruit store, butcher, etc.)
Vendors	1,017	127	300	590	Food stall/stand/tabletop inside toad market; Food, beverage stall, tabletop; Mobile vendor
F&V vendor	441	71	195	175	
Meats vendor	150	23	37	90	
Packaged goods vendor	138	6	13	119	

[6] Ceballos et al. (2023a) describe in more detail the different data collection exercises, including sampling strategies, overall sample composition, and implementation of the different surveys.

[7] Ceballos et al. (2023b) describe in more detail the K-means partition-clustering methodology, based on the share of food items sold across general food groups, used to derive the five vendor groups.

Others vendor	55	9	18	28
Prepared-foods vendor	233	18	37	178

Note: The table shows the number of outlets under each category in the food environment across each of the three survey locations. The data come from SHiFT's Viet Nam MSME survey.

Panel A in Appendix Table A.1 shows descriptive statistics for the location, outlet type, and gender of ownership indicators. More than 60 percent of outlets in the sample are located in the urban district, with 17 and 22 percent of outlets located in the rural and peri-urban districts, respectively. In terms of gender of ownership, more than half of the interviewed outlets (57 percent) are fully owned by women, just 7 percent are fully owned by men, and the remaining 30 percent are owned by both men and women. The large majority of female- or male-owned outlets have only one owner, while most mixed-gender owned outlets have only two owners.[8]

Exploring differences in organizational dimensions and business practices between outlet types, location, and gender of the owner(s) is important to develop more targeted interventions to increase the supply of healthy foods in the food environment. However, these three aspects may be naturally interrelated and their direct effects on the analyzed outcomes confounded by each other. To understand the relative contribution of each of these aspects in explaining the observed variation in outcomes we rely on a multivariate regression framework. Simultaneously controlling for these, in addition to other control variables, allows us to answer questions such as: Does an outlet's location matter once we control for gender of owner and business type? Does the gender of the owner/s matter once we control for outlet type and location? Or is the outlet type the most important aspect behind the variation in outcomes?

We use the following framework to assess differences in organizational dimensions and business practices across outlet types, outlet location, and gender of ownership, while accounting for other variables potentially linked to the observed outcomes. In particular, we estimate the following equation:

$$y_{id} = \sum \alpha_t \, OT_{id}^t + \beta_{PU} PU_{id} + \beta_U U_{id} + \beta_{OM} OX_{id} + \beta_{OW} OW_{id} + \gamma X_{id} + \varepsilon_{id} \quad (1)$$

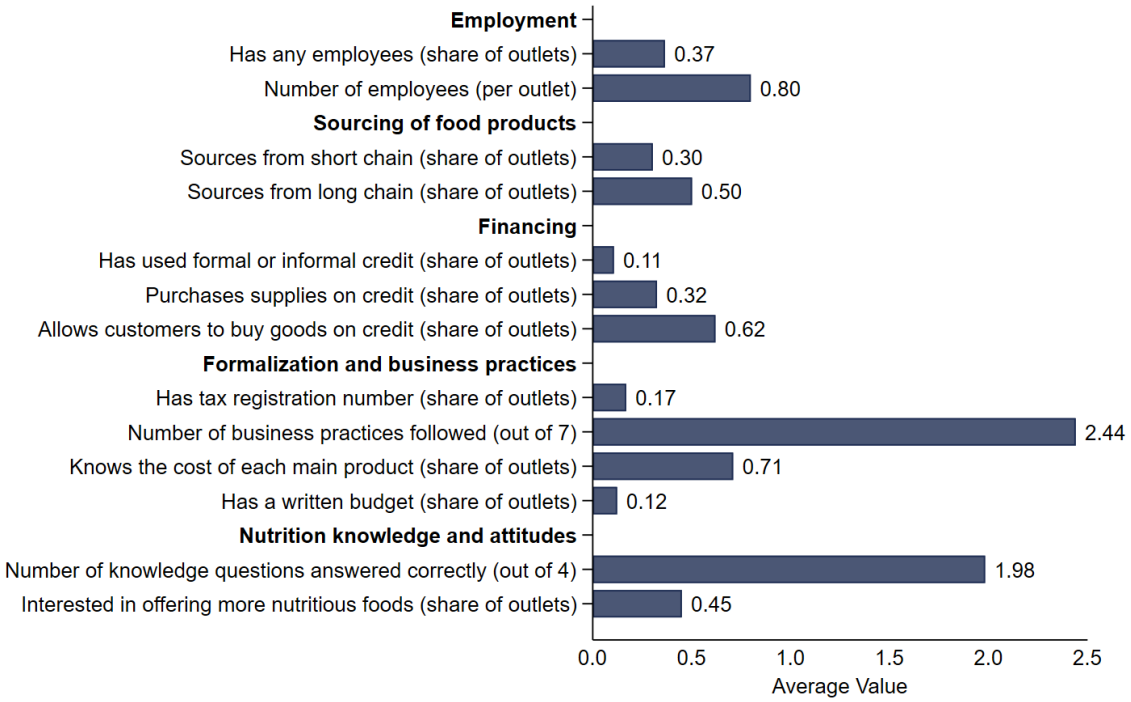
where y_{id} is an outcome of interest for outlet *i* in district *d*, OT_{id}^t are dummy indicators that take a value of 1 if outlet *i* is of type *t* and 0 otherwise, PU_{id} and U_{id} are indicator variables capturing whether the outlet is located in, respectively, the peri-urban (Dong Anh) or the urban (Dong Da) district, and OX_{id} and OW_{id} are indicator variables capturing whether the outlet's owners are, respectively, a mix between men and women or exclusively women. Finally, X_{id} is a vector of control variables at the outlet level, which include an indicator capturing whether the outlet is located in a wet market, a variable for the total self-reported operational costs (a proxy for outlet size), and indicator variables for the highest education level completed by the respondent (as a proxy for the education level of the owner/s which, as noted above, is one of the owners themselves in a large majority of cases). Note that the regression equation includes no constant but instead a full set of outlet type dummies, while in the case of the location (district) and gender of the owners the rural and all-male categories are omitted. In this sense, the coefficient estimates for the outlet type should be interpreted on their

[8] Due to limitations with the survey instrument, the gender of the owners is unknown for a small proportion of outlets (less than 5 percent). An indicator variable for "gender unavailable" is included in all regressions below.

own, while the ones for the peri-urban and urban district dummies capture differences with respect to the rural district, and the ones for the mixed-gender and all-women dummies capture differences with respect to outlets owned exclusively by men. Equation (1) is estimated via ordinary least squares, with standard errors clustered at the outlet-district level. Descriptive statistics for all control variables are shown at the end of panel A in Appendix Table A.1.

We consider the following five classes of outcomes of interest: (1) Employment outcomes, including both the extensive and intensive margins of employment; (2) Sourcing of food products, separating sourcing from shorter chains (own production, from producers, or from collectors) and from longer chains (wholesalers, distributors, or by purchasing from the local market themselves); (3) Financing, including use of formal and informal credit, as well as taking credit from suppliers and allowing customers to buy on credit; (4) Formalization and business practices, including whether outlets are formally registered and the number of good business practices followed; and (5) Nutrition knowledge and attitudes, considering an aggregate measure of respondents' nutrition knowledge and interest in selling more nutritious foods to their customers. Figure 1 shows the average value (or proportion in the case of dichotomous variables) for each of the different outcomes included in each class, with additional summary statistics presented in Panel B of Appendix Table A.1.

