Vegetables in short food supply chains in France: for what prices and what distances do farmers and consumers agree to trade? Two discrete choice experiments.

Camille Horvath[a], Martin Koning[b], Gwenaëlle Raton[b,], François Combes[a]

"a SPLOTT-UGE, Marne-la-Vallée, France"
"b SPLOTT-UGE, Bron, France"

Problem and relevance

Short Food Supply Chains (SFSCs) are, according to the French Ministry of Agriculture, distribution circuits with none or one single intermediary between consumers and farmers. Although distance is not part of the regulatory definition of these supply chains, some points of sale can guarantee a maximum travel distance of their products.

While there are currently no studies on consumer preferences for products bought in SFSCs in France, the studies that come closest are those that delve into consumers' willingness to pay (WTP) for local products. Certain studies show that consumer motivations for buying local are two-fold. Some motivations are altruistic, such as supporting farmers and the local economy. Other motivations are more personal, as consumers perceive these products as healthier and of better quality (Buchardi et al, 2005; Thilmany et al, 2008; Meyerding, 2019).

Most of these studies do not take into account travel times for consumers. Printezis et al. (2018) show, by integrating transport times to go get the local products proposed, that WTP can become negative for certain points of sale (direct sale in urban farms) and that there is no longer any difference in consumer WTP for tomatoes sold in supermarkets and local tomatoes sold in farmers' markets. Consumers state that if it is up to them to go to a point of sale to buy local products, then these products must be cheaper than those they find in the supermarket. Selling in SFSCs can remunerate farmers better for their work, but this can nevertheless be synonymous with logistical constraints, as farmers must ensure the delivery of products to the point of sale and/or the reception of consumers at the farm. This constraint of additional travel time to cover is common to farmers and consumers. Indeed, for consumers, purchasing from a SFSC will often represent an additional journey to the one they make to go to the supermarket, as certain products, in particular non-food products, are not available in SFSCs. We therefore hypothesize that the travel time to buy/sell the products influence the WTP of consumers and the Willingness To Sell (WTS) of farmers in SFSCs.

Another hypothesis we make is that WTS and WTP may vary across different outlets. For example, for the farm gate sales, consumers are driving to the farm, so they will have a lower WTP than for other outlets, and the WTS could be lower for the farmers, who do not have to bear transport costs.

Finally, a third hypothesis is that the WTS and WTP can vary across different agroeconomic areas. Peri-urban farms, close to large consumption basins, may have lower WTS in SFSCs than those located in rural areas, because of their geographical proximity with consumers, which can be associated with shorter travel times. Similarly, the WTP of consumers may be different depending on their location.

Material and methods

To study the WTS of farmers in different points of sale in SFSCs, a discrete choice experiment was conducted in 2022 among 220 farm managers in France who organize market gardening activities on their farm. The object of experiment was the choice of an

outlet to sell 100 kg of surplus vegetable production. We selected five attributes. First, the type of point of sale. Then, for each point of sale, we proposed a selling price and a distance to travel to deliver the products. Finally, for each outlet, we indicated if mutual aid between farmers exists or not to sell in the outlet, and whether or not interaction between farmers and consumers is possible at the point of sale. The market gardeners had to make six successive choices among the 5 points of sale proposed to dispose of their hypothetical surplus, the levels of the different attributes of the alternatives varying with each scenario. We also collected information about the farms, their outlets, their location and their perception of it, as well as on the socio-demographic characteristics of the respondents. To study the WRS of market gardeners, multinomial logit models were established.

Likewise, we conducted a survey among 1000 consumers in France in 2022, in order to study their choice of points of sale for a basket of vegetables. The attributes evaluated here were also the type of point of sale, the price of the basket, the distance to travel to pick up the basket, whether the products in the basket are under the organic farming label or not, and whether a certain relational proximity between farmers and consumers is possible at the point of sale. Again, consumers had to choose 1 of the 5 points of sale proposed, the experiment being repeated 6 times per person surveyed. We also collected information on the purchasing behavior of consumers, as well as their socio-demographic characteristics. Multinomial logit models were also calculated in order to highlight the WTP of consumers.

Results

The preliminary results of the farmers' survey show that transport time is significant in the choice of an outlet for SFSCs. It has a negative effect on the utilities, and increases the WTS by 0.06€ per additional minute of travel time. We also see that the farm is the point of sale preferred by farmers, followed by the consumer association, and that the market and the drive-thru are the least chosen outlets.

For consumers, we expect the WTP for products from SFSCs to be positive, but perhaps lower than that found in studies which do not take into account the additional journeys to be made. We also might find differences according to the type of territory. For example, consumers in rural areas may be more familiar with the farms around them, and may be more likely to choose this point of sale, while consumers in peri-urban areas may be more likely to choose the supermarket as their point of sale for their SFSC purchases.

By comparing the estimated WTS and WTP for each SFSC outlet, we will try to identify the markets that could work best as well as their preferred territories.

Implications

In a context of sustainable development and given the will to develop resilient food chains, studying the determinants of the choice to use SFSCs for farmers and consumers is important for the development of these supply chains. It makes it possible to offer tools and appropriate advice to answer the needs of farmers wishing to sell in these chains, particularly in terms of logistics.

List of references

Burchardi H., Carsten S., Holger D.T. (2005). Willingness-To-Pay for Food of the Own Region: Empirical Estimates from Hypothetical and Incentive Compatible Settings, *American Agricultural Economics Association Annual Meeting*, Providence, Rhode Island, July 24-27

Meyerding S.G.H. (2019). What Is Local Food? The Case of Consumer Preferences for Local Food Labeling of Tomatoes in Germany, *Journal of Cleaner Production*, 14

Printezis I. Grebitus C. (2018). Marketing Channels for Local Food, *Ecological Economics*, 152, p. 161-71.

Thilmany D., Bond C.A., Bond J.K. (2008). Going Local: Exploring Consumer Behavior and Motivations for Direct Food Purchases. *American Journal of Agricultural Economics* 90, 5, 1303-9.