Figure 1. Outcome variables



Note: The figure shows the average value or the proportion (in the case of dichotomous variables) of the full list of outcomes of interest. The seven business practices accounted for in 'Number of business practices followed' are: keeping financial records, recording every purchase and sale, knowing the cost of each main product, knowing the most profitable food item, having a written budget, reviewing financial performance, and saving part of the profit for emergencies or reinvestment. The number of observations for 'Purchases supplies on credit' is substantially lower than for the other variables since it excludes outlets which sourced food products exclusively from their own production or purchased them directly at the market. See Panel B in Appendix Table A.1 for additional details.
Source: Authors' calculations from the SHiFT Viet Nam MSME survey.

4. Results

This section presents the main results of our analysis, following the multivariate regression framework outlined above. In particular, regression results are provided graphically in the form of coefficient plots, which show the point estimates for the main variables of interest together with their 95 percent confidence intervals. Such plots allow for an easy visual comparison between locations, outlet types, and gender composition of the outlet's owners. The confidence intervals indicate the statistical significance of the difference between coefficient estimates. More specifically, when confidence intervals overlap between two estimates, these are statistically indistinguishable at the 95 percent level; similarly, when a coefficient estimate's confidence intervals do not overlap with the red vertical line at zero, the coefficient estimate is statistically significant at the 95 percent level. Full regression results are available in Appendix Tables A.2 and A.3.

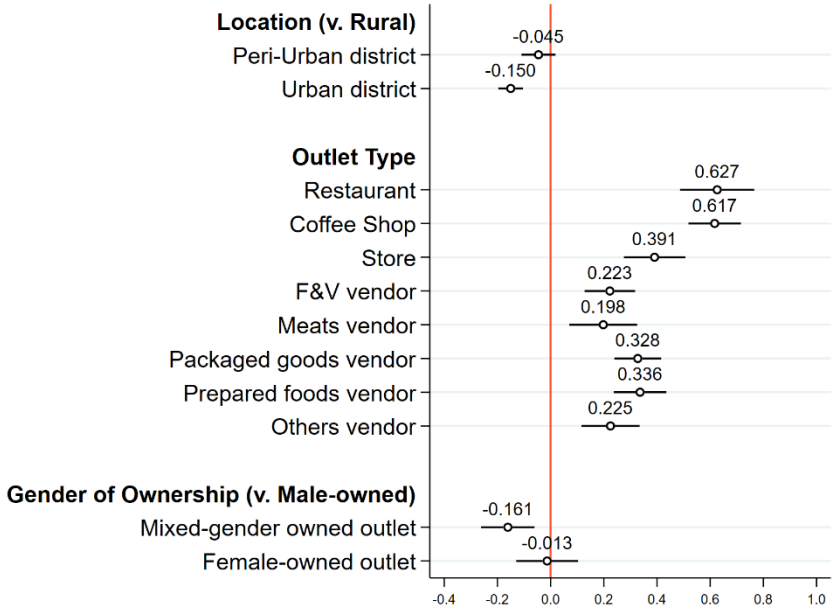
It is important to note that a full set of dummies is included to capture outlet types, so the interesting comparisons in this dimension occur between coefficient estimates, with the absolute level of the estimate more akin to a constant in the model for that outlet type. In contrast, the location dummies exclude the rural district, so the coefficient estimates in the figures are to be interpreted as

differences relative to outlets located in the rural district. Similarly, the dummy for male-owned outlets is omitted in the model, so the gender of ownership dummies should be interpreted as differences with respect to male-owned outlets.

4.1. Employment outcomes

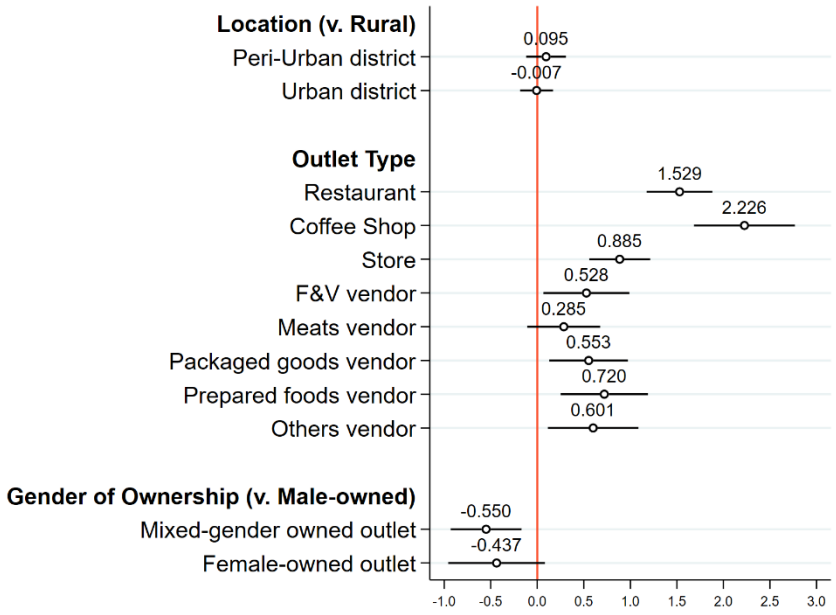
Figures 2 and 3 show coefficient plots considering the extensive and intensive margins around employment or, respectively, a dummy capturing whether the outlet has any (i.e. one or more) employees and the number of total employees it has. In general, employment is on average quite low among outlets selling foods in these settings, with slightly more than a third of interviewed outlets employing anyone beyond the owners (Figure 1). However, restaurants and coffee shops are both significantly more likely to have employees and to employ a larger number of people, followed by stores and, lastly, by vendors, who exhibit the least employment among outlets in the food environment. Rural outlets are more likely to have any employees than those in peri-urban and urban areas, though no significant differences are observed in the number of employees. When it comes to gender of ownership, outlets jointly owned by women and men seem to show a slightly lower likelihood of having employees compared to those owned fully by men or fully by women. This could be related to the fact that, by definition, these outlets have at least two owners, and may thus have a lower need to hire employees relative to single-owner outlets (the most common type among men- and women-owned outlets). In terms of the number of employees, both mixed-gender owned and female-owned outlets have about 0.5 less employees than male-owned outlets on average.

Figure 2. Has any employees



Note: The figure shows coefficient estimates from an ordinary least squares regression of a dummy variable capturing whether an outlet had any employees, against a set of location, outlet type, and gender of ownership dummies, in addition to control variables (not shown). The circles represent point estimates for the coefficient estimates and the bars are confidence intervals at the 95 percent level. See main text for additional details.
Source: Authors' calculations from SHiFT Viet Nam MSME survey.

Figure 3. Number of employees

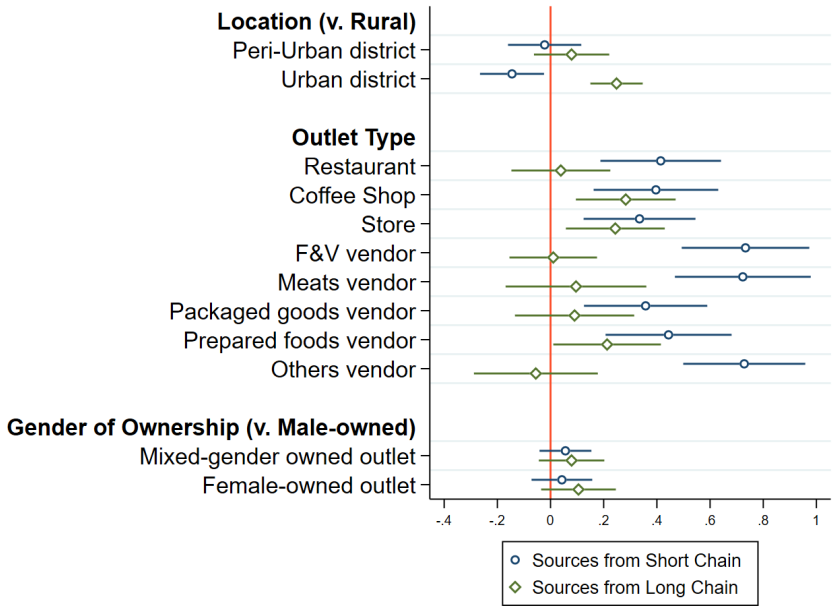


Note: The figure shows coefficient estimates from an ordinary least squares regression of a continuous variable that captures the number of employees an outlet has (excluding any owner who also works in the outlet), against a set of location, outlet type, and gender of ownership dummies, in addition to control variables (not shown). The circles represent point estimates for the coefficient estimates and the bars are confidence intervals at the 95 percent level. See main text for additional details.
Source: Authors' calculations from SHiFT Viet Nam MSME survey.

4.2. Sourcing of food products

Figure 4 focuses on the sourcing of the main products sold by each outlet, distinguishing between sourcing from shorter chains (own production, from producers, or from collectors) and longer chains (from wholesalers or processors, or buying the products directly from the market). As shown in Figure 1, sourcing from longer chains is the most common practice across all outlet types in urban areas, with 59 percent of outlets sourcing in this manner, compared to 22 percent sourcing through shorter chains. In contrast, shorter chains are more commonly used in peri-urban and rural areas, reported as the main sourcing avenue by 46 and 40 percent of outlets, respectively. In terms of differences between outlet types (after controlling for other relevant covariates), the figure shows that restaurants, coffee shops, and stores show a similar propensity to source from shorter chains, though the latter two also tend to source from longer chains, as opposed to restaurants which do so much less. Vendors, on the other hand, predominantly source from shorter chains—particularly when it comes to those selling raw foods such as fruits and vegetables and meats—whereas packaged- and prepared-food vendors also rely on suppliers from longer chains to some extent. In terms of location, urban outlets on average rely less on shorter chains and more on longer chains compared to rural outlets, as would be expected from their lower relative proximity to food production. No significant differences are observed in product sourcing in terms of the gender composition of its owners.

Figure 4. Sourcing of main products sold



Note: The figure shows coefficient estimates from an ordinary least squares regression of two dummy variables that capture whether an outlet sources its main products from short chains (own production, directly from producers, or from collectors) or from long chains (distributors, wholesalers/retailers, or directly from markets), against a set of location, outlet type, and gender of ownership dummies, in addition to control variables (not shown). The circles represent point estimates for the coefficient estimates and the bars are confidence intervals at the 95 percent level. See main text for additional details.
Source: Authors' calculations from SHiFT Viet Nam MSME survey.

4.3. Financing practices

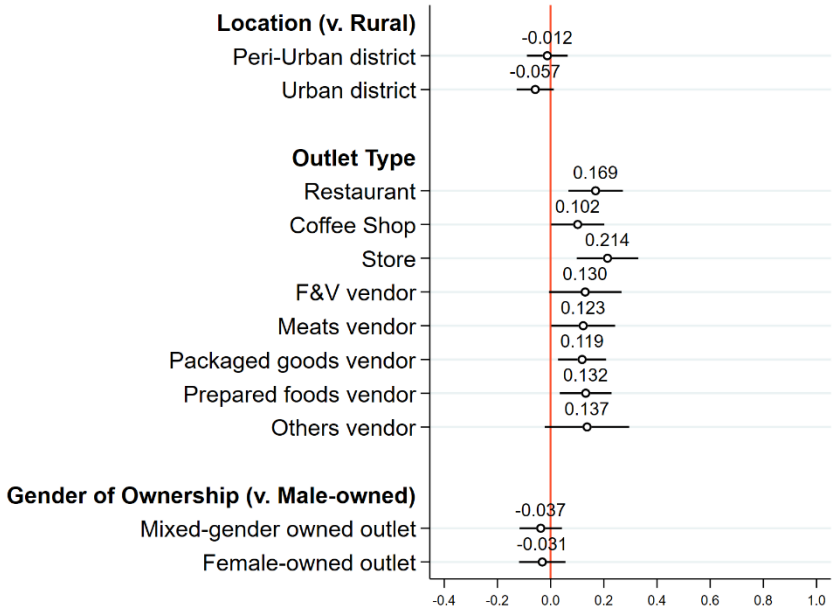
The next class of outcomes focuses on the financing practices of outlets in the Viet Nam food environment, more specifically on whether outlets have used either formal or informal credit, whether they purchase supplies on credit—a common practice among food outlets—and whether they allow their customers to buy on credit.

Credit use among outlets in our study sample is quite low, with only 10 percent of overall outlets reporting having had any outstanding formal or informal loans during the last 12 months (Figure 1). Given such low credit use, it is not surprising to see no substantial differences in Figure 5, with only restaurants and stores showing a slightly higher likelihood of taking any loans, and a marginally lower likelihood among urban outlets compared to rural ones (though none of these differences is statistically significant at the 95 percent level).

Nevertheless, outlets are still able to access financing by purchasing their supplies on credit, with almost a third of outlets doing so (Figure 1). Still, no considerable differences are observed in the prevalence of this practice between outlet types or in terms of location or gender of ownership (Figure 6). An important avenue for future research is to assess how this source of financing compares to other formal sources in terms of, for instance, loan terms, other soft conditions it may come accompanied by, and its long-term reliability.

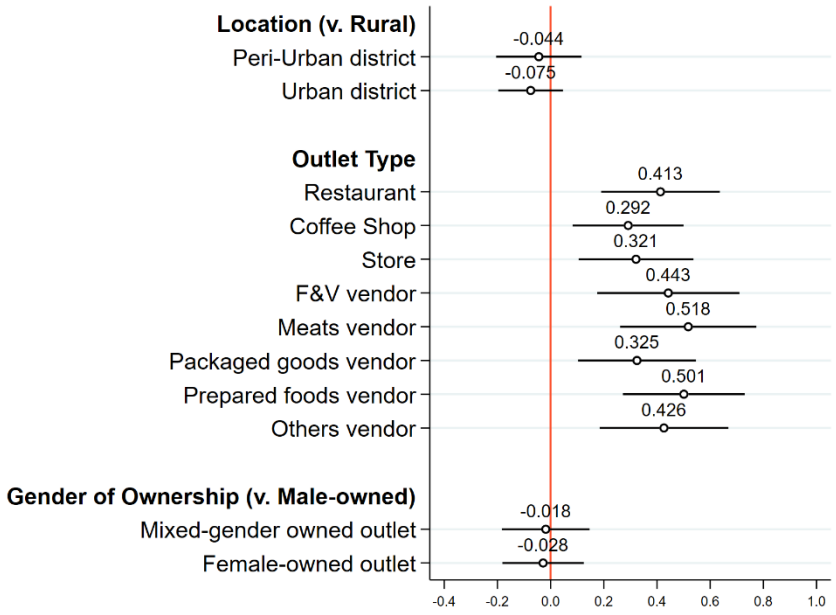
Lastly, almost two thirds of outlets report letting their customers buy on credit (Figure 1), a practice that appears to be more common among stores and vendors, with no significant differences in terms of location or gender of ownership (Figure 7).

Figure 5. Has used formal or informal credit



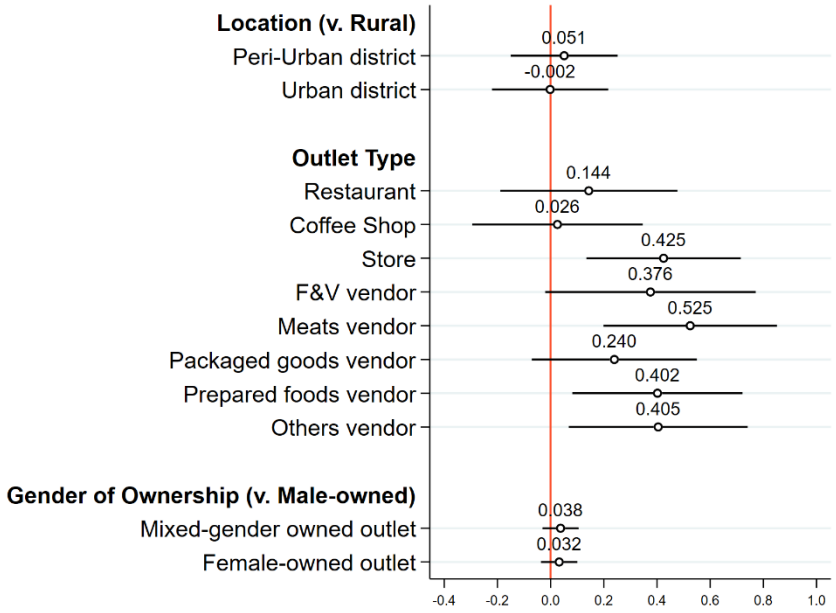
Note: The figure shows coefficient estimates from an ordinary least square regression of a dummy variable that captures whether an outlet has or has used credit (either through formal credit institutions such as banks or microfinance institutions, or through money lenders, friends or family or other informal institutions), against a set of location, outlet type, and gender of ownership dummies, in addition to control variables (not shown). The circles represent point estimates for the coefficient estimates and the bars are confidence intervals at the 95 percent level. See main text for additional details.
Source: Authors' calculations from SHiFT Viet Nam MSME survey.

Figure 6. Purchases supplies on credit



Note: The figure shows coefficient estimates from an ordinary least square regression of a dummy variable that captures whether an outlet purchases supplies from their main supplier on credit, against a set of location, outlet type, and gender of ownership dummies, in addition to control variables (not shown). The circles represent point estimates for the coefficient estimates and the bars are confidence intervals at the 95 percent level. See main text for additional details.
Source: Authors' calculations from SHiFT Viet Nam MSME survey.

Figure 7. Allows customers to buy goods on credit

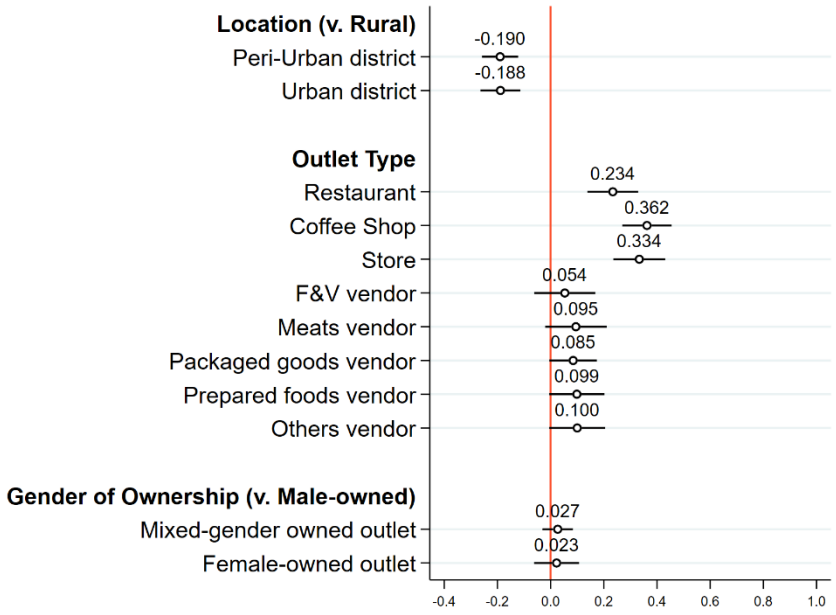


Note: The figure shows coefficient estimates from an ordinary least square regression of a dummy variable that captures whether an outlet lets customers buy goods on credit, against a set of location, outlet type, and gender of ownership dummies, in addition to control variables (not shown). The circles represent point estimates for the coefficient estimates and the bars are confidence intervals at the 95 percent level. See main text for additional details.
Source: Authors' calculations from SHiFT Viet Nam MSME survey.

4.4. Formalization and business practices

Figure 8 focuses on whether an outlet reports having a tax registration number, which we use as a proxy for the outlet being formally registered as a legal entity. Overall, only 17 percent of outlets declare to be formally registered (Figure 1) and Figure 8 shows that rural outlets are more likely to have a tax registration number than those in both the peri-urban and the urban locations. This finding is probably due to the food environment in the rural district, which has a much smaller fraction of vendors (which are small and exempt from registration, see Nguyen et al., 2023) and the fact that stores in rural areas are likely to be larger, have a fixed location, and be registered to act as distributors of food products. In terms of outlet types, coffee shops and stores—in the first place—and restaurants—in the second place—have higher tax registration rates than vendors (amongst which fruit and vegetable vendors show the lowest likelihood of being registered). No significant differences are observed when it comes to the gender of the owner(s).

Figure 8. Has a tax registration number



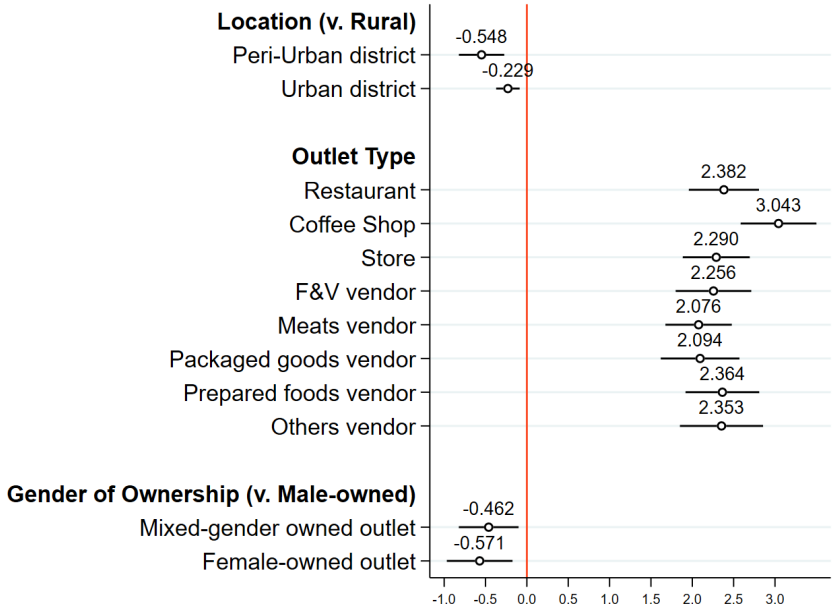
Note: The figure shows coefficient estimates from an ordinary least square regression of a dummy variable that captures whether an outlet has a tax registration number, against a set of location, outlet type, and gender of ownership dummies, in addition to control variables (not shown). The circles represent point estimates for the coefficient estimates and the bars are confidence intervals at the 95 percent level. See main text for additional details.
Source: Authors' calculations from SHiFT Viet Nam MSME survey.

Qualitatively similar results are found when it comes to the number of business practices followed by outlets, which is overall low—with interviewed outlets reporting following 2.4 of the 7 elicited practices (Figure 1).[9] As shown in Figure 9, peri-urban and urban outlets report a lower number of good business practices compared to their rural counterparts, but no substantial differences are observed across outlet types except for coffee shops. Notably, when the ownership structure includes at least some women, these outlets report following a lower number of business practices.

Figures 10 and 11 focus on two selected practices out of the full list. Almost three quarters of the outlets know the cost of each of their main products (Figure 1), but we see no substantial differences between outlet types (Figure 10). When it comes to financial planning and management, a much smaller fraction of outlets report having a written budget (only 12.4 percent of the sample), but the likelihood is higher among coffee shops and, to an extent, among restaurants (though the latter is not statistically significantly different from the other outlet types, see Figure 11). Interestingly, all-male owned outlets seem to have a higher propensity to report following both of these practices compared to mixed-gender and all-female owned outlets.

[9] The seven business practices elicited over the survey were: (i) keeping financial records, (ii) recording every purchase and sale, (iii) knowing the cost of each main product sold, (iv) knowing which food generates the most profit per item, (v) having a written budget, (vi) reviewing the financial performance of the business, and (vii) saving part of the profit for emergencies or reinvestment.

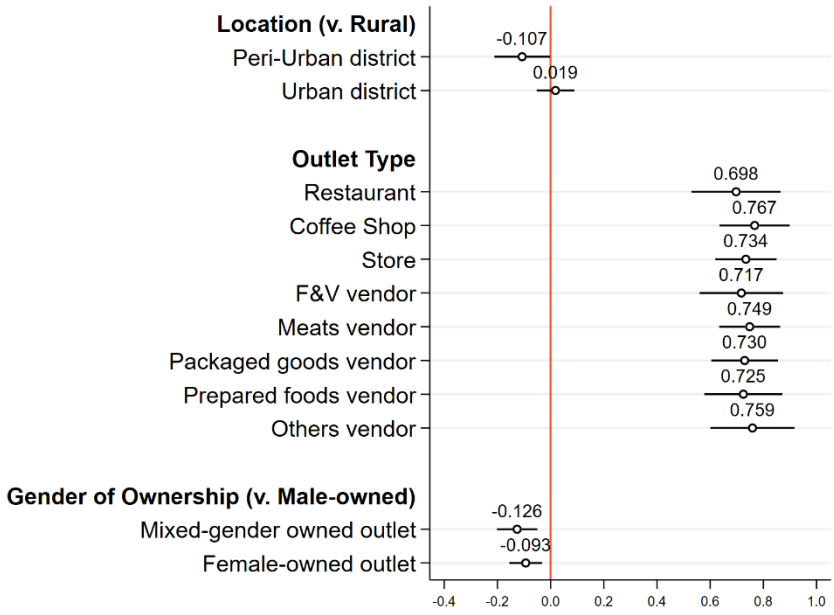
Figure 9. Number of business practices followed



Note: The figure shows coefficient estimates from an ordinary least square regression of a continuous variable that captures the number of business practices followed by an outlet, against a set of location, outlet type, and gender of ownership dummies, in addition to control variables (not shown). The circles represent point estimates for the coefficient estimates and the bars are confidence intervals at the 95 percent level. See main text for additional details. The seven business practices accounted for in this outcome are: keeping financial records, recording every purchase and sale, knowing the cost of each main product, knowing the most profitable food item, having a written budget, reviewing financial performance, and saving part of the profit for emergencies or reinvestment.

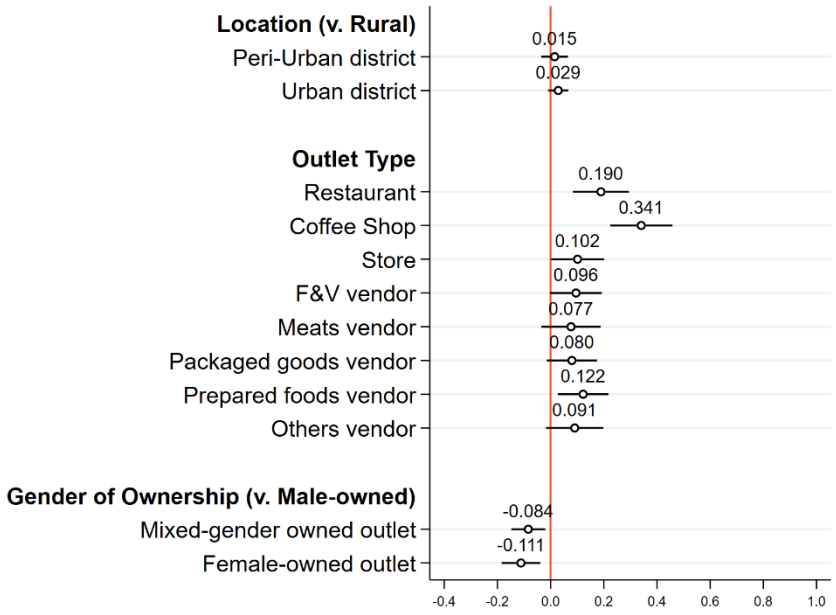
Source: Authors' calculations from SHiFT Viet Nam MSME survey.

Figure 10. Knows the cost of each main product



Note: The figure shows coefficient estimates from an OLS regression of a dummy variable that captures whether an outlet reported knowing the cost of each main product sold, against a set of location, outlet type, and gender of ownership dummies, in addition to control variables (not shown). The circles represent point estimates for the coefficient estimates and the bars are confidence intervals at the 95 percent level. See main text for additional details.
Source: Authors' calculations from SHiFT Viet Nam MSME survey.

Figure 11. Has a written budget



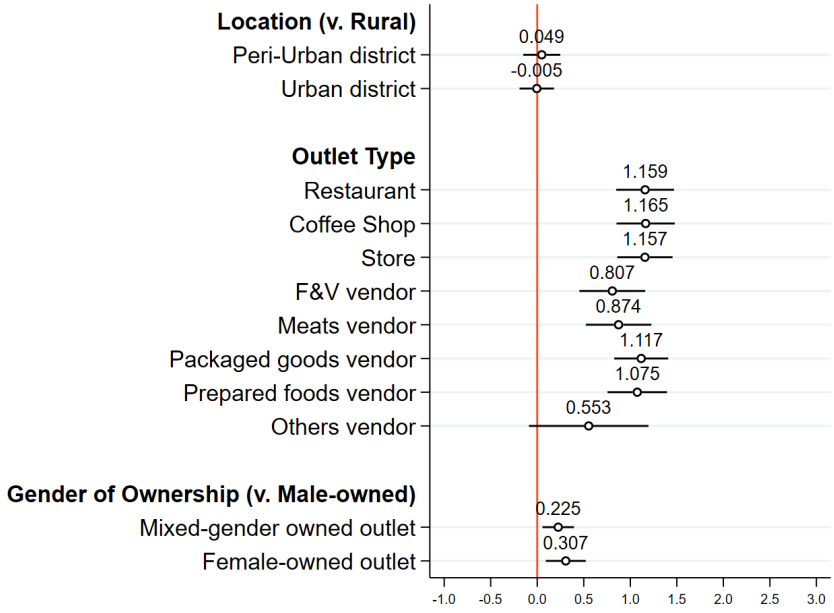
Note: The figure shows coefficient estimates from an ordinary least square regression of a dummy variable that captures whether an outlet reported having a written budget, against a set of location, outlet type, and gender of ownership dummies, in addition to control variables (not shown). The circles represent point estimates for the coefficient estimates and the bars are confidence intervals at the 95 percent level. See main text for additional details.
Source: Authors' calculations from SHiFT Viet Nam MSME survey.

4.5. Nutrition knowledge and Attitudes

The last class of indicators we study focuses on nutrition knowledge and attitudes. During the survey, respondents were asked a series of simple questions about which products out of the provided list were higher in a certain nutrient. In particular, nutrition knowledge was elicited for sodium, sugar, iron, and vitamin A. Based on the answers to these questions, we construct an outcome that corresponds to the number of knowledge questions answered correctly by each respondent, which is on average 2 across all outlets in the sample (Figure 1). In terms of differences in the analyzed dimensions (Figure 12), knowledge does not substantially differ across locations or outlet types, though it seems to be slightly higher among survey respondents in restaurants, coffee shops, and stores. Respondents in mixed-gender and female-owned businesses, however, are more likely to respond nutritional knowledge questions accurately than those in purely male-owned businesses.

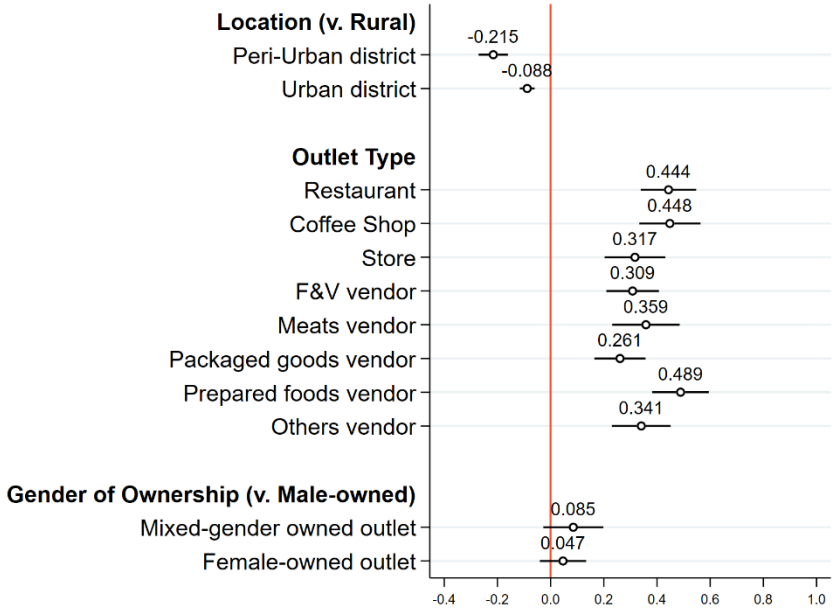
Finally, Figure 13 shows differences in the stated interest of outlets for offering more nutritious foods to their customers, as captured by the respondent's answers (mostly the owners, as discussed in Section 2) at the time of the survey. Overall, respondents from almost half of the interviewed outlets state being interested in offering more nutritious foods (Figure 1), and this is higher among restaurants, coffee shops, and prepared foods vendors, in contrast to packaged goods vendors which show a substantially lower likelihood of doing so. Strikingly, peri-urban and urban outlets are considerably less likely (between 4 and 20 percentage points) to show interest in offering more nutritious foods compared to those in the rural district. Finally, no significant differences are observed in terms of the gender of the owners.

Figure 12. Number of knowledge questions answered correctly



Note: The figure shows coefficient estimates from an ordinary least square regression of a continuous variable representing the number of nutrition knowledge questions answered correctly by an outlet, against a set of location, outlet type, and gender of ownership dummies, in addition to control variables (not shown). The circles represent point estimates for the coefficient estimates and the bars are confidence intervals at the 95 percent level. See main text for additional details.
Source: Authors' calculations from SHiFT Viet Nam MSME survey.

Figure 13. Interested in offering more nutritious foods



Note: The figure shows coefficient estimates from an ordinary least square regression of a dummy variable that captures whether an outlet reported being interested in offering more nutritious food options to customers, against a set of location, outlet type, and gender of ownership dummies, in addition to control variables (not shown). The circles represent point estimates for the coefficient estimates and the bars are confidence intervals at the 95 percent level. See main text for additional details.
Source: Authors' calculations from SHiFT Viet Nam MSME survey.

5. Conclusions

This paper assesses differences in specific organizational aspects and business practices among a sample of outlets in the Viet Nam food environment across three key dimensions: outlet type, location, and gender of the owners. It relies on a large data collection exercise conducted in three districts along the rural-urban continuum in 2023. We explore these differences in a multivariate regression framework, considering the interrelationship between the above dimensions and allowing us to inform the development of more targeted interventions to increase the supply of healthy foods in the food environment.

We study five main classes of outcomes. First, we focus on employment outcomes, including both the extensive (whether an outlet has any employees) and intensive (number of employees) margins. Beyond self-employment, employment is on average quite low among outlets selling food in these settings, with only restaurants and coffee shops standing out against other outlet types, and outlets in rural areas exhibiting a slightly higher likelihood of having any employees. Given the limited levels of employment observed, policy interventions aimed at increasing MSME employment in the food environment would need to dig deeper into the root causes of low employment and assess whether this context is the most reasonable one for pursuing policies to increase it.

Second, we examine how MSMEs source their food products. Specifically, we are interested in whether they obtain them from either shorter chains (own production, from producers, or from collectors) or longer chains (wholesalers, distributors, or directly from the market). We find that

sourcing from longer chains is more prevalent in urban areas, while in rural and peri-urban areas sourcing most often happens from shorter chains (as would be expected from their lower relative proximity to food production). In terms of outlet types, coffee shops and stores tend to source from both shorter and longer chains, while restaurants and vendors predominantly source from shorter chains (except for packaged- and prepared-food vendors). In terms of location, urban outlets on average rely less on shorter chains and more on longer chains compared to rural outlets.

Third, we explore financing outcomes, including the use of formal and informal credit, and whether outlets take credit from suppliers and allow customers to buy on credit. Credit use is very low across the board, with no substantial differences along any of the dimensions explored. Obtaining financing directly from suppliers, however, is a much more common practice, but we still do not observe considerable differences between outlet types or in terms of location. Overall, the low uptake of formal financing in the Viet Nam food environment calls for the question of whether this is related to a lack of access to reliable financing sources, a lack of affordability (i.e. interest rates), or to preferences and/or risk aversion of the outlets' owners. This remains an avenue for future research.

Fourth, we examine whether outlets are formally registered and to what extent they report following a set of seven good business practices elicited through the survey. While rural outlets seem more likely to have a tax registration number than those in the peri-urban and urban locations, this is arguably due to rural areas having a smaller fraction of vendors. In terms of outlet types, coffee shops, stores, and restaurants show a higher prevalence of formalization. When it comes to business practices followed by outlets, the analysis points to an important gap in terms of the number of good business practices implemented by outlets in the Viet Nam food environment (at 2.4 practices out of 7 on average), with peri-urban and urban outlets lagging behind those in rural areas but no observable differences between outlet types. Interventions focused on training or promotion of these practices (potentially in tandem with fostering the supply of more nutritious foods) could represent a way to strengthen outlets' financial management and possibly improve profits, even though existing survey evidence in rural and peri-urban areas shows that such skills and practices are very low on the list of internal barriers to expand business by food outlets in Viet Nam (Nguyen et al., 2023).

Finally, we explore nutrition knowledge and the willingness of outlets to provide healthier foods to their customers. Knowledge (as captured by four questions inquiring about foods high in sodium, sugar, iron, and vitamin A) does not substantially differ across locations or outlet types, though it is slightly higher among restaurants, coffee shops, and stores. Interestingly, while half of the interviewed outlets state being interested in offering more nutritious foods, peri-urban and urban outlets are considerably less likely to do so, pointing to a potential entry point for attitudinal interventions in these areas.

Overall, we find limited differences in the above outcomes in terms of the gender composition of ownership. Outlets jointly owned by women and men seem to show a slightly lower likelihood of having employees compared to those owned fully by men, but this is not true for fully female-owned outlets, indicating that this pattern may be simply related to having more than one owner and thus requiring less help for running the business. However, both mixed-gender owned and female-owned outlets have slightly fewer employees on average than male-owned outlets, suggesting that the gender of the owners does not play a role in employment decisions, holding other characteristics constant. Moreover, no statistically significant differences by gender of ownership are found in terms

of food sourcing and financing, though we do observe mixed-gender and female-owned outlets faring slightly worse in terms of their adoption of good business practices yet having higher levels of nutrition knowledge. These latter dimensions are perhaps the only ones in which moderate targeting by gender may make sense in practice for future interventions.

Interestingly, the location dimension does not turn out to be an important predictor of organizational aspects and business practices among MSMEs. While many differences exist overall between the more and less urbanized food environments in Viet Nam, we fail to see important differences across the range of outcomes considered in this paper between rural, peri-urban, and urban outlets. The only exception is perhaps the lower willingness of peri-urban and urban outlets to offer healthier foods.

Our findings point to some important directions for future food environment policies that could help steer Viet Nam's food systems transformation. First, the more formalized MSME food establishments, such as restaurants and coffee shops, seem to be the main potential target for policies directed at increasing employment (especially for youth, though if only in terms of part time jobs; see Ceballos et al. 2023b). Second, any policies aimed at increasing the efficiency of food production or processing would tend not to affect these outlet types directly, considering that they tend to procure their products from longer chains. Stores and vendors, on the other hand, would not be a fruitful target of employment policies—considering their size and levels of informality—but could be a main channel through which food production policies reach rural and urban consumers. Third, policies aimed at increasing credit access and/or use, reducing informality, or improving financial education and business skills can rely on a more blanket approach that targets most MSME food outlets across the rural-urban continuum.

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Appendix

Table A.1. Summary statistics

Panel A. Location, outlet type, and gender of ownership dummies and other control variables

Variables of Interest	Number of obs.	Mean	Median	Min.	Max.
Location of Food Outlet					
Rural district	1,624	0.167	0	0	1
Peri-Urban district	1,624	0.216	0	0	1
Urban district	1,624	0.617	1	0	1
Outlet Type					
Restaurant	1,624	0.113	0	0	1
Coffee Shop	1,624	0.080	0	0	1
Store	1,624	0.180	0	0	1
F&V vendor	1,624	0.272	0	0	1
Meats vendor	1,624	0.092	0	0	1
Packaged goods vendor	1,624	0.085	0	0	1
Prepared foods vendor	1,624	0.143	0	0	1
Others vendor	1,624	0.034	0	0	1
Gender of Ownership					
Mixed-gender owned outlet	1,624	0.309	0	0	1
Male-owned outlet	1,624	0.072	0	0	1
Female-owned outlet	1,624	0.570	1	0	1
Gender data unavailable	1,624	0.049	0	0	1
Control Variables					
Outlet Size: Avg Month Exp (in thousand VND)	1,624	38.90	13.31	0	330.8
Primary school completed	1,624	0.155	0	0	1
Lower secondary school completed	1,624	0.325	0	0	1
Higher secondary school completed	1,624	0.441	0	0	1

Panel B. Outcomes of interest

Variables of Interest	Number of obs.	Mean	Median	Min.	Max.
Employment					
Outlet has employees w/o owners	1,624	0.365	0	0	1
Number of employees w/o owners	1,624	0.799	0	0	40
Sourcing of food products					
Sources from Short Chain	1,624	0.304	0	0	1
Sources from Long Chain	1,624	0.502	1	0	1
Financing					
Has/had access to formal or informal credit	1,567	0.107	0	0	1
Purchase supplies on credit	939	0.325	0	0	1
Outlet let customers buy goods on credit	1,619	0.620	1	0	1
Formalization and business practices					
Outlet has a tax registration number	1,619	0.169	0	0	1
Number of business practices followed	1,624	2.440	2	0	7
Outlet knows the cost of each main product	1,619	0.710	1	0	1
Outlet has a written budget	1,619	0.124	0	0	1
Nutrition Knowledge					
Number of right answers on nutrition questions	1,624	1.983	2	0	4
Outlet interested in offering more nutritious foods	1,621	0.450	0	0	1

Note: The table shows summary statistics of the full list of variables used in the analyses, including district dummies, gender of ownership dummies, outlet type dummies, and other control variables (Panel A) and all outcome variables (Panel B). The seven business practices accounted for in 'Number of business practices followed' are: keeping financial records, recording every purchase and sale, knowing the cost of each main product, knowing the most profitable food item, having a written budget, reviewing financial performance, and saving part of the profit for emergencies or reinvestment. The number of observations for 'Purchases supplies on credit' is substantially lower than for the other variables since it excludes outlets which sourced food products exclusively from their own production or purchased them directly at the market. 'Mean' refers to the average value or the proportion (in the case of dichotomous variables).
Source: Authors' calculations from SHiFT Viet Nam MSME survey.

Table A.2. Regression results for employment, sourcing of food products, and financing outcomes

	Employment		Sourcing of food products			Financing	
	Has any employees	Number of employees	Sources from Short Chain	Sources from Long Chain	Has used formal or informal credit	Purchase supplies on credit	Lets customers buy goods on credit
Location (v. Rural)							
Peri-Urban district	-0.045	0.095	-0.022	0.079	-0.012	-0.044	0.051
	(0.031)	(0.103)	(0.067)	(0.068)	(0.037)	(0.077)	(0.097)
Urban district	-0.150***	-0.007	-0.145**	0.248***	-0.057	-0.075	-0.002
	(0.022)	(0.086)	(0.058)	(0.048)	(0.034)	(0.059)	(0.106)
Outlet Type							
Restaurant	0.627***	1.529***	0.414***	0.039	0.169***	0.413***	0.144
	(0.067)	(0.171)	(0.110)	(0.090)	(0.050)	(0.108)	(0.161)
Coffee Shop	0.617***	2.226***	0.396***	0.283***	0.102**	0.292***	0.026
	(0.048)	(0.262)	(0.113)	(0.091)	(0.048)	(0.101)	(0.155)
Store	0.391***	0.885***	0.335***	0.244**	0.214***	0.321***	0.425***
	(0.056)	(0.159)	(0.102)	(0.090)	(0.056)	(0.104)	(0.140)
F&V vendor	0.223***	0.528**	0.733***	0.010	0.130*	0.443***	0.376*
	(0.046)	(0.223)	(0.116)	(0.080)	(0.066)	(0.129)	(0.191)
Meats vendor	0.198***	0.285	0.723***	0.096	0.123**	0.518***	0.525***
	(0.062)	(0.189)	(0.123)	(0.128)	(0.058)	(0.124)	(0.158)
Packaged goods vendor	0.328***	0.553**	0.358***	0.090	0.119**	0.325***	0.240
	(0.042)	(0.204)	(0.112)	(0.108)	(0.044)	(0.107)	(0.150)
Prepared foods vendor	0.336***	0.720***	0.444***	0.213**	0.132***	0.501***	0.402**
	(0.048)	(0.227)	(0.115)	(0.098)	(0.047)	(0.111)	(0.155)
Others vendor	0.225***	0.601**	0.729***	-0.055	0.137*	0.426***	0.405**
	(0.053)	(0.235)	(0.111)	(0.113)	(0.077)	(0.117)	(0.163)
Gender of Ownership (v. Male-owned)							
Mixed-gender owned outlet	-0.161***	-0.550***	0.056	0.079	-0.037	-0.018	0.038
	(0.049)	(0.184)	(0.047)	(0.060)	(0.039)	(0.080)	(0.033)
Female-owned outlet	-0.013	-0.437*	0.043	0.105	-0.031	-0.028	0.032
	(0.056)	(0.251)	(0.055)	(0.068)	(0.042)	(0.074)	(0.033)
Gender data unavailable	0.411***	2.314***	-0.005	0.031	0.009	-0.182*	-0.021
	(0.108)	(0.346)	(0.059)	(0.085)	(0.066)	(0.090)	(0.065)
Other Controls							
Outlet located in wet market	0.063***	-0.016	-0.084*	0.041	-0.038	0.014	-0.022
	(0.020)	(0.077)	(0.042)	(0.042)	(0.035)	(0.060)	(0.071)
Outlet Size: Avg Month Exp	0.001***	0.004**	-0.000	0.000	0.001***	0.000	0.001***
	(0.000)	(0.002)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Primary school completed	0.066*	-0.048	-0.083**	0.078*	0.033	0.058	0.246***
	(0.037)	(0.096)	(0.040)	(0.043)	(0.028)	(0.069)	(0.062)
Lower secondary school completed	0.070***	-0.036	-0.176***	0.135**	-0.002	-0.028	0.249***
	(0.024)	(0.097)	(0.049)	(0.050)	(0.029)	(0.062)	(0.078)
Higher secondary school completed	0.128***	0.227**	-0.159***	0.124**	0.014	-0.011	0.218***
	(0.024)	(0.096)	(0.047)	(0.055)	(0.033)	(0.070)	(0.068)
Mean of dependent variable	0.365	0.799	0.304	0.502	0.107	0.325	0.620
Number of obs.	1,624	1,624	1,624	1,624	1,567	939	1,619
R-squared	0.500	0.364	0.436	0.553	0.144	0.358	0.668

Note: The table shows the full regression results for ordinary least squares regressions of employment, sourcing, and financing outcomes against a set of location, outlet type, and gender of ownership dummies, in addition to control variables (see Equation 1). Standard errors are clustered at the outlet-district level. ***, **, and * indicate statistical significance at, respectively, the 1, 5, and 10 percent levels. The data come from SHiFT's Viet Nam MSME survey.

Table A.3. Regression results for formalization and business practices, and nutrition knowledge and attitudes outcomes

	Formalization and business practices				Nutrition knowledge and attitudes	
	Has a tax registration number	Number of business practices followed	Knows the cost of each main product	Has a written budget	Number of knowledge questions answered correctly	Interested in offering more nutritious foods
Location (v. Rural)						
Peri-Urban district	-0.190***	-0.548***	-0.107**	0.015	0.049	-0.215***
	(0.033)	(0.133)	(0.051)	(0.024)	(0.096)	(0.027)
Urban district	-0.188***	-0.229***	0.019	0.029	-0.005	-0.088***
	(0.036)	(0.069)	(0.034)	(0.018)	(0.090)	(0.014)
Outlet Type						
Restaurant	0.234***	2.382***	0.698***	0.190***	1.159***	0.444***
	(0.046)	(0.205)	(0.081)	(0.051)	(0.150)	(0.050)
Coffee Shop	0.362***	3.043***	0.767***	0.341***	1.165***	0.448***
	(0.045)	(0.221)	(0.064)	(0.057)	(0.151)	(0.056)
Store	0.334***	2.290***	0.734***	0.102**	1.157***	0.317***
	(0.047)	(0.196)	(0.056)	(0.048)	(0.144)	(0.055)
F&V vendor	0.054	2.256***	0.717***	0.096*	0.807***	0.309***
	(0.055)	(0.221)	(0.076)	(0.047)	(0.171)	(0.048)
Meats vendor	0.095	2.076***	0.749***	0.077	0.874***	0.359***
	(0.056)	(0.194)	(0.055)	(0.054)	(0.170)	(0.061)
Packaged goods vendor	0.085*	2.094***	0.730***	0.080*	1.117***	0.261***
	(0.043)	(0.230)	(0.061)	(0.046)	(0.140)	(0.046)
Prepared foods vendor	0.099*	2.364***	0.725***	0.122**	1.075***	0.489***
	(0.050)	(0.215)	(0.071)	(0.046)	(0.154)	(0.051)
Others vendor	0.100*	2.353***	0.759***	0.091*	0.553*	0.341***
	(0.051)	(0.243)	(0.076)	(0.052)	(0.311)	(0.053)
Gender of Ownership (v. Male-owned)						
Mixed-gender owned outlet	0.027	-0.462**	-0.126***	-0.084**	0.225**	0.085
	(0.028)	(0.175)	(0.037)	(0.031)	(0.082)	(0.054)
Female-owned outlet	0.023	-0.571***	-0.093***	-0.111***	0.307***	0.047
	(0.041)	(0.192)	(0.030)	(0.035)	(0.104)	(0.042)
Gender data unavailable	0.306***	0.149	-0.147***	0.096	0.213*	0.054
	(0.051)	(0.230)	(0.045)	(0.081)	(0.105)	(0.061)
Other Controls						
Outlet located in wet market	0.052	0.134	0.026	0.002	0.064	-0.018
	(0.032)	(0.109)	(0.038)	(0.015)	(0.067)	(0.033)
Outlet Size: Avg Month Exp	0.001**	0.008***	0.001***	0.001***	0.001***	0.001**
	(0.000)	(0.002)	(0.000)	(0.000)	(0.000)	(0.000)
Primary school completed	0.075**	0.289	0.046	-0.010	0.587***	0.016
	(0.030)	(0.177)	(0.073)	(0.027)	(0.092)	(0.047)
Lower secondary school completed	0.076***	0.431***	0.050	0.010	0.510***	0.070
	(0.021)	(0.152)	(0.058)	(0.020)	(0.124)	(0.043)
Higher secondary school completed	0.118***	0.700***	0.061	0.046*	0.923***	0.185***
	(0.032)	(0.138)	(0.049)	(0.025)	(0.138)	(0.034)
Mean of dependent variable	0.169	2.440	0.710	0.124	1.983	0.450
Number of obs.	1,619	1,624	1,619	1,619	1,624	1,621
R-squared	0.360	0.744	0.720	0.252	0.774	0.501

Note: The table shows full regression results for ordinary least squares regressions of formalization and business practices and nutrition knowledge and attitudes outcomes against a set of location, outlet type, and gender of ownership dummies, in addition to control variables (see Equation 1). Standard errors are clustered at the outlet-district level. ***, **, and * indicate statistical significance at, respectively, the 1, 5, and 10 percent levels. The data come from SHiFT's Viet Nam MSME survey.

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